City of Richmond

Agenda

City Council

Council Chambers, City Hall
6911 No. 3 Road

Monday, June 24, 2019
7:00 p.m.

Pg. # ITEM

MINUTES

1. ***Motion to:***

CNCL-13 ***(1) adopt the minutes of the Regular Council meeting held on June 10, 2019; and***

CNCL-26 ***(2) receive for information the Metro Vancouver 'Board in Brief' dated May 24, 2019.***

AGENDA ADDITIONS & DELETIONS

PRESENTATION

Peter Russell, Senior Manager, Sustainability and District Energy to introduce the Grade 4/5 Class from Howard Debeck Elementary School, the winners of Richmond Cool It! (formerly the Climate Change Showdown.)

COMMITTEE OF THE WHOLE

2. ***Motion to resolve into Committee of the Whole to hear delegations on agenda items.***

3. Delegations from the floor on Agenda items.

PLEASE NOTE THAT FOR LEGAL REASONS, DELEGATIONS ARE NOT PERMITTED ON ZONING OR OCP AMENDMENT BYLAWS WHICH ARE TO BE ADOPTED OR ON DEVELOPMENT PERMITS/DEVELOPMENT VARIANCE PERMITS – ITEM NO. 33.

4. ***Motion to rise and report.***

RATIFICATION OF COMMITTEE ACTION

CONSENT AGENDA

PLEASE NOTE THAT ITEMS APPEARING ON THE CONSENT AGENDA WHICH PRESENT A CONFLICT OF INTEREST FOR COUNCIL MEMBERS MUST BE REMOVED FROM THE CONSENT AGENDA AND CONSIDERED SEPARATELY.

CONSENT AGENDA HIGHLIGHTS

- Receipt of Committee minutes
- 2018 Annual Report and 2018 Annual Report – Highlights
- Community Bylaws Monthly Activity Report - April 2019
- Lobbyist Registration
- Recovering Costs for Local Climate Change Impacts
- Business Regulation Bylaw No. 7538, Amendment Bylaw No. 10029 - 4280 No.3 Road Unit 120
- UBCM Resolution on Legislative Reform of Beneficial Ownership of Corporations and Land
- UBCM Cannabis Costs Survey
- UBCM Resolution regarding Restoring Provincial Support for Libraries
- UBCM Resolutions – Provincial Single-Use Item Strategy and Compostable Single-Use Items
- Pride Week 2019 Activities and Proposed Permanent Rainbow Crosswalk
- Council Term Goals 2018-2022
- Draft Cultural Harmony Plan 2019–2029

- Land use applications for first reading (to be further considered at the Public Hearing on July 15, 2019):
  - 23400, 23440, 23460 and 23500 Gates Avenue and a Portion of Gates Avenue – to Amend Schedule 2.14 of Official Community Bylaw 9000 (Hamilton Area Plan), Create the "Town Housing - Hamilton (ZT86)" Zone, and Rezone from RS1/F to ZT86 and SI (Fougere Architecture Inc. – applicant)
  - 7571 Bridge Street – Rezone from RS1/F to ZS14 (Pakland Developments Ltd. – applicant)
  - Portions of 12700 and 12800 Rice Mill Road, 12280 and 12300 No. 5 Road – Rezone from AG1 and IL to a Site Specific Zone (SNC Lavalin Inc. – applicant)
  - 9020 Glenallan Gate, 9460, 9480 & 9500 Garden City Road – Rezone from RS1/E to RTL4 (Matthew Cheng Architect Inc. – applicant)
  - 9340 General Currie Road – Rezone from RS1/F to ZT45 (1116559 B.C. LTD. – applicant)
- Multi-Passenger Bicycle Business Proposal
- Review of Collision Prone Intersections
- City Centre District Energy Utility Bylaw No. 9895, Amendment Bylaw No. 10012
- 2018 Annual Water Quality Report
- Flood Protection Management Strategy 2019 - Final Report

5. ***Motion to adopt Items No. 6 through No. 28 by general consent.***

Consent Agenda Item

6. **COMMITTEE MINUTES**

That the minutes of:

CNCL-37 ***(1) the Special General Purposes Committee meeting held on June 10, 2019; and***

CNCL-44 ***(2) the Community Safety Committee meeting held on June 11, 2019;***

be received for information.

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Consent Agenda Item

7. **2018 ANNUAL REPORT AND 2018 ANNUAL REPORT – HIGHLIGHTS**
(File Ref. No.) (REDMS No. 6169653)

CNCL-50 See Page **CNCL-50** for full report

FINANCE COMMITTEE RECOMMENDATION

That the reports titled, "2018 Annual Report" and the "2018 Annual Report – Highlights" be approved.

Consent Agenda Item

8. **COMMUNITY BYLAWS MONTHLY ACTIVITY REPORT - APRIL 2019**
(File Ref. No. 12-8060-01) (REDMS No. 6181948)

CNCL-149 See Page **CNCL-149** for full report

COMMUNITY SAFETY COMMITTEE RECOMMENDATION

(1) That bylaw enforcement staff move from complaint based to proactive investigations on all bylaw issues; and

(2) That the staff report titled "Community Bylaws Monthly Activity Report – April 2019", dated May 8, 2019, from the General Manager, Community Safety, be received for information.

Consent Agenda Item

9. **LOBBYIST REGISTRATION**
(File Ref. No.) (REDMS No.)

Recommendations will be considered at the Open General Purposes Committee meeting.

Consent Agenda Item

10. **RECOVERING COSTS FOR LOCAL CLIMATE CHANGE IMPACTS**
(File Ref. No. 10-6125-07-02) (REDMS No. 6190255 v. 9; 6192766; 6192881)

CNCL-155 See Page **CNCL-155** for full report

Recommendations will be considered at the Open General Purposes Committee meeting.

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Consent Agenda Item

11. **BUSINESS REGULATION BYLAW NO. 7538, AMENDMENT BYLAW NO. 10029 - 4280 NO.3 ROAD UNIT 120**
(File Ref. No. 12-8275-01) (REDMS No. 6164355; 6165641)

CNCL-163 See Page **CNCL-163** for full report

Recommendations will be considered at the Open General Purposes Committee meeting.

Consent Agenda Item

12. **UBCM RESOLUTION ON LEGISLATIVE REFORM OF BENEFICIAL OWNERSHIP OF CORPORATIONS AND LAND**
(File Ref. No. 09-5350-01) (REDMS No. 6148919 v. 5)

CNCL-168 See Page **CNCL-168** for full report

Recommendations will be considered at the Open General Purposes Committee meeting.

Consent Agenda Item

13. **UBCM CANNABIS COSTS SURVEY**
(File Ref. No. 09-5000-01) (REDMS No. 6194371 v. 4)

CNCL-173 See Page **CNCL-173** for full report

Recommendations will be considered at the Open General Purposes Committee meeting.

Consent Agenda Item

14. **UBCM RESOLUTION REGARDING RESTORING PROVINCIAL SUPPORT FOR LIBRARIES**
(File Ref. No.) (REDMS No. 6205939 v. 2)

CNCL-197 See Page **CNCL-197** for full report

Recommendations will be considered at the Open General Purposes Committee meeting.

Consent Agenda Item

15. **UBCM RESOLUTIONS – PROVINCIAL SINGLE-USE ITEM STRATEGY AND COMPOSTABLE SINGLE-USE ITEMS**
(File Ref. No. 10-6370-01) (REDMS No. 6211321)

CNCL-208 See Page **CNCL-208** for full report

Recommendations will be considered at the Open General Purposes Committee meeting.

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Consent Agenda Item

16. **PRIDE WEEK 2019 ACTIVITIES AND PROPOSED PERMANENT RAINBOW CROSSWALK**
(File Ref. No. 07-3000-01) (REDMS No. 6210999 v. 4)

CNCL-214

See Page **CNCL-214** for full report

Recommendations will be considered at the Open General Purposes Committee meeting.

Consent Agenda Item

17. **COUNCIL TERM GOALS 2018-2022**
(File Ref. No. 01-0105-07-01) (REDMS No. 6174635 v. 7)

CNCL-218

See Page **CNCL-218** for full report

Recommendations will be considered at the Open General Purposes Committee meeting.

Consent Agenda Item

18. **DRAFT CULTURAL HARMONY PLAN 2019–2029**
(File Ref. No. 07-3300-01) (REDMS No. 6192246 v. 7)

CNCL-235

See Page **CNCL-235** for full report

Recommendations will be considered at the Open Planning Committee meeting.

Consent Agenda Item

19. **APPLICATION BY FOUGERE ARCHITECTURE INC. TO AMEND SCHEDULE 2.14 OF OFFICIAL COMMUNITY BYLAW 9000 (HAMILTON AREA PLAN), CREATE THE "TOWN HOUSING - HAMILTON (ZT86)" ZONE, AND REZONE THE SITE AT 23400, 23440, 23460 AND 23500 GATES AVENUE AND A PORTION OF GATES AVENUE FROM "SINGLE DETACHED (RS1/F)" TO "TOWN HOUSING (ZT86) – HAMILTON" AND "SCHOOL & INSTITUTIONAL USE (SI)"**
(File Ref. No. 12-8060-20-009932/010011; RZ 17-766714) (REDMS No. 6195595 v. 2)

CNCL-283

See Page **CNCL-283** for full report

Recommendations will be considered at the Open Planning Committee meeting.

Consent Agenda Item

20. **APPLICATION BY PAKLAND DEVELOPMENTS LTD. FOR REZONING AT 7571 BRIDGE STREET FROM THE "SINGLE DETACHED (RS1/F)" ZONE TO THE "SINGLE DETACHED (ZS14) – SOUTH MCLENNAN (CITY CENTRE)" ZONE**
(File Ref. No. 12-8060-20-009939; RZ 18-802621) (REDMS No. 5953724)

CNCL-352 See Page **CNCL-352** for full report

Recommendations will be considered at the Open Planning Committee meeting.

Consent Agenda Item

21. **APPLICATION BY SNC LAVALIN INC. FOR REZONING OF PORTIONS OF 12700 AND 12800 RICE MILL ROAD, 12280 AND 12300 NO. 5 ROAD FROM AGRICULTURAL (AG1) AND LIGHT INDUSTRIAL (IL) TO A SITE SPECIFIC ZONE**
(File Ref. No. 12-8060-20-009940; RZ 18-824565) (REDMS No. 5977294 v. 11)

CNCL-376 See Page **CNCL-376** for full report

Recommendations will be considered at the Open Planning Committee meeting.

Consent Agenda Item

22. **APPLICATION BY MATTHEW CHENG ARCHITECT INC. FOR REZONING AT 9020 GLENALLAN GATE, 9460, 9480 & 9500 GARDEN CITY ROAD FROM SINGLE DETACHED (RS1/E) TO LOW DENSITY TOWNHOUSES (RTL4)**
(File Ref. No. 12-8060-20-010047; RZ 18-829032) (REDMS No. 6162813)

CNCL-442 See Page **CNCL-442** for full report

Recommendations will be considered at the Open Planning Committee meeting.

Consent Agenda Item

23. **APPLICATION BY 1116559 B.C. LTD. FOR REZONING AT 9340 GENERAL CURRIE ROAD FROM SINGLE DETACHED (RS1/F) TO TOWN HOUSING (ZT45) - GILBERT ROAD, ACHESON - BENNETT SUB-AREA, ST. ALBANS SUB-AREA, SOUTH MCLENNAN (CITY CENTRE)**
(File Ref. No. 12-8060-20-010048; RZ 17-790958) (REDMS No. 6160197)

CNCL-477 See Page **CNCL-477** for full report

Recommendations will be considered at the Open Planning Committee meeting.

Consent Agenda Item

24. **MULTI-PASSENGER BICYCLE BUSINESS PROPOSAL**
(File Ref. No. 12-8275-06) (REDMS No. 6182789)

CNCL-524 See Page **CNCL-524** for full report

Recommendations will be considered at the Open Public Works and Transportation Committee meeting.

Consent Agenda Item

25. **REVIEW OF COLLISION PRONE INTERSECTIONS**
(File Ref. No. 10-6450-09-01) (REDMS No. 6188336 v. 6)

CNCL-530 See Page **CNCL-530** for full report

Recommendations will be considered at the Open Public Works and Transportation Committee meeting.

Consent Agenda Item

26. **CITY CENTRE DISTRICT ENERGY UTILITY BYLAW NO. 9895, AMENDMENT BYLAW NO. 10012**
(File Ref. No. 12-8060-20-01012) (REDMS No. 6147348 v. 9; 6147412)

CNCL-587 See Page **CNCL-587** for full report

Recommendations will be considered at the Open Public Works and Transportation Committee meeting.

Consent Agenda Item

27. **2018 ANNUAL WATER QUALITY REPORT**
(File Ref. No. 10-6000-00) (REDMS No. 6183337)

CNCL-597 See Page **CNCL-597** for full report

Recommendations will be considered at the Open Public Works and Transportation Committee meeting.

Consent Agenda Item

28. **FLOOD PROTECTION MANAGEMENT STRATEGY 2019 - FINAL REPORT**
(File Ref. No. 10-6060-04-01) (REDMS No. 6161241 v. 7)

CNCL-696 See Page **CNCL-696** for full report

Recommendations will be considered at the Open Public Works and Transportation Committee meeting.

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CONSIDERATION OF MATTERS REMOVED FROM THE CONSENT AGENDA

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NON-CONSENT AGENDA ITEMS

GENERAL PURPOSES COMMITTEE

Mayor Malcolm D. Brodie, Chair

29. **PROPOSED UBCM RESOLUTION – STATEMENT OF DISCLOSURE UPDATES**

(File Ref. No.) (REDMS No.)

CNCL-755

See Page **CNCL-755** for full report

GENERAL PURPOSES COMMITTEE RECOMMENDATION

Opposed: Mayor Brodie and Cllrs. Loo, McNulty, and McPhail

To forward the following resolution for consideration at UBCM and to send copies to the Local Governments of BC for their favourable considerations prior to the 2019 UBCM meeting. Additional copy to be sent to the Minister of Municipal Affairs.

Statement of Disclosure Updates

Whereas professional regulatory bodies, such as CPABC, BC Law Society, APEGBC, and others, have conflict of interest and ethics rules for their members, under which appearance of conflict of interest is disallowed;

Whereas the public expects elected representatives to act to a professional standard of conduct;

And whereas the scope of decisions and responsibilities of an elected representative can be broad and encompass a variety of issues;

So be it resolved that the Statement of Disclosure for municipal nominees and elected representatives be updated to additionally include a spouse's assets; a spouse's liabilities; and real property, other than their primary residence, held singly or jointly by a spouse, child, brother, sister, mother or father, to the best knowledge of the candidate. Further, within 60 days of being sworn in, to file a confidential financial disclosure statement to a non-partisan Municipal Conflict of Interest Commissioner.

30. **PROPOSED UBCM RESOLUTION – CONFLICT OF INTEREST COMPLAINT MECHANISM**
(File Ref. No.) (REDMS No.)

CNCL-755

See Page **CNCL-755** for full report

GENERAL PURPOSES COMMITTEE RECOMMENDATION

Opposed: Mayor Brodie and Cllr. McNulty

To forward the following resolution for consideration at UBCM and to send copies to the Local Governments of BC for their favourable considerations prior to the 2019 UBCM meeting. Additional copy to be sent to the Minister of Municipal Affairs.

Conflict of Interest Complaint Mechanism

Whereas professional regulatory bodies, such as CPABC, BC Law Society, APEGBC, and others, have conflict of interest and ethics rules for their members and enforce them through a complaints process;

Whereas the public expects elected representatives to be held to a professional standard of conduct;

And whereas the only remedy for a citizen complaint of a municipal elected person's conflict of interest is through a judgement of the Supreme Court of British Columbia;

So be it resolved that the Province of British Columbia consider a mechanism including to resolve and remedy conflict of interest complaints through a non-partisan Municipal Conflict of Interest Commissioner or expansion of the scope of powers of the BC Ombudsperson.

FINANCE AND CORPORATE SERVICES DIVISION

31. **COUNCIL REMUNERATION AND EXPENSES FOR 2018**
(File Ref. No.: 03-1200-03) (REDMS No. 6206322)

CNCL-759

See Page **CNCL-759** for full report

STAFF RECOMMENDATION

That the 2018 Council Remuneration and Expenses be approved.

32. **2018 STATEMENT OF FINANCIAL INFORMATION**
(File Ref. No.: 03-1200-03) (REDMS No. 6194865)

CNCL-761 See Page **CNCL-761** for full report

STAFF RECOMMENDATION

That the 2018 Statement of Financial Information be approved.

PUBLIC ANNOUNCEMENTS AND EVENTS

NEW BUSINESS

BYLAWS FOR ADOPTION

CNCL-841 Official Community Plan Bylaw No. 9000 and 7100, Amendment **Bylaw No. 9813**
(4360 Garry Street, RZ 16-737146)
Opposed at 1st Reading – None.
Opposed at 2nd/3rd Readings – Cllr. Day.

CNCL-843 Richmond Zoning Bylaw No. 8500, Amendment **Bylaw No. 9814**
(4360 Gary Street, RZ 16-737146)
Opposed at 1st Reading – None.
Opposed at 2nd/3rd Readings – Cllr. Day.

DEVELOPMENT PERMIT PANEL

33. RECOMMENDATION

See DPP Plan Package (distributed separately) for full hardcopy plans

CNCL-846
CNCL-916

(1) That the minutes of the Development Permit Panel meetings held on May 15, 2019 and May 29, 2019 and the Chair's report for the Development Permit Panel meetings held on September 12, 2018 be received for information; and

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CNCL-1034 *(2)* ***That the recommendation of the Panel to authorize the issuance of a Development Permit (DP 17-793478) for the property at 4360 Garry Street be endorsed, and the Permit so issued.***

ADJOURNMENT

City of Richmond

Minutes

Regular Council

Monday, June 10, 2019

Place:	Council Chambers Richmond City Hall
Present:	Mayor Malcolm D. Brodie Councillor Chak Au Councillor Carol Day Councillor Kelly Greene Councillor Alexa Loo Councillor Bill McNulty Councillor Linda McPhail Councillor Harold Steves Councillor Michael Wolfe
	Acting Corporate Officer – Claudia Jesson
Call to Order:	Mayor Brodie called the meeting to order at 7:00 p.m.

RES NO. ITEM

MINUTES

R19/10-1 1. It was moved and seconded
That the minutes of the Regular Council meeting held on May 27, 2019, be adopted as circulated.

CARRIED

Regular Council
Monday, June 10, 2019

COMMITTEE OF THE WHOLE

R19/10-2 2. It was moved and seconded
That Council resolve into Committee of the Whole to hear delegations on agenda items (7:01 p.m.).

CARRIED

3. Delegations from the floor on Agenda items

Item No. 9 – Affordable Housing Strategy (2017–2027) – 2018 Update

De Whalen, Richmond resident, read from her submission (attached to and forming part of these minutes as Schedule 1), and expressed her concern on the limited availability of housing for low income families and potential affordable housing units lost to demolitions.

Item No. 9 – Affordable Housing Strategy (2017–2027) – 2018 Update

Niti Sharma, Richmond resident, read from her submission (attached to and forming part of these minutes as Schedule 2) and expressed her concern regarding the pace of affordable housing development and mechanisms to ensure that developed units dedicated for affordable housing are occupied. Also, she expressed concern with regard to illegal suites in the city and encouraged the City to use its surplus to develop affordable housing.

R19/10-3 4. It was moved and seconded
That Committee rise and report (7:10 p.m.).

CARRIED

CONSENT AGENDA

R19/10-4 5. It was moved and seconded
That Items No. 6 through No. 10 and Item No. 13 be adopted by general consent.

CARRIED

Regular Council
Monday, June 10, 2019

6. **COMMITTEE MINUTES**

That the minutes of:

(1) the Parks, Recreation and Cultural Services Committee meeting held on May 28, 2019;

(2) the General Purposes Committee meeting held on June 3, 2019; and

(3) the Planning Committee meeting held on June 4, 2019;

be received for information.

ADOPTED ON CONSENT

7. **PROPOSED TIDALLY INFLUENCED TERRA NOVA SLOUGH UPDATE**

(File Ref. No. 06-2345-20-TNOV4) (REDMS No. 6160886 v. 10; 5621988; 6162646; 6162647; 6162648; 6162649; 6162651; 6162669)

(1) That Option 2: Create, without the necessity of diking around the slough, a Tidally Influenced Terra Nova Slough, as outlined in the staff report titled "Proposed Tidally Influenced Terra Nova Slough Update" dated April 5, 2019 for the Director, Parks Services, be endorsed; and

(2) That staff be directed to explore (i) design options for the tidally influenced Terra Nova slough, including the original plan, and (ii) additional funding sources.

ADOPTED ON CONSENT

8. **2019 CHILD CARE GRANTS – SECOND INTAKE**

(File Ref. No. 03-0185-01) (REDMS No. 6178419 v. 4; 6178430; 5364413; 5955401; 6010359; 6184297)

That the Child Care Capital Grants, as outlined in the staff report titled "2019 Child Care Grants – Second Intake" dated May 7, 2019 from the Manager, Community Social Development, be awarded for the recommended amounts and cheques be disbursed for a total of $25,720.

ADOPTED ON CONSENT

9. **AFFORDABLE HOUSING STRATEGY (2017–2027) – 2018 UPDATE**
(File Ref. No. 01-0095-20-5006) (REDMS No. 6090737 v. 4; 6189949; 6195571)

That the Affordable Housing Strategy (2017–2027) – 2018 Update be distributed to key stakeholders and posted on the City website.

ADOPTED ON CONSENT

10. **BUILDING OUR SOCIAL FUTURE – A SOCIAL DEVELOPMENT STRATEGY FOR RICHMOND (2013–2022): PROGRESS REPORT FOR 2017 AND 2018**
(File Ref. No. 07-3375-01) (REDMS No. 5805953 v. 16; 5809590; 6194666)

That the Building Our Social Future – A Social Development Strategy for Richmond (2013–2022): Progress Report for 2017 and 2018 be distributed to key stakeholders and posted on the City website.

ADOPTED ON CONSENT

11. **APPLICATION BY MATTHEW CHENG ARCHITECT INC. FOR REZONING AT 7391 MOFFATT ROAD FROM THE "MEDIUM DENSITY LOW RISE APARTMENTS (RAM1)" ZONE TO THE "HIGH DENSITY TOWNHOUSES (RTH1)" ZONE**
(File Ref. No. 12-8060-20-009894; RZ 17-777664) (REDMS No. 6162857; 5881819)

Please see Page 5 for action on this Item.

12. **APPLICATION BY RAMAN KOONER FOR REZONING AT 10200/10220 RAILWAY AVENUE FROM THE "TWO-UNIT DWELLINGS (RD1)" ZONE TO THE "COACH HOUSES (RCH1)" ZONE**
(File Ref. No. 12-8060-20-010035; RZ 17-784927) (REDMS No. 5997730; 6182914; 280220; 6188588; 5997352)

Please see Page 6 for action on this Item.

13. **FARMING FIRST: PROPOSED UPDATE TO RICHMOND'S 2003 AGRICULTURAL VIABILITY STRATEGY (AVS)**
(File Ref. No. 08-4050-10) (REDMS No. 6061053 v. 5; 919127; 5949782)

That staff be directed to conduct public consultation regarding the update to the Agricultural Viability Strategy, and report back to Planning Committee; and

ADOPTED ON CONSENT

As a result of discussion on signage enforcement, staff were directed to consider agricultural signage requirements as part of the Agricultural Viability Strategy public consultation in relation to sign placement, size, duration, fees, when reporting back.

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CONSIDERATION OF MATTERS REMOVED FROM THE CONSENT AGENDA

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11. **APPLICATION BY MATTHEW CHENG ARCHITECT INC. FOR REZONING AT 7391 MOFFATT ROAD FROM THE "MEDIUM DENSITY LOW RISE APARTMENTS (RAM1)" ZONE TO THE "HIGH DENSITY TOWNHOUSES (RTH1)" ZONE**
(File Ref. No. 12-8060-20-009894; RZ 17-777664) (REDMS No. 6162857; 5881819)

Discussion ensued with regard to (i) disclosure of the statutory right-of-way on-title to the property owners of the adjacent development, (ii) the application's proposed tree retention plan, (iii) the application's proposed affordable housing contribution, and (iv) the proposed development's potential overlook onto the adjacent property.

R19/10-5 It was moved and seconded

(1) That Richmond Zoning Bylaw 8500, Amendment Bylaw 9894, for the rezoning of 7391 Moffatt Road from the "Medium Density Low Rise Apartments (RAM1)" zone to the "High Density Townhouses (RTH1)" zone, be introduced and given First Reading; and

(2) That a letter be sent to guiding groups of property management companies, stratas, notaries, lawyers, real estate professionals and other appropriate professional bodies to inform them of the on-going issue of buyers reporting a lack of property information and request that measures be taken to improve disclosure of property information to prospective buyers.

CARRIED
Opposed: Cllrs. Au
Greene
Wolfe

12. **APPLICATION BY RAMAN KOONER FOR REZONING AT 10200/10220 RAILWAY AVENUE FROM THE "TWO-UNIT DWELLINGS (RD1)" ZONE TO THE "COACH HOUSES (RCH1)" ZONE**

(File Ref. No. 12-8060-20-010035; RZ 17-784927) (REDMS No. 5997730; 6182914; 280220; 6188588; 5997352)

R19/10-6 It was moved and seconded

(1) That the following recommendation be forwarded to a Public Hearing:

(a) That Single-Family Lot Size Policy 5420 for the area generally bounded by Steveston Highway, Railway Avenue, Williams Road and the rear property lines of the properties located along No. 2 Road, in a portion of Section 36 Block 4 North Range 7 West, be amended as shown in the proposed draft Single-Family Lot Size Policy 5420 (Attachment 5); and

(2) That Richmond Zoning Bylaw 8500, Amendment Bylaw 10035, for the rezoning of 10200/10220 Railway Avenue from the "Two-Unit Dwellings (RD1)" zone to the "Coach Houses (RCH1)" zone, be introduced and given First Reading.

The question on the motion was not called as discussion ensued with regard to the history of the Railway Avenue corridor and the potential to increase density along a portion of Railway Avenue.

In reply to queries from Committee, staff noted that the proposed amendment to the Lot Size Policy will exclude 46 properties fronting Railway Avenue and two properties fronting Williams Road and would enable those lots to apply for a rezoning to permit redevelopment, in keeping with the Arterial Road Land Use Policy. Staff were then directed that should the application proceed, a memorandum on the proposed Lot Size Policy amendment be provided to Council prior to the Public Hearing.

The question on the motion was then called and it was **CARRIED** with Cllrs. Greene, Steves and Wolfe opposed.

NON-CONSENT AGENDA ITEMS

PUBLIC DELEGATIONS ON NON-AGENDA ITEMS

R19/10-7 14. It was moved and seconded
That Council resolve into Committee of the Whole to hear delegations on non-agenda items (8:15 p.m.).

CARRIED

(1) With the aid of a PowerPoint presentation (copy on-file, City Clerk's Office), Annie Lai, along with Tracy Gwang, Joanne Yuan, Kyla Latumahina, Sargun Khurana, and Dennis Li, Richmond residents, reviewed a proposal for the implementation of a Youth City Council (YCC), highlighting that a such a group would support youth engagement and provide opportunities to grow youth leadership in the community.

Discussion ensued with regard to (i) YCC's potential structure and budget, (ii) group membership, and (iii) preserving the group for future students.

As a result of the discussion, the following **referral motion** was introduced:

R19/10-8 It was moved and seconded
That staff analyse the proposed implementation of a Richmond Youth Council and provide recommendations.

CARRIED

(2) Kim Jensen and David Price, representing the Richmond Tennis Club, read from their submission (copy on-file, City Clerk's Office), and spoke on a proposal to upgrade current facilities, including upgrades to wheelchair access.

Discussion ensued with regard to (i) opportunities to acquire federal provincial and accessibility grants, (ii) the Richmond Tennis Club membership, (iii) the proposed timeline to develop the facility, and (iv) potential use of the facility by other community groups.

As a result of the discussion, the following referral was introduced:

R19/10-9 It was moved and seconded
That the proposal and supporting documents from the Richmond Tennis Club be referred to staff to be considered with the City's Long Term Facility Plan.

CARRIED

R19/10-10 15. It was moved and seconded
That Committee rise and report (8:51 p.m.).

CARRIED

ANNOUNCEMENTS

Mayor Brodie announced that George A. (Tony) Davies was appointed to the Aquatic Services Board for a 19- month term to expire December 31, 2020.

Mayor Brodie announced that on June 1, 2019, the City entered into an agreement with the Richmond Nature Park Society for the delivery of community programs and events in connection with the Richmond Nature Park that encourage and promote public awareness of and interest in the study of nature, environmental sustainability and outdoor education.

Regular Council
Monday, June 10, 2019

BYLAWS FOR ADOPTION

R19/10-11 It was moved and seconded
That the following bylaws be adopted:

Parking (Off-Street) Regulation Bylaw No. 7403, Amendment Bylaw No. 10002

Richmond Zoning Bylaw No. 8500, Amendment Bylaw No. 9646

In reply to queries from Committee, staff advised that the applicant has met all conditions in relation to *Richmond Official Community Plan Bylaw 7100, Amendment Bylaw No. 9062* and *Richmond Zoning Bylaw 8500, Amendment Bylaw No. 9063*.

R19/10-12 It was moved and seconded
That Richmond Official Community Plan Bylaw 7100, Amendment Bylaw No. 9062 be adopted.

CARRIED
Opposed: Cllrs. Day
Greene
Steves
Wolfe

R19/10-13 It was moved and seconded
That Richmond Zoning Bylaw 8500, Amendment Bylaw No. 9063 be adopted.

CARRIED
Opposed: Cllrs. Day
Greene
Steves
Wolfe

Regular Council
Monday, June 10, 2019

ADJOURNMENT

R19/10-14 It was moved and seconded
That the meeting adjourn (9:06 p.m.).

CARRIED

Certified a true and correct copy of the Minutes of the Regular meeting of the Council of the City of Richmond held on Monday, June 10, 2019.

Mayor (Malcolm D. Brodie)

Acting Corporate Officer (Claudia Jesson)

June 10, 2019 Richmond City Council Meeting

My name is Deirdre Whalen and I am a long-time resident of Richmond and the chair of the Richmond Poverty Response Committee. I would like to speak on the Affordable Housing Strategy update. In my presentation I will refer to data from the Metro Vancouver Housing Data Bank. This information is easily accessed via Google and is a link on the City's own website. The data gives rise to a number of questions. I hope Council of city staff can assist with answers.

Renter households:
Richmond has 19,000 renter households
However, 37% of renter households (7000) have a household income of $35,000 or less
So affordable rent these renter households is (30% of $35,000) or $875 per month

- ➔ Where are the affordable units for low income individuals and families?
- ➔ In 2017, the Richmond PRC presented to City Council on the affordability gap between rents and ability to pay and recommended rent supplements be added to the A.H. Strategy. Where is this item?

Purpose-built rental:
In 2018 Richmond 'secured' 135 purpose-built rentals
In 2017 the number was 97

- ➔ How many of these units are actually tenanted?

Social housing rental starts:
2015 was 129 (The Storeys)
2016 none
2017 none
2018 none

- ➔ Rental rates in The Storeys are around $900 per mo. This is the recorded median market rent in Metro Vancouver in 2019 for a studio apartment. Why then is the Storeys noted in the strategy as "affordable" or "social" housing?

Demolitions:
2015 - were 450 demos
2016 - 509
2017 – 388
5 year average was 340 demos per year

- ➔ In 2018 the Richmond PRC presented a delegation with recommendations to include in the AHS, rental units in houses lost to demolition. Where are these numbers reflected?

Thank you

De Whalen
13631 Blundell Road, Richmond V6W1B6

Honorable Mayor and Council,
Thank you for this update on Richmond's affordability [Item 9]

In thisreport **(plan Page 12, dated June 6th 2019),** the city says it has **"secured"** 2000 new affordable housing units since 2017. It is data we need to examine carefully ~~and understand better to fully~~ make sense of this .number.

Some of my questions/comments after seeing this data :

1. What does secured mean? ~~Does it mean~~ It likely means that the city has approved that these units will be build soon? Any idea how many in this tally are already built or how many years till these are built?
2. Also built may not mean rented out. For the 726 market rental units in this tally does the city have any mechanism to ensure that these are not rented out short term and intermittently or lie empty? The city's current short term bylaw allows boarding and lodging part of a home without being a B&B and the city has had limited success so far in patrolling this. You should consider removing the boarding and lodging for short term unless the home is a principal residence. Otherwise, I believe the market rental units will end up playing a very limited role in helping affordable rental options.
3. The tally (on page 12 makes no mention of **what size units are there in these various categories.** It may be very useful to account for size of the units I request that in the tally the size of the unit be listed under each category. So it would be clearer whether what is being built is a good fit for the needs in the community or not. It will also help identify what sized units are in shortfall.
4. Why are market rental units listed under a separate category than secondary suites? I assume that both will be rented at prevailing market rates. Also Secondary suites are accepted as affordability housing contribution when re-developing single family homes, so if I understans correctly there is no cash in lieu contribution. Does the city ask that the suite be rented out at affordable ratest rates. What if the suite stays EMPTY? Then this contribution would amount to nothing in providing an affordablechoice.
5. It may be good alongside this affordable report of what is being built, a report of what was demolished over the same period of time :Its size, neighborhood and whether it was rented. This should include data from both legal and illegal suites . Adding this dimension will help the public see what is the **net effect over the same time frame.** Without adding this dimension the data from demolitions and its effect on the lack of affordability is obscured from the picture. Also, according to the affordability report from 2017, 80% of the city's renters find their rental in this secondary market of older homes.
6. A neighborhood based housing stock for each year will help. This data could include: How many homes of what kind exist, how many (of what kind were demolished in that year in that neighborhood). What was build and how much was affordable (under various categories: Low market, market rental, below

market rental or any other kind). If this data was in an excel spread sheet the city and its residents would have a complete picture at their finger tips and as you know: transparent and trustworthy data is a sound beginning for making effective policies that account for what is really happening in the housing sector in the city. This will help the city set overall city goals as well as neighborhood based goals for affordability that better match school capacity and maybe plan for new schools when they are needed.

7. How much prior (upto 2017) shortfall (in terms of various sized units) do we have in terms of affordability needs in the city?

I hope answers to these questions will make it easier to understand the city's affordability goals for the community and help us plan better and make this city more affordable for many who are struggling with housing issues currently.

.I would like to request that some part of the 2.9 million dollar surplus that the city has be diverted into building affordable non-market housing and housing that utilizes other forms of ownership such as coops and the city help the developer to seek funding to build these from other levels of government.

Thanks for listening.

Niti Sharma

For Metro Vancouver meetings on Friday, May 24, 2019
Please note these are not the official minutes. Board in Brief is an informal summary. Material relating to any of the following items is available on request from Metro Vancouver. For more information, please contact Greg.Valou@metrovancouver.org or Kelly.Sinoski@metrovancouver.org

Metro Vancouver Regional District

E 1.1 Regional Long-Range Growth and Transportation Scenarios – Final Summary Report **RECEIVED APPROVED**

The Board received for information the final Summary Report for the Regional Long-Range Growth and Transportation Scenarios project. It also endorsed the use of the Long Range Growth and Transportation Scenarios to review and update Metro 2040 and directed staff to distribute the Final Summary Report to organizations with an interest in long-range regional planning, including member jurisdictions, health authorities, and the Vancouver Fraser Port Authority.

The Long-Range Growth and Transportation Scenarios have been developed to help consider multiple possible futures and to better incorporate uncertainty into the regional planning framework.

E 2.1 MVRD Park Land Acquisition Agreement with the City of Abbotsford **APPROVED**

The Board approved the Abbotsford Disposition of the Eastern Portion of Aldergrove Park Land Agreement between the Metro Vancouver Regional District and the City of Abbotsford for the sale and transfer of certain lands to the Metro Vancouver Regional District. It also authorized the Director of Properties, on behalf of the Metro Vancouver Regional District, to enter into, execute and deliver the MVRD Land Acquisition Agreement.

In May 2018, the MVRD sold and transferred all of its park land interests within the municipal boundary of Abbotsford to the City of Abbotsford, including the eastern portion of the Aldergrove Regional Park in order to facilitate the City of Abbotsford's withdrawal from the MVRD Regional Parks function. Metro Vancouver continues to own and operate the western portion of the Aldergrove Regional Park.

The Provincial Government has indicated that as a result of the unique circumstances that originally led to Aldergrove Regional Park stretching over two different regional districts, a targeted exception to section 334(4) of the Local Government Act may be feasible to enable the MVRD to own and operate that portion of Aldergrove Park located within the municipal boundary of Abbotsford and without the City of Abbotsford having to be a participant in MVRD's Regional Parks service.

Approval of the Lieutenant Governor in Council is required to enable MVRD to own and operate the east portion of Aldergrove Park located within the municipal boundary of Abbotsford without the City of Abbotsford having to be a participant in MVRD's Regional Parks service.

E 3.1 Board Remuneration Review Findings and Recommendations **APPROVED**

The Board endorsed the findings of the Board Remuneration Independent Review Panel as presented and directed staff to bring forward proposed amendments to the Remuneration Bylaw for the Board's consideration.

The Board established an Independent Review Panel to study the Board's remuneration policies set out in the Remuneration Bylaw. The Independent Review Panel found the current model was fair and appropriate, and should not be changed, except in two areas: an adjustment to the Electoral Area Director stipend, and a one-time adjustment in 2020 to offset the 2019 change in CRA taxation policy.

E 3.2 2019 Budget - Status of Reserves **APPROVED**

With the year-end process complete, operating, discretionary and statutory reserves projected for 2019 have been updated after including 2018 operating surpluses. Reserve applications have also been updated and are presented in Schedule 1. These applications are consistent with Board direction on the use of reserves through the adopted reserve policy. The Board approved the application and transfer of reserves related to the expenditures and provisions as presented.

E 3.3 2018 Statement of Financial Information **APPROVED**

Board approved the Statement of Financial Information for the year ended December 31, 2018. The Financial Information Act is provincial legislation that requires local governments to prepare the following statements and schedules annually:

- Statement of assets and liabilities
- Statement of operations
- Schedule of debt
- Schedule of guarantee and indemnity agreements
- Schedule showing remuneration and expenses paid to or on behalf of each employee that exceeds $75,000 and amounts paid to or on behalf of elected officials
- Schedule showing the payments for each supplier of goods or services that exceeds $25,000

E 3.4 Lions Bay – Support for Rural Designation for Grant Eligibility **APPROVED**

The Board resolved to write a letter in support of designating Lions Bay as an eligible rural community for the purposes of provincial and federal rural grant programs. The letter will be sent to:

- The Minister of Forests, Lands, Natural Resource Operations and Rural Development, with respect to the BC Rural Dividend Program
- The Minister of Jobs, Trade and Technology, with respect to the Island Coastal Economic Trust
- The federal Minister of Innovation, Science and Economic Development, with respect to Community Futures funding

E 4.1 Expanded Consultation on a Potential Cannabis Production Emission Regulation for Metro Vancouver **APPROVED**

The Board endorsed the engagement plan attached to a report titled *Expanded Consultation on a Potential Cannabis Production Emission Regulation for Metro Vancouver*, and directed staff to proceed with engagement and consultation on the proposed approach to regulating air emissions from cannabis production and processing.

The initial phase of engagement will be conducted between June and September 2019, followed by the second phase between January and March 2020. It will involve the public, the agricultural sector, cannabis producers and associations, businesses providing services to the cannabis industry, and municipal agricultural advisory committees, as well as staff from government agencies with responsibility for agriculture, the Agricultural Land Reserve, health and the environment at the federal, provincial and local levels.

The production of cannabis has increased substantially in the Metro Vancouver region since the legalization of recreational cannabis in October 2018. At the March 29 Board meeting, Board members expressed concerns about regulating odours from agricultural sources.

E 4.2 Consultation on Proposed Changes to Metro Vancouver's Ambient Air Quality Objectives **APPROVED**

The Board directed staff to proceed with consultation on the proposed changes to Metro Vancouver's ambient air quality objectives.

To align with federal standards and provincial objectives, Metro Vancouver is proposing changes to its ambient air quality objectives for nitrogen dioxide, ground-level ozone and carbon monoxide, to better protect human health and the environment. Engagement with the public, member jurisdictions, local First Nations, businesses, health authorities and other stakeholders is intended to provide interested parties who may be affected with sufficient opportunity to learn about the proposed changes and provide feedback.

E 4.3 Sensitive Ecosystem Inventory – Sub-Regional Profiles and Assessment of Ecosystem Loss **RECEIVED APPROVED**

The Board received for information a report titled Sensitive Ecosystem Inventory – Sub-Regional Profiles and Assessment of Ecosystem Loss, and resolved to distribute the report to member jurisdiction councils for information.

The Metro Vancouver Sensitive Ecosystem Inventory update provides key insights into the state of the region's most important ecological areas and changes over a five-year period. Causes of loss observed in the Sensitive Ecosystem Inventory update, including logging, clearing, mowing, agriculture, and residential development, were assessed and quantified.

E 5.1 Metro Vancouver External Agency Activities Status Report – May 2019 **RECEIVED**

The Board received for information the reports from Metro Vancouver representatives to external organizations:

- Board of Trustees of the Sasamat Volunteer Fire Department
- Delta Heritage Airpark Management Committee
- Fraser Basin Council – Lower Mainland Flood Management Strategy Leadership Committee
- Municipal Finance Authority
- Pacific Parklands Foundation
- Union of BC Municipalities
- Western Transportation Advisory Council

G 1.1 Amending Metro Vancouver 2040: Shaping our Future to Reflect Accepted Regional Context Statements **INITIATED**

The Board initiated the Metro Vancouver 2040: Shaping our Future amendment process for a Type 3 Minor Amendment to the regional growth strategy to incorporate regional land use designation changes, the expansion of the Urban Containment Boundary, and the addition of Frequent Transit Development Areas stemming from accepted regional context statements.

The Board then gave first, second, and third readings of the Amendment Bylaw, and directed staff to notify affected local governments and appropriate agencies as per Section 6.4.2 of Metro Vancouver 2040: Shaping our Future.

Type 3 minor amendments have been used in the past as a means to amend the regional growth strategy to reflect mapping changes made through accepted regional context statements. Since the adoption in July 2011 of Metro 2040, 21 Regional Context Statements have been accepted by the MVRD Board. Since the last such amendment in July 2017, four updated RCSs have been accepted by the MVRD Board and three RCSs have been submitted for reacceptance without amendment and subsequently accepted by the MVRD Board.

G 1.2 Metro 2040 Land Use Designation Amendment Request from the City of Delta – MK Delta Lands **INITIATED**

The Board initiated the regional growth strategy amendment process for the City of Delta to change the regional land use designation of a property located at 7969 Highway 91 Connector from agricultural to Industrial, and to include the lands within the Urban Containment Boundary.

The Board also gave first and second readings to the Amending Bylaw; directed staff to notify affected governments as per Metro Vancouver 2040: Shaping Our Future Section 6.4.2; and, directed staff to request additional information from City of Delta staff as laid out in the report.

Staff concluded that the proposed amendment will result in a net benefit by increasing the supply of industrial lands in the region; increasing land in the ALR and providing funds to improve the productivity of other agricultural lands; and increasing the protection of ecologically important lands contiguous with Burns Bog by eliminating the potential for permitted industrial extraction activities on three additional parcels by

transferring them to public ownership. The property owner also committed to transfer three lots totalling 132 ha (328 ac), that are located adjacent to the Burns Bog Ecological Conservancy Area, to the City of Delta for protection from future development.

I 1 Committee Information Items and Delegation Summaries **RECEIVED**

The Board received delegation summaries and information items from Standing Committee meetings.

Housing Committee – May 1, 2019
Information Items:

- **5.2 Regional Affordable Housing Strategy – Progress Report Work Plan**
  The Regional Affordable Housing Strategy was adopted by the Metro Vancouver Regional District in 2016. Developed with input from member municipalities and housing stakeholders, it provides a shared vision, goals and strategies for tackling the housing affordability challenge of Metro Vancouver. This report provides the Housing Committee with the work plan for preparing a progress report on the Regional Affordable Housing Strategy (2016).

Industrial Lands Strategy Task Force – May 2, 2019
Delegation Summaries:

- **3.1 Marcy Sangret, City of Delta**

Aboriginal Relations Committee – May 2, 2019
Information Items:

- **5.1 2019 Community to Community Forum Draft Proposal**
  This report presented the proposed 2019 Community to Community Forum with Musqueam Indian Band for information. A Community to Community Forum provides an opportunity for bringing together First Nations and local governments to foster positive relationships between communities.

  Given that one of the priorities for the Aboriginal Relations Committee is engagement in initiatives and activities that strengthen relationships between Metro Vancouver and First Nations within the region, the proposed Community to Community Forum is intended to meet the Committee's objectives.

- **5.2 Quarterly Report on Reconciliation Activities**
  The report provided a quarterly update on reconciliation activities involving Metro Vancouver and local governments as per the Committee's recommendation and for members' information.

Regional Planning Committee – May 3, 2019
Delegation Summaries:

- **3.1 Sarah Ross, TransLink**

Information Items:

- **5.3 Transit-Oriented Affordable Housing Study Phase 3 – Scoping**
  With the completion of Phase 1 and Phase 2 of the Transit-Oriented Affordable Housing Study (TOAH), it is important to distribute the key findings and learnings to practitioners and policymakers in the Metro Vancouver region. In February 2019, the MVRD Board allocated funding from the Sustainability Innovation Fund for TOAH Phase 3, which is intended to assemble the research findings and communicate them in a new format that encourages learning by doing.

With an expanded knowledge base, practitioners and decision-makers can advance more effective policies and actions to encourage new affordable rental housing development in locations close to rapid transit and along frequent bus corridors. The general scope of Phase 3 comprises three elements: an Integrated TOAH Implementation Calculator; practitioners workshops; and an equitable transit-oriented communities summit. The exact scoping and timing of the practitioner workshops and regional summit will depend on the level of interest of the targeted participants, as well as related events that may be occurring in 2019 and 2020. Depending on the scoping outcomes, financial contributions from partner agencies may be sought.

- **5.4 Equity in Regional Growth Management – Project Initiation**
  This report provided information on the scope for the Equity in Regional Growth Management project being initiated to inform the update to Metro 2040. The research project will advance Regional Planning's understanding of equity considerations as they relate to land use and transportation planning and policy, with a focus on growth management. The research findings will help identify gaps and opportunities for Metro Vancouver to better incorporate equity (including Indigenous perspectives and interests) into its regional growth management practices, and form an important foundational piece to the update to Metro 2040.

- **5.6 Expanded Consultation on a Potential Cannabis Production Emission Regulation for Metro Vancouver**
  The attachment to this report is a staff report to the Climate Action Committee that responds to the Board's March 29, 2019 referral motion, including a proposed bylaw development discussion paper outlining a possible approach for regulating air emissions from cannabis production as well as an engagement plan to obtain input from potentially affected parties. The engagement plan has been expanded based on discussion at the March 29, 2019 Board meeting.

Regional Parks Committee – May 15, 2019
Delegation Summaries:

- **3.1 Marcy Sangret, City of Delta**

Information Items:

- **5.3 Regional Parks 2018 Annual Report**
  This report presented the Regional Parks 2018 Annual Report for information. It provided an overview of Regional Parks' visitor and facility use, programming, volunteering, and activities in 2018. The annual report will be used to support ongoing park planning by MVRD and local municipalities for capital planning, future facility development, program delivery, and resource management activities.

Zero Waste Committee – May 17, 2019
Information Items:

- **5.3 Update on Metro Vancouver's Engagement with the Love Food Hate Waste Canada Campaign**
  Metro Vancouver launched a regional Love Food Hate Waste campaign in May 2015. The objective was to prevent avoidable household food waste. Over three years, Metro Vancouver took the campaign to such a level that it became the basis for a national campaign – Love Food Hate Waste Canada – launched in 2018 by the National Zero Waste Council, an initiative of Metro Vancouver. Love Food Hate Waste Canada brings together nine partners: the cities of Toronto, Vancouver, and Victoria, Capital Regional District, Metro Vancouver, RECYC-QUÉBEC, Province of British Columbia,

Sobeys, and Walmart. Love Food Hate Waste Canada is a bilingual campaign that uses digital media (including social media), conventional media, and activations in grocery stores and public events in communities across Canada. As a partner to a national campaign, Metro Vancouver's efforts to reduce household food waste will be greatly enhanced by multiple partners. These partners communicate the same messages about the value of reducing food waste and the steps households can take in buying and storing food and in preparing meals that will make a positive difference. As the campaign grows, it will continue to engage more partners across Canada.

Climate Action Committee – May 17, 2019

Delegation Summaries:

- **3.1 Pat Bell, Community Energy Association**

Information Items:

- **5.1 2019 Update on Liquid Waste Sustainability Innovation Fund Projects**
  This report presented an update on seven projects funded under the Liquid Waste Sustainability Innovation Fund. The Sustainability Innovation Funds were created by the Board in 2004 to provide financial support to utility or Regional District projects that contribute to the region's sustainability.

- **5.2 2019 Update on Regional District Sustainability Innovation Fund Projects**
  This report presented an update on six projects funded under the Regional District Sustainability Innovation Fund. The Sustainability Innovation Funds were created by the Board in 2004 to provide financial support to utility or Regional District projects that contribute to the region's sustainability.

- **5.3 2019 Update on Water Sustainability Innovation Fund Projects**
  This report presented an update on four projects funded under the Water Sustainability Innovation Fund. The Sustainability Innovation Funds were created by the Board in 2004 to provide financial support to utility or Regional District projects that contribute to the region's sustainability.

- **5.6 Air Quality and Climate Action Initiatives in the Caring for the Air 2019 Report**
  This report presented the 2019 edition of the annual Caring for the Air report and provided information about outreach conducted for the previous edition of the report with the intention of raising awareness about climate change and air quality initiatives in the Lower Fraser Valley air shed.

Greater Vancouver Water District

E 1.1 Asset Management for Water Services Policy **APPROVED**

The Board approved the Asset Management for Water Services Policy as presented.

This Policy outlines GVWD's commitment and methodology to manage water assets in a manner that minimizes asset failure risks and impacts to both residents and member jurisdictions while optimizing the life cycle of assets. It will guide Water Services to meet asset performance targets within a specified budget and enable evidence based decision making with respect to infrastructure rehabilitation and replacement.

E 1.2 2019 Budget - Status of Reserves **APPROVED**

The Board approved the application and transfer of reserves related to the expenditures and provisions as set out in Schedule 1 of the report.

With the year-end process complete, operating, discretionary and statutory reserves projected for 2019 have been updated after including 2018 operating surpluses. Reserve applications have also been updated and are presented in Schedule 1. These applications are consistent with Board direction on the use of reserves through the adopted reserve policy.

E 2.1 Agency Requests to Transport Adult Fish Upstream of Seymour Falls Dam **APPROVED**

The Board approved a request by the Fisheries and Oceans Canada to transport an annual maximum of 400 returning coho salmon adults upstream of Seymour Falls Dam; and a request by the Ministry of Forests, Lands, Natural Resource Operations and Rural Development to transport a maximum of 20 returning steelhead trout adults upstream of Seymour Falls Dam in 2019 and 2020.

These requests do not negatively impact Metro Vancouver operations and are an opportunity for collaboration with the agencies, First Nations and community groups.

I 1 Committee Information Items and Delegation Summaries **RECEIVED**

The Board received information items from the Water Committee.

Water Committee – May 16, 2019
Information Items:

- **5.1 BC Hydro Pole Replacement in Capilano Watershed – Project Update**
  BC Hydro will be completing a multi-year project focused on replacing 75 wooden pole structures along two transmission lines that run within the Capilano water supply area. Metro Vancouver staff have worked collaboratively with the BC Hydro project team to review project plans, minimize environmental disturbance and achieve project efficiencies. The project is expected to commence in the summer of 2019 and be completed by the fall of 2021.

- **5.2 Watershed Education Program Update**
  Watershed Education Programs reach over 5,400 residents of Metro Vancouver annually with the aim of providing all citizens with the opportunity to see where their water comes from, understanding the value of this resource, recognizing their connection to it, developing a sense of pride and confidence in the water supply and becoming champions for sustainability.

- **5.4 Fisheries and Oceans Canada Request for Metro Vancouver Water Supply to the Coquitlam Dam Fish Trap**
  Metro Vancouver received a request from Fisheries and Oceans Canada (DFO) to provide water from an adjacent water main to the Coquitlam Dam fish trap. This request requires an adjustment to Metro Vancouver operations but does not negatively impact the water supply. The provision of

water to the Coquitlam Dam fish trap provides an opportunity for collaboration with the agencies, Kwikwetlem First Nation and ongoing support of the Kwikwetlem Sockeye Restoration Project.

- **5.5 2019 Watering Regulations Communications and Regional Water Conservation Campaign**
  This report contained an update on regional communications to support the 2019 watering regulations and the regional water conservation campaign. Metro Vancouver undertakes communication and engagement initiatives to ensure water resources are conserved and efficiently used throughout the region.

- **5.6 2019 Water Wagon Schedule**
  This report presented the preliminary 2019 event schedule for Metro Vancouver's Water Wagon.

Greater Vancouver Sewage and Drainage District

E 1.1 Asset Management for Solid Waste Services Policy **APPROVED**

The Board approved the Asset Management for Solid Waste Services Policy as presented.

The new Asset Management for Solid Waste Services Policy will improve the ability to manage a broad range of asset data, prioritize maintenance activities and make informed decisions regarding long-term maintenance and capital replacements. The goal of the Asset Management for Solid Waste Services Policy is to balance asset performance, risk and cost.

E 1.2 2019 Budget - Status of Reserves **APPROVED**

The Board approved the application and transfer of reserves related to the expenditures and provisions as set out in Schedule 1 of the report.

With the year-end process complete, operating, discretionary and statutory reserves projected for 2019 have been updated after including 2018 operating surpluses. Reserve applications have also been updated and presented. These applications are consistent with Board direction on the use of reserves through the adopted reserve policy.

E 2.1 Award of Contract Resulting from Request for Proposal No. 18-001: Construction Services for the Annacis Island Wastewater Treatment Plant Outfall Project **RECEIVED**

The Board approved the award of a contract for an amount of up to $184,124,380.27 (exclusive of taxes) to Pomerleau Bessac General Partnership, resulting from Request for Proposal No. 18-001: Construction Services for the Annacis Island Wastewater Treatment Plant Outfall Project. Pomerleau Bessac General Partnership was identified as the highest ranked compliant proposal.

E 2.2 Award of Phase C, Construction Engineering Services Resulting from RFP No. 14-097: Annacis Island Wastewater Treatment Plant Transient Mitigation and Outfall Expansion Project **APPROVED**

The Board approved the award of Phase C, Construction Engineering Services for an amount of up to $16,989,113.00 (exclusive of taxes) to the Phase A and B consultant, CDM Smith Canada ULC for the Annacis Wastewater Treatment Plant Transient Mitigation and Outfall Project. CDM Smith Canada ULC has completed Phase A (Pre-Design Services) and Phase B (Detailed Design Services).

E 2.3 Award of Contract Resulting from Tender No. 18-296: Supply and Installation of North Road Trunk Sewer No. 2 – Phase 1A Brunette River to Lougheed Highway **APPROVED**

The Board approved the award of a contract in the amount of $5,584,406.51 (exclusive of taxes) to Clearway Construction Inc., resulting from Tender No. 18-296: Supply and Installation of North Road Trunk Sewer No. 2 – Phase 1A Brunette River to Lougheed Highway. Clearway Construction Inc. submitted the lowest compliant bid.

E 3.1 Solid Waste Energy Policy **APPROVED**

The Board directed staff to prepare a business case, including a recommended ownership model, for a district energy system using heat from the Waste-to-Energy Facility.

At its May 17, 2019 meeting, the Zero Waste Committee considered a Solid Waste Energy Policy and asked for more clarification on the types of projects that would be subject to it. The Solid Waste Energy Policy would apply to Metro Vancouver Solid Waste Services projects that generate energy or recyclables, particularly projects that generate greenhouse gas emission reductions. District heating from the Waste-to-Energy Facility would increase energy recovery and reduce greenhouse gas emissions.

I 1 Committee Information Items and Delegation Summaries **RECEIVED**

The Board received a delegation summary and information items from Standing Committee meetings.

Liquid Waste Committee – May 16, 2019
Information Items:

- **5.1 Iona Island Wastewater Treatment Plant – Project Definition Update**
  The Iona Island Wastewater Treatment Plant Project Definition technical workshop 3 was held on April 10th and 11th, 2019. This workshop focused on integrating wastewater treatment technology concepts with community integration and resource recovery themes to produce three overall wastewater treatment plant concepts. Stakeholder and First Nations engagement is underway and activities will continue throughout 2019 and 2020.

Zero Waste Committee – May 17, 2019
Delegation Summaries:

- **3.1 Sam Scoten, CheckSammy**

Information Items:

- **5.2 2018 Disposal Ban Program Update**
  The Disposal Ban Program is a key waste reduction strategy identified in the Integrated Solid Waste and Resource Management Plan. In 2018, 188,135 loads were inspected, 16,707 loads were found to contain banned materials and 3,554 surcharge notices were issued. The Disposal Ban Program remains an effective tool to encourage waste reduction and diversion.

Metro Vancouver Housing Corporation

E 1.1 2019 Budget - Status of Reserves **APPROVED**

With the year-end process complete, operating, discretionary and statutory reserves projected for 2019 have been updated after including 2018 operating surpluses. Reserve applications have also been updated and are presented in Schedule 1. These applications are consistent with Board direction on the use of reserves through the adopted reserve policy.

The Board approved the application and transfer of reserves related to the expenditures and provisions as set out in Schedule 1 of the report.

I 1 Committee Information Items and Delegation Summaries **APPROVED**

The Board received an information item from the Housing Committee meeting.

Housing Committee – May 1, 2019
Information Items:

- **5.3 Spring Flower and Community Garden Programs**
  Metro Vancouver Housing is committed to tenant engagement. The Spring Flower and Community Garden Programs are two of a number of initiatives designed to inspire a sense of pride and ownership among tenants living in Metro Vancouver Housing sites. Both the Spring Flower and Community Garden Programs are equally beneficial to both Metro Vancouver Housing and tenants.

  Metro Vancouver Housing provides 321 garden plots for housing tenants for their enjoyment and wellbeing. Spring flowers are provided to Tenants Associations to beautify housing sites and create healthy engaged communities.

City of Richmond

Minutes

Special General Purposes Committee

Date: Monday, June 10, 2019

Place: Anderson Room
Richmond City Hall

Present: Mayor Malcolm D. Brodie, Chair
Councillor Chak Au
Councillor Carol Day
Councillor Kelly Greene
Councillor Alexa Loo
Councillor Bill McNulty
Councillor Linda McPhail
Councillor Harold Steves
Councillor Michael Wolfe

Call to Order: The Chair called the meeting to order at 4:12 p.m.

COUNCILLOR KELLY GREENE

1. **PROPOSED UBCM RESOLUTIONS**
(File Ref. No.) (REDMS No.)

Discussion ensued with regard to (i) the proposed declaration requirements for relatives of elected representatives, (ii) conflict of interest policies for municipal staff, and (iii) options to increase transparency in local government.

In reply to queries from Committee, staff noted that City policy requires staff to declare a conflict of interest when such a situation arises. Staff added that disclosures filed by candidates are available for public review and a declaration is required for assets individually or jointly held by a candidate.

As a result of the discussion, there was agreement to deal with the following proposed resolutions on the Statement of Disclosure Updates, the Conflict of Interest Complaint Mechanism and the Conflict of Interest During Election Period separately.

The following was moved and seconded

To forward the following resolution for consideration at UBCM and to send copies to the Local Governments of BC for their favourable considerations prior to the 2019 UBCM meeting. Additional copy to be sent to the Minister of Municipal Affairs.

(1) Statement of Disclosure Updates

> ***Whereas professional regulatory bodies, such as CPABC, BC Law Society, APEGBC, and others, have conflict of interest and ethics rules for their members, under which appearance of conflict of interest is disallowed;***
>
> ***Whereas the public expects elected representatives to act to a professional standard of conduct;***
>
> ***And whereas the scope of decisions and responsibilities of an elected representative can be broad and encompass a variety of issues;***
>
> ***So be it resolved that the Statement of Disclosure for municipal nominees and elected representatives be updated to additionally include a spouse's assets; a spouse's liabilities; and real property, other than their primary residence, held singly or jointly by a spouse, child, brother, sister, mother or father. Further, within 60 days of being sworn in, to file a confidential financial disclosure statement to a non-partisan Municipal Conflict of Interest Commissioner.***

As a result of the discussion, amendments to the enactment clause were proposed to remove reference to "brother, sister" and to include the statement "in the municipality in which they are elected" as follows:

It was moved and seconded
That the enactment clause be amended to read as follows:

> ***So be it resolved that the Statement of Disclosure for municipal nominees and elected representatives be updated to additionally include a spouse's assets; a spouse's liabilities; and real property in the municipality in which they are elected, other than their primary residence, held singly or jointly by a spouse, child, mother or father. Further, within 60 days of being sworn in, to file a confidential financial disclosure statement to a non-partisan Municipal Conflict of Interest Commissioner.***

DEFEATED
Opposed: Mayor Brodie
Cllrs. Loo
McNulty
McPhail
Steves

Discussion ensued with regard to proposed declaration requirements for relatives of elected representatives, and as a result of the discussion an amendment to the enactment clause of the Statement of Disclosure Updates resolution was introduced to add the words "to the best knowledge of the candidate."

It was moved and seconded
That the enactment clause be amended to read as follows:

> ***So be it resolved that the Statement of Disclosure for municipal nominees and elected representatives be updated to additionally include a spouse's assets; a spouse's liabilities; and real property, other than their primary residence, held singly or jointly by a spouse, child, brother, sister, mother or father, to the best knowledge of the candidate. Further, within 60 days of being sworn in, to file a confidential financial disclosure statement to a non-partisan Municipal Conflict of Interest Commissioner.***

CARRIED
Opposed: Mayor Brodie
Cllrs. Loo
McNulty
McPhail

Discussion then ensued with regard to a forthcoming staff report on establishing a Code of Conduct, and as a result of the discussion, the following **referral motion** was introduced:

It was moved and seconded
That the proposed resolutions on the Statement of Disclosure Updates, the Conflict of Interest Complaint Mechanism and the Conflict of Interest During Election Period, be referred to staff for consideration in relation to a forthcoming report on Code of Conduct.

The question on the referral motion was not called as discussion took place on establishing a province-wide code of conduct policy.

The question on the referral motion was then called and it was **DEFEATED** with Cllrs. Au, Day, Greene, Steves and Wolfe opposed.

The question on the **main motion**, as amended, on the Statement of Disclosure Updates, which reads as follows:

To forward the following resolution for consideration at UBCM and to send copies to the Local Governments of BC for their favourable considerations prior to the 2019 UBCM meeting. Additional copy to be sent to the Minister of Municipal Affairs.

(1) Statement of Disclosure Updates

> *Whereas professional regulatory bodies, such as CPABC, BC Law Society, APEGBC, and others, have conflict of interest and ethics rules for their members, under which appearance of conflict of interest is disallowed;*
>
> *Whereas the public expects elected representatives to act to a professional standard of conduct;*
>
> *And whereas the scope of decisions and responsibilities of an elected representative can be broad and encompass a variety of issues;*
>
> *So be it resolved that the Statement of Disclosure for municipal nominees and elected representatives be updated to additionally include a spouse's assets; a spouse's liabilities; and real property, other than their primary residence, held singly or jointly by a spouse, child, brother, sister, mother or father, to the best knowledge of the candidate. Further, within 60 days of being sworn in, to file a confidential financial disclosure statement to a non-partisan Municipal Conflict of Interest Commissioner.*

was then called and it was **CARRIED** with Mayor Brodie, and Cllrs. Loo, McNulty and McPhail opposed.

Committee then considered the second motion - Conflict of Interest Complaint Mechanism.

It was moved and seconded
To forward the following resolution for consideration at UBCM and to send copies to the Local Governments of BC for their favourable considerations prior to the 2019 UBCM meeting. Additional copy to be sent to the Minister of Municipal Affairs.

(2) Conflict of Interest Complaint Mechanism

> ***Whereas professional regulatory bodies, such as CPABC, BC Law Society, APEGBC, and others, have conflict of interest and ethics rules for their members and enforce them through a complaints process;***
>
> ***Whereas the public expects elected representatives to be held to a professional standard of conduct;***
>
> ***And whereas the only remedy for a citizen complaint of a municipal elected person's conflict of interest is through a judgement of the Supreme Court of British Columbia;***
>
> ***So be it resolved that the Province of British Columbia provide a mechanism to resolve and remedy conflict of interest complaints through a non-partisan Municipal Conflict of Interest Commissioner or expansion of the scope of powers of the BC Ombudsperson.***

The question on the motion was not called as discussion ensued with regard to the challenges of submitting cases to the Supreme Court of British Columbia and ethical authoritative bodies in other jurisdictions.

As a result of the discussion, the following **amendment motion** to the enactment clause of the Conflict of Interest Complaint Mechanism resolution was introduced to replace the word "provide" with "consider" and to include the word "including" following the word "mechanism":

It was moved and seconded
That the enactment clause be amended to read as follows:

> ***So be it resolved that the Province of British Columbia consider a mechanism including to resolve and remedy conflict of interest complaints through a non-partisan Municipal Conflict of Interest Commissioner or expansion of the scope of powers of the BC Ombudsperson.***

CARRIED

The question on the **main motion**, as amended, on the Conflict of Interest Complaint Mechanism, which reads as follows:

To forward the following resolution for consideration at UBCM and to send copies to the Local Governments of BC for their favourable considerations prior to the 2019 UBCM meeting. Additional copy to be sent to the Minister of Municipal Affairs.

(2) Conflict of Interest Complaint Mechanism

Whereas professional regulatory bodies, such as CPABC, BC Law Society, APEGBC, and others, have conflict of interest and ethics rules for their members and enforce them through a complaints process;

Whereas the public expects elected representatives to be held to a professional standard of conduct;

And whereas the only remedy for a citizen complaint of a municipal elected person's conflict of interest is through a judgement of the Supreme Court of British Columbia;

So be it resolved that the Province of British Columbia consider a mechanism including to resolve and remedy conflict of interest complaints through a non-partisan Municipal Conflict of Interest Commissioner or expansion of the scope of powers of the BC Ombudsperson.

was then called and it was **CARRIED** with Mayor Brodie and Cllr. McNulty opposed.

Committee then considered the third motion – the Conflict of Interest During Election Period.

It was moved and seconded
To forward the following resolution for consideration at UBCM and to send copies to the Local Governments of BC for their favourable considerations prior to the 2019 UBCM meeting. Additional copy to be sent to the Minister of Municipal Affairs.

(3) Conflict of Interest During Election Period

Whereas provincial and federal governments are dissolved during the writ period;

Whereas an elected representative could electioneer during the election period and be perceived to be acting for political gain;

Whereas an elected representative may not be re-elected, yet retain their position for a period of time after Election Day, effectively a "lame duck" candidate; and

Whereas municipal government staff effectively manage the city without a sitting Council for four consecutive weeks each year,

at minimum;

So be it resolved that all municipal government meetings, except those provided for under the Emergency Program Act, be suspended during the election period and that the previous municipal government is dissolved on Election Day.

The question on the motion was not called as discussion ensued with regard to holding Council meetings during the summer and winter break periods, during the election period, and in the event of an emergency.

In reply to queries from Committee, staff noted that (i) there are no provisions in the *Local Government Act* to delegate all of Council's authority to City staff, (ii) the *Local Government Act* provides a period of time between the end of the election and the certification of a new Council to challenge the election results, and (iii) Council has the ability to call special meetings during the summer and winter break periods.

The question on the motion was then called and it was **DEFEATED** with Mayor Brodie and Cllrs. Au, Loo, McNulty, McPhail and Steves opposed.

ADJOURNMENT

It was moved and seconded
That the meeting adjourn (5:13 p.m.).

CARRIED

Certified a true and correct copy of the Minutes of the meeting of the General Purposes Committee of the Council of the City of Richmond held on Monday, June 10, 2019.

Mayor Malcolm D. Brodie
Chair

Evangel Biason
Legislative Services Coordinator

City of Richmond

Minutes

Community Safety Committee

Date:	Tuesday, June 11, 2019
Place:	Anderson Room Richmond City Hall
Present:	Councillor Bill McNulty, Chair Councillor Alexa Loo Councillor Carol Day Councillor Kelly Greene Councillor Harold Steves
Also Present:	Councillor Chak Au Councillor Linda McPhail
Call to Order:	The Chair called the meeting to order at 4:00 p.m.

MINUTES

It was moved and seconded
That the minutes of the meeting of the Community Safety Committee held on May 14, 2019, be adopted.

CARRIED

NEXT COMMITTEE MEETING DATE

July 9, 2019, (tentative date) at 4:00 p.m. in the Anderson Room

COMMUNITY SAFETY DIVISION

1. **COMMUNITY BYLAWS MONTHLY ACTIVITY REPORT - APRIL 2019**
(File Ref. No. 12-8060-01) (REDMS No. 6181948)

In reply to questions from Committee, staff advised that:

- previous to this year, staff had not received complaints regarding smoking infractions;

- staff follow up on overnight parking calls and issue tickets regardless if it's a resident parking or an individual staying in their vehicle overnight;
- cases where an individual is found to be staying overnight in their vehicle are forwarded to the Ministry and vulnerable persons unit with the RCMP;
- adjudications set for June 11th were a mix of animal control violation tickets and parking tickets;
- enforcement officers have been instructed to put more emphasis on maintenance around vacant properties which may explain the increase in unsightly premises complaints and enforcement staff do self-generate these calls;
- the grease calls for service comparison in Figure 2 of the staff report is the year to date average for all years up to April of that year;
- enforcement of sign violations have been stable since the adoption of the new Sign Regulation Bylaw in 2017;
- three temporary canvassers for dog licencing patrols have recently started and through the summer staff will focus more enforcement on dogs;
- staff are in the process of writing a report to Committee regarding short term rentals;
- staff are following up on all complaints regarding short term rentals and have been proactive in their approach;
- staff investigate each short term rental listing which could include multiples listings for one property and is investigated on a case by case basis as violations must be caught in the act;
- since the new regulations related to bed and breakfasts were instituted, staff proactively follow up on every listing found not just complaints;
- staff are coming back with recommendations, including a registration system and resource requirements, however booking companies will need to cooperate with the City to combat illegal short term rental listings; and
- staff actively investigate blatant illegal postings for short term rentals however staff require further follow up for multiple listings including locating the addresses.

Discussion ensued regarding (i) a resolution from Council from the previous May 14, 2019 Committee meeting concerning more assertive enforcement of short-term rentals, (ii) instituting a proactive approach in investigating bylaw infractions, and (iii) requiring registration information to be posted on any advertisements for short term rentals if registration requirements were implemented.

As a result of the discussion, the following **motion** was introduced:

It was moved and seconded
That bylaw enforcement staff move from complaint based to proactive investigations on all bylaw issues.

The question on the motion was not called as discussion took place on (i) further rules and refinement for short-term rentals, (ii) a public registry for short term rentals, and (iii) implementing advertising requirements for short term rentals.

The question on the motion was then called and it was **CARRIED**.

It was moved and seconded
That the staff report titled "Community Bylaws Monthly Activity Report – April 2019", dated May 8, 2019, from the General Manager, Community Safety, be received for information.

CARRIED

2. **RICHMOND FIRE-RESCUE MONTHLY ACTIVITY REPORT - APRIL 2019**
(File Ref. No. 09-5000-01) (REDMS No. 6183604 v. 3)

In response to queries from Committee, Jim Wishlove, Deputy Fire Chief, commented that (i) a significant number of applicants applied to the firefighter posting and 101 candidates will be invited to complete physical testing next week with approximately 70-75 to be interviewed for hiring this year and next year, (ii) overdose/poisoning is a dispatch grouping and may or may not be a fentanyl related call, (iii) Richmond Fire-Rescue staff have not recently used Narcan in any calls for services, and (iv) tall grass on boulevards does present a fire risk particularly as the weather becomes drier and hotter.

It was moved and seconded
That the staff report titled "Richmond Fire-Rescue Monthly Activity Report – April 2019", dated May 15, 2019, from the Fire Chief, Richmond Fire-Rescue, be received for information.

CARRIED

3. **FIRE CHIEF BRIEFING**
(Verbal Report)

(i) Structural Protection Unit Trailer

Mr. Wishlove provided an update regarding the deployment of the Structural Protection Unit Trailer noting that Richmond Fire-Rescue has completed staff training and the unit is now deployable and available for use as a resource.

4. **RCMP MONTHLY ACTIVITY REPORT - APRIL 2019**
(File Ref. No. 09-5000-01) (REDMS No. 6163353 v. 2)

Will Ng, Superintendent, Officer in Charge, spoke to the April 2019 RCMP Monthly Activity Report noting that (i) there has been a dramatic reduction in property crime due to intentional visibility in intelligence led locations based on crime data, (ii) late night road blocks at Vancouver International Airport and throughout the city have been successful in capturing impaired drivers and other violations, (iii) there was a slight increase in sex offences, however there were no trends or patterns related to relational offences or assaults, (iv) there continues to be a rise in calls for mental health services with over 200 year to date, and (v) RCMP staff are working on scheduling for increased support to address the increase in mental health calls for service.

In response to questions from Committee, Supt. Ng advised that:

- crime prevention newsletter is currently available to block watch members and could be made available in community centres in Richmond;
- residential break and enters includes any incident that enters the physical boundaries or threshold of the residence and property taken on the property is classified as theft from property which can be provided in the future;
- an online crime reporting tool for smaller offences will be launched next month with Richmond serving as a pilot municipality;
- RCMP staff are currently exploring real time crime mapping;
- number of calls in Richmond for substance addiction or mental health has no direct correlation with people moving into the area but there has been an increase in mental calls for services for people coming off of international flights and there are also chronic mental health clients with up to 30% calls for one client alone;
- just waiting for letter from Ottawa for approval of 19 officers approved for this year and then RCMP staff will start advertising those positions and hope to populate by the end of this year; and

- RCMP staff attended Iona beach this past weekend and registered 58 bicycles.

It was moved and seconded
That the report titled "RCMP Monthly Activity Report – April 2019", dated May 14, 2019, from the Officer in Charge, Richmond RCMP Detachment, be received for information.

CARRIED

5. **2018-2019 RCMP ANNUAL PERFORMANCE PLAN FOURTH QUARTER (JANUARY 1 - MARCH 31, 2019)**
(File Ref. No. 09-5000-01) (REDMS No. 6163331 v. 2)

Supt. Ng reviewed the quarterly RCMP performance plan report and commented that (i) last year set a goal of 2% reduction property crime however statistics are currently still 2% over for the year, (ii) the *Cannabis Act* led to a reduction in charges for cannabis and trafficking and made an impact on RCMP's ability to meet drug offence targets, (iii) had a dramatic increase in calls for mental health service than years previous, and (iv) this year RCMP are looking at reduction in property crime and are currently on target and to meet targets to reduce organized crime, RCMP staff are looking to introduce new initiatives on combating money laundering as well as focus on wraparound services to assist with clients with complex needs.

In reply to queries from Committee, Supt. Ng remarked that (i) RCMP have started investigations at private residences in Richmond in relation to money laundering and have been attending currency exchanges and casinos to ensure accountability, (ii) RCMP have increased traffic enforcement and producing record numbers, (iii) the Prolific Offender Suppression Team has been very successful with a focus on city centre and have arrested some of these offenders, (iv) RCMP have deployed every wrap around service available for the individual that accounted for 20 per cent of the mental health calls for service and are working towards a resolution, (v) the *Cannabis Act* does allow for more enforcement laws related to cannabis smoking and possession, (vi) RCMP staff can provide information on violation tickets in relation to cannabis offences, and (vii) there is one active investigation related to swarming and is currently being investigated.

It was moved and seconded
That the report titled "2018-2019 Richmond RCMP Detachment Annual Performance Plan Fourth Quarter Results (January 1 to March 31, 2019)", dated May 13, 2019, from the Officer in Charge, Richmond RCMP Detachment, be received for information.

CARRIED

6. **RCMP/OIC BRIEFING**
(Verbal Report)

None.

7. **COMMITTEE STANDING ITEM**

E-Comm

The Chair advised that the Annual General Meeting is to be held next Thursday, June 20, 2019.

8. **MANAGER'S REPORT**

None.

ADJOURNMENT

It was moved and seconded
That the meeting adjourn (4:55 p.m.).

CARRIED

Certified a true and correct copy of the Minutes of the meeting of the Community Safety Committee of the Council of the City of Richmond held on Tuesday, June 11, 2019.

Councillor Bill McNulty
Chair

Amanda Welby
Legislative Services Coordinator

City of Richmond

Report to Committee

To:	Finance Committee	**Date:**	May 3, 2019
From:	Andrew Nazareth General Manager, Finance and Corporate Services	**File:**	
Re:	**2018 Annual Report and 2018 Annual Report – Highlights**		

Staff Recommendation

That the reports titled, "2018 Annual Report" and the "2018 Annual Report – Highlights" be approved.

Andrew Nazareth
General Manager, Finance and Corporate Services
(4095)

Att. 2

REPORT CONCURRENCE	
CONCURRENCE OF GENERAL MANAGER	
REVIEWED BY SMT	INITIALS: SL
APPROVED BY CAO	

Staff Report

Origin

Pursuant to Section 98 of the Community Charter, before June 30th, in each year, a Council must:

a) Prepare an annual report

b) Make the report available for public inspection

c) Have the report available for public inspection at a Council or other public meeting

Analysis

The City of Richmond's annual report formally presents the audited financial statements and other relevant financial, economic and demographic indicators to the public. The report also highlights many of the City's significant achievements and milestones from 2018.

Two versions of the Annual Report are produced each year in order to reach the different audiences interested in this information. The comprehensive 2018 Annual Report meets all legislative requirements for financial reporting as required under the Community Charter for British Columbia's local governments. This version will be publicly available through the City's website at www.richmond.ca and printed only on a demand basis. The comprehensive version includes the City's audited consolidated financial statements; the City's corporate objectives and success indicators, as identified through Council's Term Goals; and a listing of permissive exemptions. In addition to the statutorily required information, the comprehensive version provides information on the City's milestones from 2018, including awards and achievements and a variety of key corporate financial and community demographic statistical data for the year.

For a broader audience, the City also produces a condensed financial reporting document known as the 2018 Annual Report – Highlights. This shorter version, which is designed to be accessible and easily understandable for a general audience, provides information about the City of Richmond, its services, highlights from 2018 and the City's financial condition. This condensed version will also be available through the City's website and limited copies will be mailed out and available to the general public at Richmond City Hall. This year, the layout has been enhanced to allow for an expanded section highlighting the City's completion of the Community Safety Building Program, which included construction of five new fire halls and the Richmond Community Safety Building (home of the Richmond RCMP detachment) from 2007 to 2018.

Both copies will be submitted to the Government Finance Officers Association for consideration in their annual awards program.

The reports are produced entirely in house through the joint efforts of the Finance Department and the Corporate Communications and Marketing Department.

Financial Impact

None.

Conclusion

The City of Richmond 2018 Annual Report and the 2018 Annual Report – Highlights satisfy the Community Charter requirements for financial reporting and are important instruments in ensuring public transparency and accountability for the management of City finances. The reports also provide useful information on the City's achievements and milestones during the 2018 fiscal year.

Jerry Chong
Director, Finance

(4064)

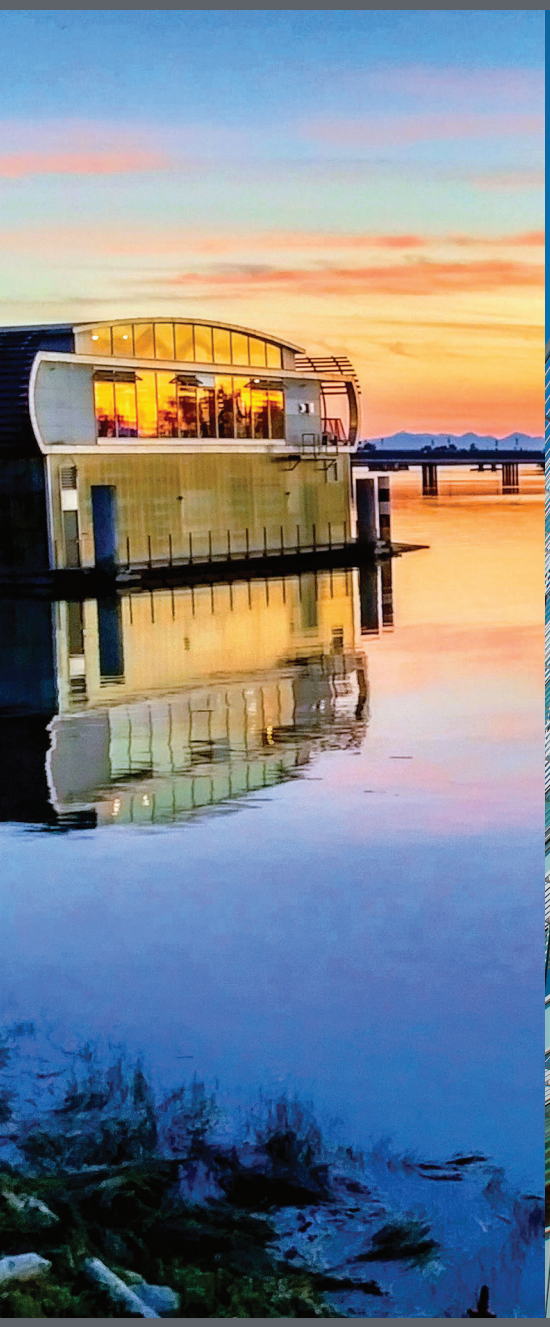
Ted Townsend
Director, Corporate Communications and Marketing
(4399)

Att. 1: 2018 Annual Report
2: 2018 Annual Report – Highlights

City of Richmond
British Columbia, Canada

2018 Annual Report

For the year ended December 31, 2018



Richmond

City of Richmond
British Columbia, Canada

2018 Annual Report

For the year ended December 31, 2018

Our vision is to be the most appealing, livable and well-managed community in Canada

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For an online copy of this report, please visit www.richmond.ca
(City Hall > Finance, Taxes & Budgets > Budgets & Financial Reporting > Annual Reports).

Cover photos: Richmond City Hall (middle) and two winning submissions in the City's 2018 Street Banner Contest.

This report was prepared by the City of Richmond Finance and Corporate Communications and Marketing Departments. Design, layout and production by the City of Richmond Production Centre.

Contents printed on Canadian made, 100% recycled stock, using environmentally friendly toners.

Message from the Mayor

The City of Richmond's 2018 Annual Report reflects another banner year for our community.

2018 saw the opening of the new Brighouse No.1 Fire Hall. As our central fire hall serving our busy City Centre, this new state of the art facility is a key public safety building. The opening of No. 1 Fire Hall also marked the conclusion of the ambitious community safety infrastructure program. Since 2007, the City has constructed five new fire halls and completed a major retrofit of a sixth fire hall. We also acquired and completed a retrofit of the Richmond Community Safety Building to serve as home for the Richmond RCMP detachment.

Council continues to make community safety a top priority. In 2018, we approved funding for an expanded City Centre Community Policing Office. This satellite facility will provide enhanced police presence and service within the City Centre. Council also made further investments in increased police staffing to meet the needs of our growing population, which has passed 225,000.

The continued strong growth of our community was reflected in another busy year of construction, with building permit value exceeding $879 million, the second highest total ever, while the number of licenced businesses surpassed 14,000.

With added growth, community mobility is another top priority for Council. The City continues to make significant investments in transportation infrastructure across Richmond. Of note, construction began on the new River Parkway. This will provide a major new arterial route bisecting our City Centre.

Improving our enviable quality of life is always top of mind for Council. In 2018, Richmond was among the first cities in the world to be named as a Global Active City. To earn this designation, a city must offer residents the opportunity to enjoy active, healthy lifestyles while improving their well-being. Richmond joins Buenos Aires, Hamburg, Liverpool and others among the first six cities to receive this prestigious recognition.

Richmond's long-standing reputation for innovation and excellence was further highlighted as we were named a finalist in the Government of Canada's Smart Cities Challenge. Our innovative concept proposes using technology and data to improve community resiliency to disaster, enhance transportation and combat climate change.

We owe our success to many who contribute to making Richmond a better place, including our staff, volunteers, business, and community and government partners. This Annual Report contains considerable more information on our goals and achievements and, as always, I invite your comments and questions through my office.

Malcolm Brodie
Mayor, City of Richmond

Richmond City Council

As of November 5, 2018

Front row, left to right:

Councillor Michael Wolfe,
Councillor Bill McNulty,
Mayor Malcolm Brodie,
Councillor Linda McPhail,
Councillor Kelly Greene

Back row, left to right:

Deputy Fire Chief Kevin Gray,
Richmond Fire-Rescue,
Councillor Harold Steves,
Councillor Carol Day,
Councillor Chak Au,
Councillor Alexa Loo,
Constable Leah Riske,
Richmond RCMP

Until November 4, 2018

Front row, left to right:

Councillor Carol Day,
Councillor Bill McNulty,
Mayor Malcolm Brodie,
Councillor Linda McPhail,
Councillor Harold Steves

Back row, left to right:

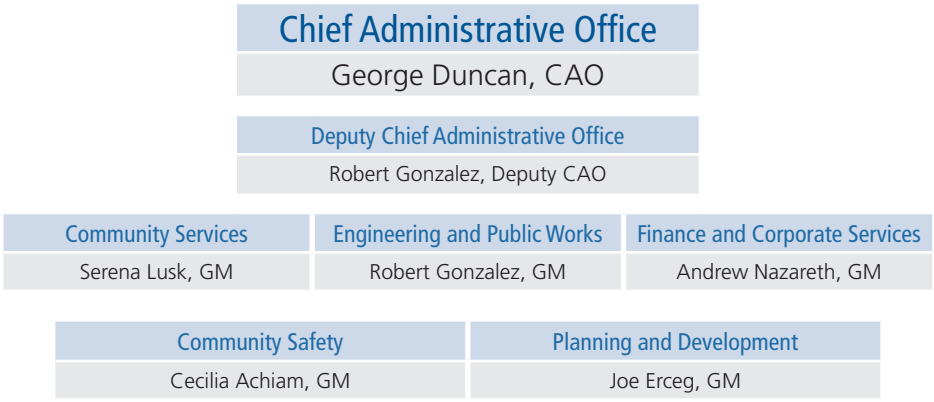
Constable Adam Carmichael,
Richmond RCMP,
Councillor Chak Au,
Councillor Derek Dang,
Councillor Ken Johnston,
Councillor Alexa Loo,
Captain Jack Beetstra,
Richmond Fire-Rescue

Connect with Richmond City Council

To contact Council: **mayorandcouncillors@richmond.ca** or call **604-276-4000**.
For Council Meetings agendas and minutes, visit: **www.richmond.ca/cityhall/council/agendas**.
To watch Council meetings on live streaming or view videos of past meetings visit:
www.richmond.ca/cityhall/council/watch-video.

City of Richmond organizational chart

as of December 31, 2018



Civic officials

Chief Administrative Officer ..... George Duncan
Deputy Chief Administrative Officer ..... Robert Gonzalez
General Manager, Community Safety ..... Cecilia Achiam
General Manager, Community Services ..... Serena Lusk from January 30, 2018
General Manager, Engineering and Public Works ..... Robert Gonzalez
General Manager, Finance and Corporate Services ..... Andrew Nazareth
General Manager, Planning and Development ..... Joe Erceg
General Manager, Interagency Programs and
Steveston Waterfront Initiatives ..... Dave Semple
Director, City Clerk's Office ..... David Weber
City Solicitor ..... Tony Capuccinello Iraci from November 15, 2018
Chief, Richmond Fire-Rescue ..... Tim Wilkinson from January 10, 2018

Affiliated agencies

Officer in Charge, Royal Canadian Mounted Police ..... Will Ng
Chief Operating Officer, Richmond Olympic Oval ..... John Mills
Chief Librarian, Richmond Public Library ..... Susan Walters
Chief Executive Officer, Lulu Island Energy Company Ltd. ..... John Irving

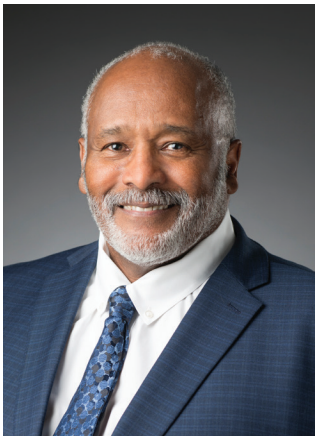
Banker

Scotiabank

Auditors

KPMG

Message from the Chief Administrative Officer



I am pleased to present the City of Richmond's Annual Report for the year 2018. This report details our outstanding financial position, while illustrating how we are achieving a key element of our vision, which is for Richmond to be Canada's best managed city.

During the past Council term, which concluded in 2018, our administration made major strides in delivering on Council's nine term goals. Those achievements are highlighted throughout the Annual Report.

Corporate and community sustainability continues to be one of Council's top priority areas. Richmond has long been recognized as a leader in embracing the three pillars of sustainability. A strong focus on the long-term economic, social and environmental health of our community is always at the forefront of our planning and actions.

Environmentally, we have made significant inroads in offsetting the impact of global climate change. From 2007 to 2015, we were able to reduce overall greenhouse gas emissions in the City by 12 per cent, even as our population grew by 12 per cent during the same period. This has reduced greenhouse gas emissions and energy costs for the City, local residents and businesses. Our award-winning District Energy Utility is on track to become the largest of its kind in North America. In 2018, we became the first in North America to require that all parking stalls in new developments be energized to support Level 2 Electric Vehicle charging.

Our innovative diking and drainage utility allows us to make substantive annual investments to ensure our island city is protected from any potential flood risk, including extreme weather events and rising sea levels.

On the social side, the City has secured hundreds of affordable housing units and child care spaces, while updating policies to ensure we continue to address these critical needs in our community.

Strong financial stewardship through our Long Term Financial Management Strategy is also a hallmark of our City administration. This Strategy has allowed Council to limit property tax increases, while still making significant investments in infrastructure and programs. Richmond's property taxes remain among the lowest in the region and we maintain a favourable business-residential tax balance.

Our strong commitment to community sustainability allows us to continue to provide for the needs of a growing and evolving community, while delivering services that are second to none and providing great value for our taxpayers.

George Duncan
Chief Administrative Officer

Council Term Goals: 2014 to 2018

The Community Charter requires that all BC municipalities include a statement in the Annual Report of their objectives for the current and future years, along with measures to track success towards these objectives.

The City of Richmond's objectives and success indicators are expressed through the Council Term Goals. With the beginning of a new four-year term of Council in 2014, a term goal setting process was undertaken to help Council fulfil its governance role and achieve a successful term of office. Council adopted a revised set of nine Term Goals, which provided the framework for the City's programs and services through 2018.

1. A Safe Community

Maintain emphasis on community safety to ensure Richmond continues to be a safe community.

2018 Achievement

City Council approved an additional 16 police officers for the Richmond RCMP, meaning a total increase of 40 new officers during the 2014–2018 Council term.

Council approved funding for an additional 16 police officers in 2018.

Richmond was one of the first in the world to receive Global Active Cities designation.

2. A Vibrant, Active, and Connected City

Continue the development and implementation of an excellent and accessible system of programs, services, and public spaces that reflect Richmond's demographics, rich heritage, diverse needs, and unique opportunities, and that facilitate active, caring, and connected communities.

2018 Achievement

Richmond was selected as one of the first six Global Active Cities in the world, recognizing our ongoing commitment to community wellness and active lifestyles.

Richmond was named as a finalist in the Smart Cities Challenge.

3. A Well-Planned Community

Adhere to effective planning and growth management practices to maintain and enhance the livability, sustainability and desirability of our City and its neighbourhoods, and to ensure the results match the intentions of our policies and bylaws.

2018 Achievement

Council approved development of a new 40-unit temporary modular housing project to serve people experiencing homelessness.

4. Leadership in Sustainability

Continue advancement of the City's sustainability framework and initiatives to improve the short and long term livability of our City, and that maintain Richmond's position as a leader in sustainable programs, practices and innovations.

2018 Achievement

The Richmond recycling program was expanded with acceptance of flexible plastic packaging at the Recycling Depot. The City achieved 78 per cent diversion from landfills for single family residences.

5. Partnerships and Collaboration

Continue development and utilization of collaborative approaches and partnerships with intergovernmental and other agencies to help meet the needs of the Richmond community.

2018 Achievement

The City was named a finalist for a $10 million prize in the national Smart Cities Challenge competition. The City's innovative proposal was built on partnerships with other government agencies, business and academia.

Expanded recycling has resulted in 78% diversion of household waste from landfills.

A ground breaking ceremony was held for construction of the new River Parkway.

6. Quality Infrastructure Networks

Continue diligence towards the development of infrastructure networks that are safe, sustainable, and address the challenges associated with aging systems, population growth, and environmental impact.

2018 Achievement

A groundbreaking ceremony was held for the River Parkway, a major new arterial route that will bisect the City Centre and significantly enhance community mobility.

7. Strong Financial Stewardship

Maintain the City's strong financial position through effective budget processes, the efficient and effective use of financial resources, and the prudent leveraging of economic and financial opportunities to increase current and long-term financial sustainability.

Council approved development of a new 40-unit temporary modular housing project to serve people experiencing homelessness.

2018 Achievement

Council's Long Term Financial Management Strategy has resulted in the City and its subsidiaries accumulating $540 million in Reserves as at December 31, 2018. This positions the City well for the future.

The launch of MyRichmond expanded the range of City e-services available to local residents.

Construction value of building permits in 2018 was the second highest ever.

8. Supportive Economic Development Environment

Review, develop and implement plans, policies, programs and practices to increase business and visitor appeal and promote local economic growth and resiliency.

2018 Achievement

The construction value of building permits issued in 2018 was $879 million, the second highest total ever.

9. Well-Informed Citizenry

Continue to develop and provide programs and services that ensure the Richmond community is well-informed and engaged on City business and decision making.

2018 Achievement

The new MyRichmond e-services portal was launched, providing citizens with enhanced access to select online City services.

Additional information on the success indicators in support of these objectives can be found at: www.richmond.ca/cityhall/council/about/goals.

Community Safety Building Program

The opening of the Brighouse Fire Hall No. 1 in the fall of 2018 was a momentous occasion for the City of Richmond.

It is the City's central fire hall serving the rapidly growing City Centre and is headquarters for Richmond Fire-Rescue's administration. It is also home to the City's Emergency Programs department.

Brighouse Fire Hall No. 1 officially opened in 2018 with a celebration that included fun activities for the whole family and dedication of a new public art statue honouring firefighters.

The completion of Brighouse Fire Hall No. 1 also marked the conclusion of an ambitious 10-year building program, in which the City replaced or upgraded virtually all of its public safety buildings. Since 2007, the City completed construction of five new fire halls, completed a major retrofit of a sixth fire hall, and acquired and renovated the Richmond Community Safety Building, which serves as the home of the City's police detachment.

Major milestones of the Community Safety Building Program included the openings of the following buildings:

2007 Hamilton Fire Hall
2007 Sea Island Fire Hall
2011 Richmond Community Safety Building
2011 Steveston Fire Hall
2017 Cambie Fire Hall
2018 Brighouse Fire Hall

All the new buildings were built to post-disaster standard to ensure they would remain operable after a major seismic event. Sustainable building design was also incorporated into all the new facilities, with a number achieving gold certification under the Leadership in Energy and Environmental Design (LEED) ranking program.

The Cambie Fire Hall is also home to a BC ambulance service station, the first time these two critical emergency response agencies have been co-housed in an urban centre in BC.

Since 2007, the City has also completed a new Community Safety Building, which houses the police detachment (top) and five new fire halls, including the Cambie (middle), Steveston, Sea Island and Hamilton Fire Halls (bottom).

2018 Awards

A measurement of the City's success in achieving its goals are the honours and recognition we received from our peers and others. In 2018, Richmond again received numerous international, national and provincial awards recognizing our commitment to excellence and innovation.

Smart Cities Challenge

Richmond was selected as a finalist in the national Smart Cities Challenge. Richmond was chosen as one of 10 finalists competing for two $10 million prizes. The Government of Canada competition challenged local governments to envision innovative ways to engage technologies and data that will improve the lives of residents and enhance service delivery.

Global Active City

Richmond was among the first six cities in the world to be named as a Global Active City based on work with our partners in developing key initiatives such as our Community Wellness Strategy and the Recreation and Sport Strategy.

District Energy Program

Richmond's District Energy Program has been the subject of more than a dozen awards since 2011, including two awards in 2018 – the Innovative Energy Project of the Year Award from the Association of Energy Engineers and the District Energy Leadership Award from the International District Energy Association.

Financial Reporting

The Government Finance Officers Association of the US and Canada presented Richmond with the Canadian Award for Financial Reporting for the 16th year in a row and the Popular Financial Reporting Award for the 9th year in a row for our 2017 Annual Report.

Storeys affordable housing project

The City received the Planning Excellence Award in Social Planning from the Canadian Institute of Planners for the new Storeys affordable housing project on Granville Avenue east of No. 3 Road.

The Storeys affordable housing project received national honors for planning excellence.

The City received two 2018 awards from the BC Recreation and Parks Association.

MyRichmond

Richmond was named one of the 50 Top Smart Cities in the World in the Smart 50 competition for the development of our new MyRichmond e-services portal, part of the City's Digital Strategy.

City Fleet Program

The American Public Works Association and Government Fleet magazine honoured Richmond with their Leading Fleets Award.

Electric Vehicle Readiness Policy

The City received the Governance Award from the Union of BC Municipalities for our innovative Electric Vehicle Readiness Policy, a North American first.

No. 2 Road Drainage Pump Station

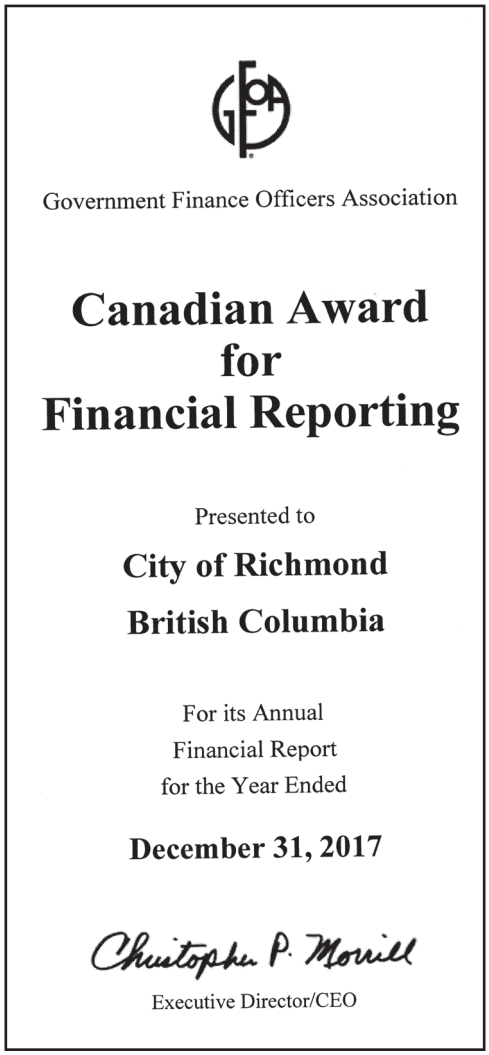
The Public Works Association of BC awarded Richmond the Project of the Year Award for the design of our new No. 2 Road Pump Station.

City Centre Community Centre

The BC Recreation and Parks Association presented Richmond with the Building Excellence Award for the City Centre Community Centre.

Pollinator Pasture

Richmond received the BC Recreation and Parks Association Program Excellence Award, recognizing a creative, successful and innovative program that serves as a model for other recreation and parks agencies to enhance their services. The award was for the Pollinator Pasture, a community-engaged public art project by the City of Richmond in partnership with Border Free Bees.



Government Finance Officers Association

Canadian Award for Financial Reporting

Presented to

City of Richmond

British Columbia

For its Annual Financial Report for the Year Ended

December 31, 2017

Christopher P. Morrill

Executive Director/CEO

Report from the General Manager, Finance and Corporate Services

Mayor Malcom Brodie and Members of Richmond City Council,

I am pleased to submit the Consolidated Financial Statements and Auditor's Report for the fiscal year ended December 31, 2018 for the City of Richmond pursuant to Section 98 and 167 of the Community Charter.

Management is responsible for the preparation and presentation of the financial statements and related information in the 2018 Annual Report. The consolidated financial statements have been prepared in accordance with Canadian public sector accounting standards as prescribed by the Public Sector Accounting Board (PSAB) of the Chartered Professional Accountants of Canada. The City maintains a system of internal controls designed to provide reasonable assurances for the safeguarding of assets and the reliability of financial information.

KPMG LLP was appointed by City Council to independently audit the City's consolidated financial statements. They have expressed an opinion, that the City's consolidated financial statements present fairly, in all material respects, the consolidated financial position of the City of Richmond as at December 31, 2018 and its consolidated results of operations, its changes in net consolidated financial assets and its consolidated cash flows for the year then ended in accordance with Canadian public sector accounting standards.

These financial statements combine the accounts of the City of Richmond, Richmond Olympic Oval, and Richmond Public Library (collectively referred to as the "City"), as well as the City's investment in Lulu Island Energy Company which is accounted for as a Government Business Enterprise.

Consolidated Statement of Financial Position (in $000s)

	2018 Actual	2017 Actual	Change
Financial Assets	$1,231,060	$1,114,486	$116,574
Financial Liabilities	467,939	416,396	51,543
Net Financial Assets	**763,121**	**698,090**	**65,031**
Tangible Capital Assets	2,371,694	2,251,901	119,793
Inventory	3,602	3,762	(160)
Prepaid Expenses	2,673	2,376	297
Non-Financial Assets	**2,377,969**	**2,258,039**	**119,930**
Accumulated Surplus	**$3,141,090**	**$2,956,129**	**$184,961**

The City's financial position remains strong with an increase in the assets resulting from additions to capital and statutory reserves. This is offset by liabilities that include deferred revenue related to the collection of Development Cost Charges (DCC) as well as deposits for restricted purposes, including performance on development projects. The City's long-term debt with the Municipal Finance Authority continues to decline with an outstanding balance at the end of 2018 of $32.8 million or approximately $147 per capita.

The City's tangible capital assets increased by $119.8 million, which includes $88.0 million of in-kind contributions from development. The majority of these additional assets are related to land received as conditions of re-zoning, along with new infrastructure required to support the growing community.

Statutory Reserves (in $000s)

	2014	2015	2016	2017	2018
Total Reserves	$376,602	$461,178	$471,846	$484,883	$540,153

Statutory reserves are established by Bylaw for specific purposes, mainly capital expenditures. The increase in the balance to $540.2 million is mainly attributable to the timing of these capital expenditures and contributions. Each year, amounts are transferred to the reserves through Council's Long Term Financial Management Strategy towards infrastructure construction and renewal along with cash contributions from developers as conditions of development.

Overall, the City's accumulated surplus increased to $3.1 billion as at December 31, 2018. Accumulated surplus represents the net resources that can be used to provide future services.

Consolidated Statement of Operations (in $000s)

	2018 Budget	2018 Actual	2017 Actual
Revenue	$521,494	$599,417	$523,167
Expenses	439,367	414,456	413,284
Annual Surplus	**$82,127**	**$184,961**	**$109,883**

The City's consolidated revenue for the year totaled $599.4 million and represents an increase of $76.3 million over 2017. Continuing growth in the community has resulted in the additional development-related revenue and contributions.

Expenses increased by $1.2 million from prior year. 2017 expenses include an extraordinary contribution towards the Storeys affordable housing initiative.

The annual surplus for 2018 was $185.0 million and represents the change in investment in tangible capital assets, reserves and other accumulated surplus.

Budget Variance

Consolidated revenue of $599.4M was greater than budgeted revenue by $77.9M mainly due to:

- $37.2M higher than budgeted capital funding, mainly due to developer contributed assets;
- $33.7M in developer cash contributions included under other revenue;
- $14.2M lower than budgeted DCC revenue due to the timing of capital expenditures. Revenue is recognized when the amounts are spent while the budget represents the 2018 allocation of DCC's towards capital projects that can be spent over multiple years;
- $7.1M higher than budget for payments-in-lieu of taxes, taxation and levies and other revenues;
- $6.0M higher than budgeted investment income due to increases in the interest rate during the year and timing of capital expenditures;
- $3.3M higher than budgeted permit revenue, underpinning fees and business licence revenue;
- $2.7M of grant revenue recognized was greater than budgeted for the expansion of the Major Road Network and traffic grants; and,
- $2.1M higher than budget for utility fees mainly due to construction related flat rate utility prepayments and fire hydrant usage revenue.

Consolidated expenses of $414.5M were lower than budget by $25.0M. The main variances include:

- $9.2M lower than budgeted general government costs due to vacancies and timing of programs;
- $7.3M lower than budgeted engineering and public works costs due to timing of programs scheduled to be completed in 2019;
- $3.3M favourable budget variance for community safety due to RCMP policing contract and salary vacancies;
- $2.9M lower than budgeted costs in other various services; and,
- $2.3M lower than budgeted community service costs as a result of the delay in the opening of the Minoru Centre for Active Living.

The City's consolidated annual surplus of $185.0 million exceeded the budgeted annual surplus of $82.1 million by $102.9 million prior to transfers to reserves and other accumulated surplus. The annual surplus exceeded budget primarily due to developer cash contributions of $33.7 million and $88.0 million of in-kind asset contributions.

Year over year change

Consolidated revenue of $599.4M increased by $76.3M over 2017 mainly due to:

- an increase of $38.3M in capital funding due to the timing of developer contributed assets which includes a $33.5M increase in donated assets by developers relating to land;
- an increase of $17.2M in other revenue mainly from developer amenity contributions;
- an increase of $10.0M in property taxes due to the approved rate increase and growth related to new development;
- an increase of $3.4M in utility fees, including water and sewer rate and volume increases;
- an increase of $2.9M of investment income from the higher average investment balance and improved yield; and,
- remaining net increase of $4.5M on grants, development cost charges, and other revenue.

Consolidated expenses of $414.5M increased by $1.2M over 2017 mainly due to:

- a decrease of $17.0M in contributions towards the Storeys Development project that was paid in 2017 and did not recur in 2018;
- an increase of $8.6M from increased policing costs and contract costs for E-Comm 911;
- an increase of $2.8M in contractual wage and other fringe costs; and,
- remaining net increase of $6.8M in other expenses.

Financial Sustainability

City Council adopted the Long Term Financial Management Strategy to ensure prudent fiscal practices while maintaining the City's high service standards and balancing current and long term financial needs. The effects of this policy can be seen in the current financial health of the organization.

The City's financial management has positioned it well to continue to carry out and meet Council goals and service commitments to provide a safe and desirable community to live, work and play in, while providing value for taxpayers.

Respectfully submitted,

Andrew Nazareth, BEc, CPA, CGA
General Manager, Finance and Corporate Services
May 13, 2019

City of Richmond audited financial statements

Year ended December 31, 2018

KPMG LLP
PO Box 10426 777 Dunsmuir Street
Vancouver BC V7Y 1K3
Canada
Telephone (604) 691-3000
Fax (604) 691-3031

INDEPENDENT AUDITORS' REPORT

To the Mayor and Council of the City of Richmond

Opinion

We have audited the consolidated financial statements of the City of Richmond (the "City"), which comprise:

- the consolidated statement of financial position as at December 31, 2018
- the consolidated statement of operations for the year then ended
- the consolidated statement of changes in net financial assets for the year then ended
- the consolidated statement of cash flows for the year then ended
- and notes to the consolidated financial statements, including a summary of significant accounting policies

(hereinafter referred to as the "financial statements").

In our opinion, the accompanying financial statements present fairly, in all material respects, the consolidated financial position of the City as at December 31, 2018, and its consolidated results of operations, its consolidated changes in net financial assets and its consolidated cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the "***Auditors' Responsibilities for the Audit of the Financial Statements***" section of our auditors' report.

We are independent of the City in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the City's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the City or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the City's financial reporting process.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

  The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the City's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the City's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the City to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group entity to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

KPMG LLP

Chartered Professional Accountants

Vancouver, Canada
May 13, 2019

CITY OF RICHMOND

Consolidated Statement of Financial Position
(Expressed in thousands of dollars)

December 31, 2018, with comparative information for 2017

	2018	2017
Financial Assets		
Cash	$ 121,861	$ 47,867
Investments (note 3)	1,004,928	972,783
Investment in Lulu Island Energy Company ("LIEC") (note 4)	29,780	28,289
Accrued interest receivable	7,443	6,651
Accounts receivable (note 5)	29,151	27,036
Taxes receivable	11,844	8,976
Development fees receivable	25,545	22,376
Debt reserve fund - deposits (note 6)	508	508
	1,231,060	1,114,486
Liabilities		
Accounts payable and accrued liabilities (note 7)	95,231	99,036
Development cost charges (note 8)	158,882	130,684
Deposits and holdbacks (note 9)	113,620	82,786
Deferred revenue (note 10)	67,364	66,287
Debt, net of MFA sinking fund deposits (note 11)	32,842	37,603
	467,939	416,396
Net financial assets	763,121	698,090
Non-Financial Assets		
Tangible capital assets (note 12)	2,371,694	2,251,901
Inventory of materials and supplies	3,602	3,762
Prepaid expenses	2,673	2,376
	2,377,969	2,258,039
Accumulated surplus (note 13)	$ 3,141,090	$ 2,956,129

Contingent demand notes (note 6)
Commitments and contingencies (note 18)

See accompanying notes to consolidated financial statements.

General Manager, Finance and Corporate Services

CITY OF RICHMOND

Consolidated Statement of Operations
(Expressed in thousands of dollars)

Year ended December 31, 2018, with comparative information for 2017

	2018 Budget (notes 2(p) and 24)	2018	2017
Revenue:			
Taxation and levies	$ 216,703	$ 216,908	$ 206,901
Utility fees	100,786	102,915	99,493
Sales of services	39,246	39,111	39,430
Payments-in-lieu of taxes	14,245	15,489	14,647
Provincial and federal grants	7,692	10,355	9,276
Development cost charges (note 8)	31,638	17,432	15,710
Other capital funding sources	58,685	95,859	57,570
Other revenue:			
Investment income	14,694	20,705	17,832
Gaming revenue	16,500	16,837	16,753
Licenses and permits	10,384	13,637	13,011
Other (note 21)	10,921	48,678	31,502
Equity income in government business enterprise (“GBE”) (note 4)	-	1,491	1,042
	521,494	599,417	523,167
Expenses:			
Community safety	101,786	98,500	89,933
Utilities: water, sewer and sanitation	90,460	89,959	87,757
Engineering, public works and project development	76,077	68,793	66,120
Community services	66,159	63,882	77,387
General government	61,796	52,549	51,720
Planning and development	16,120	15,368	15,417
Richmond Olympic Oval	16,211	15,424	15,331
Library services	10,758	9,981	9,619
	439,367	414,456	413,284
Annual surplus	82,127	184,961	109,883
Accumulated surplus, beginning of year	2,956,129	2,956,129	2,846,246
Accumulated surplus, end of year	$ 3,038,256	$ 3,141,090	$ 2,956,129

See accompanying notes to consolidated financial statements.

CITY OF RICHMOND

Consolidated Statement of Changes in Net Financial Assets
(Expressed in thousands of dollars)

Year ended December 31, 2018, with comparative information for 2017

	2018 Budget (notes 2(p) and 24)	2018	2017
Annual surplus for the year	$ 82,127	$ 184,961	$ 109,883
Acquisition of tangible capital assets	(162,318)	(92,851)	(110,742)
Contributed tangible capital assets	(47,410)	(88,021)	(52,249)
Amortization of tangible capital assets	58,717	60,542	58,012
Net loss (gain) on disposal of tangible capital assets	-	324	(3,293)
Proceeds on sale of tangible capital assets	-	213	5,361
Reclassification of assets to LIEC as GBE	-	-	31,036
Classification of LIEC as GBE	-	-	(2,182)
	(68,884)	65,168	35,826
Acquisition of inventories of materials and supplies	-	(3,602)	(3,762)
Acquisition of prepaid expenses	-	(2,673)	(2,376)
Consumption of inventories of materials and supplies	-	3,762	3,138
Use of prepaid expenses	-	2,376	2,525
Change in net financial assets	(68,884)	65,031	35,351
Net financial assets, beginning of year	698,090	698,090	662,739
Net financial assets, end of year	$ 629,206	$ 763,121	$ 698,090

See accompanying notes to consolidated financial statements.

CITY OF RICHMOND

Consolidated Statement of Cash Flows
(Expressed in thousands of dollars)

Year ended December 31, 2018, with comparative information for 2017

	2018	2017
Cash provided by (used in):		
Operating activities:		
Annual surplus	$ 184,961	$ 109,883
Items not involving cash:		
Amortization	60,542	58,012
Loss (gain) on disposal of tangible capital assets	324	(3,293)
Contributions of tangible capital assets	(88,021)	(52,249)
Accounting adjustments upon transition of LIEC to a GBE	-	5,846
Equity income in GBE	(1,491)	(1,042)
Change in non-cash operating working capital:		
Accrued interest receivable	(792)	321
Accounts receivable	(2,115)	730
Taxes receivable	(2,868)	446
Development fees receivable	(3,169)	(5,664)
Inventories of materials and supplies	160	(624)
Prepaid expenses	(297)	149
Accounts payable and accrued liabilities	(3,805)	2,316
Development cost charges	28,198	13,087
Deposits and holdbacks	30,834	9,990
Deferred revenue	1,077	(33)
Net change in cash from operating activities	203,538	137,875
Capital activities:		
Cash used to acquire tangible capital assets	(92,851)	(110,742)
Proceeds on disposal of tangible capital assets	213	5,361
Net change in cash from capital activities	(92,638)	(105,381)
Financing activities:		
Repayments of debt	(4,761)	(4,578)
Investing activities:		
Net sale (purchase) of investments	(32,145)	5,855
Contribution to LIEC	-	(4,239)
Net change in cash from investing activities	(32,145)	1,616
Net change in cash	73,994	29,532
Cash, beginning of year	47,867	18,335
Cash, end of year	$ 121,861	$ 47,867

See accompanying notes to consolidated financial statements.

CITY OF RICHMOND

Notes to Consolidated Financial Statements
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

1. Operations:

The City of Richmond (the "City") is incorporated under the Local Government Act of British Columbia. The City's principal activities include the provision of local government services to residents of the incorporated area. These include administrative, protective, transportation, infrastructure, environmental, recreational, water, sewer, and drainage.

2. Significant accounting policies:

The consolidated financial statements of the City have been prepared in accordance with Canadian public sector accounting standards as prescribed by the Public Sector Accounting Board ("PSAB") of the Chartered Professional Accountants Canada.

(a) Basis of consolidation:

The consolidated financial statements reflect a combination of the City's General Revenue, General Capital and Loan, Waterworks and Sewerworks, and Reserve Funds consolidated with the Richmond Public Library (the "Library") and the Richmond Olympic Oval (the "Oval"). The Library is consolidated as the Library Board is appointed by the City. The Oval is consolidated as they are a wholly owned municipal corporation of the City. Interfund transactions, fund balances and activities have been eliminated on consolidation. The City's investment in Lulu Island Energy Company ("LIEC"), a wholly owned government business enterprise ("GBE"), is accounted for using the modified equity method effective January 1, 2017 (note 2(f)).

(*i*) General Revenue Fund:

This fund is used to account for the current operations of the City as provided for in the Annual Budget, including collection of taxes, administering operations, policing, and servicing general debt.

(*ii*) General Capital and Loan Fund:

This fund is used to record the City's tangible capital assets and work-in-progress, including engineering structures such as roads and bridges, and the related debt.

(*iii*) Waterworks and Sewerworks Funds:

These funds have been established to cover the costs of operating these utilities, with related capital and loan funds to record the related tangible capital assets and debt.

(*iv*) Reserve Funds:

Certain funds are established by bylaws for specific purposes. They are funded primarily by budgeted contributions from the General Revenue Fund and developer contributions plus interest earned on fund balances.

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

2. Significant accounting policies (continued):

(b) Basis of accounting:

The City follows the accrual method of accounting for revenue and expenses. Revenue is recognized in the year in which it is earned and measurable. Expenses are recognized as they are incurred and measurable as a result of receipt of goods and services and/or the creation of a legal obligation to pay.

(c) Government transfers:

Restricted transfers from governments are deferred and recognized as revenue as the related expenditures are incurred or the stipulations in the related agreement are met. Unrestricted transfers are recognized as revenue when received or if the amount to be received can be reasonably estimated and collection is reasonably assured.

(d) Cash and cash equivalents:

Cash and cash equivalents consist of cash, highly liquid money market investments and short-term investments with maturities of less than 90 days from date of acquisition.

(e) Investments:

Investments are recorded at cost, adjusted for amortization of premiums or discounts. Provisions for losses are recorded when they are considered to be other than temporary.

(f) Investment in government business enterprises:

Government business enterprises are recorded using the modified equity method of accounting. The City's investment in the GBE is recorded as the value of the GBE's shareholder's equity. The investment's income or loss is recognized by the City when it is earned by the GBE. Inter-organizational transactions and balances are not eliminated, except for any gains or losses on assets remaining within the City.

(g) Accounts receivable:

Accounts receivable are net of an allowance for doubtful accounts and therefore represent amounts expected to be collected.

(h) Development cost charges:

Development cost charges are restricted by legislation to expenditures on capital infrastructure. These amounts are deferred upon receipt and recognized as revenue when the expenditures are incurred in accordance with the restrictions.

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

2. Significant accounting policies (continued):

(i) Post-employment benefits:

The City and its employees make contributions to the Municipal Pension Plan. As this plan is a multi-employee plan, contributions are expensed as incurred.

Post-employment benefits also accrue to the City's employees. The liabilities related to these benefits are actuarially determined based on service and best estimates of retirement ages and expected future salary and wage increases. The liabilities under these benefits plans are accrued based on projected benefits prorated as employees render services necessary to earn the future benefits.

(j) Non-financial assets:

Non-financial assets are not available to discharge existing liabilities and are held for use in the provision of services. They have useful lives extending beyond the current year and are not intended for sale in the ordinary course of operations.

(*i*) Tangible capital assets:

Tangible capital assets are recorded at cost, which includes amounts that are directly attributable to acquisition, construction, development, or betterment of the assets. The cost, less the residual value, of the tangible capital assets, excluding land, are amortized on a straight line basis over their estimated useful lives as follows:

Asset	Useful life - years
Buildings and building improvements	10 - 75
Infrastructure	5 - 100
Vehicles, machinery and equipment	3 - 40
Library's collections, furniture and equipment	4 - 20

Amortization is charged over the asset's useful life commencing when the asset is acquired. Assets under construction are not amortized until the asset is available for productive use.

(*ii*) Contributions of tangible capital assets:

Tangible capital assets received as contributions are recorded at their fair value at the date of receipt and also are recorded as revenue.

(*iii*) Natural resources, works of art, and cultural and historic assets:

Natural resources, works of art, and cultural and historic assets are not recorded as assets in the consolidated financial statements.

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

2. Significant accounting policies (continued):

(j) Non-financial assets (continued):

(*iv*) Interest capitalization:

The City does not capitalize interest costs associated with the construction of a tangible capital asset.

(*v*) Labour capitalization:

Internal labour directly attributable to the construction, development or implementation of a tangible capital asset is capitalized.

(*vi*) Leased tangible capital assets:

Leases which transfer substantially all of the benefits and risks incidental to ownership of property are accounted for as leased tangible capital assets. All other leases are accounted for as operating leases and the related payments are charged to expenses as incurred.

(*vii*) Impairment of tangible capital assets:

Tangible capital assets are written down when conditions indicate that they no longer contribute to the City's ability to provide goods and services, or when the value of future economic benefits associated with the tangible capital assets are less than their net book value. The net write-downs are accounted for as expenses in the consolidated statement of operations.

(*viii*) Inventory of materials and supplies:

Inventory is recorded at cost, net of an allowance for obsolete stock. Cost is determined on a weighted average basis.

(k) Revenue recognition:

Revenue is recognized in the period in which the transactions or events occurred that gave rise to the revenue. All revenue is recorded on an accrual basis, except when the accruals cannot be determined with a reasonable degree of certainty or when their estimation is impractical.

The City is required to act as the agent for the collection of certain taxes and fees imposed by other authorities. Collections for other authorities are excluded from the City's taxation revenue.

(l) Property taxes:

The City establishes property tax rates based on assessed market values provided by the British Columbia Assessment Authority (BCA). Market values are determined as of July 1st of each year. The City records taxation revenue at the time the property tax bills are issued. The City is entitled to collect interest and penalties on overdue taxes.

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

2. Significant accounting policies (continued):

(m) Deferred revenue:

The City defers a portion of the revenue collected from permits, licenses and other fees and recognizes this revenue in the year in which related inspections are performed, other related expenses are incurred or services are provided.

Deferred revenue also represents funds received from external parties for specified purposes. This revenue is recognized in the period in which the related expenses are incurred.

(n) Deposits:

Receipts restricted by the legislation of senior governments or by agreement with external parties are deferred and reported as deposits and are refundable under certain circumstances. When qualifying expenses are incurred, deposits are recognized as revenue at amounts equal to the qualifying expenses.

(o) Debt:

Debt is recorded net of related sinking fund balances.

(p) Budget information:

Budget information, presented on a basis consistent with that used for actual results, was included in the City's 5 Year Consolidated Financial Plan (2018-2022) ("Consolidated Financial Plan") and was adopted through Bylaw No. 9800 on March 12, 2018.

(q) Contaminated sites:

Contaminated sites are a result of contamination being introduced into air, soil, water, or sediment of a chemical, organic or radioactive material of live organism that exceeds an environmental standard. Liabilities are recorded net of any expected recoveries.

A liability for remediation of contaminated sites is recognized when a site is not in productive use and the following criteria are met:

(*i*) An environmental standard exists;

(*ii*) Contamination exceeds the environmental standard;

(*iii*) The City is directly responsible or accepts responsibility;

(*iv*) It is expected that future economic benefits will be given up; and

(*v*) A reasonable estimate of the amount can be made.

The liability is recognized as management's estimate of the cost of post-remediation including operation, maintenance and monitoring that are an integral part of the remediation strategy for a contaminated site.

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

2. Significant accounting policies (continued):

(r) Use of accounting estimates:

The preparation of consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amount of revenue and expenditures during the reporting period. Significant areas requiring the use of management estimates relate to the value of contributed tangible capital assets, value of developer contributions, useful lives for amortization, determination of provisions for accrued liabilities, performing actuarial valuation of employee future benefits, allowance for doubtful accounts, and provision for contingencies. Actual results could differ from those estimates. Adjustments, if any, will be reflected in the consolidated financial statements in the period that the change in estimate is made, as well as in the period of settlement if the amount is different.

(s) Segment disclosures:

A segment is defined as a distinguishable activity or group of activities of a government for which it is appropriate to separately report financial information to achieve the objectives of the standard. The City has provided definitions of segments as well as presented financial information in segment format.

3. Investments:

	2018		2017	
	Cost	Market value	Cost	Market value
Short-term notes and deposits	$ 577,416	$ 577,060	$ 499,541	$ 488,215
Government and government guaranteed bonds	164,943	165,401	177,648	178,246
Municipal Finance Authority pooled investment	46,150	44,716	45,065	43,943
Other bonds	216,419	213,577	250,529	249,120
	$ 1,004,928	$ 1,000,754	$ 972,783	$ 959,524

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

4. Investment in Lulu Island Energy Company Ltd:

The City owns 100% of the issued and outstanding shares of LIEC, which was incorporated under the British Columbia Business Corporation Act on August 19, 2013. LIEC develops, manages and operates district energy utilities in the City, on the City's behalf, including but not limited to energy production, generation or exchange, transmission, distribution, maintenance, marketing and sales to customers, customer service, profit generation, financial management and advisory services for energy and infrastructure.

Summarized financial information relating to LIEC is as follows:

	2018	2017
Cash, cash equivalents, and investments	$ 8,596	$ 6,227
Accounts receivable	2,242	1,488
Tangible capital assets	32,361	32,033
Total assets	43,199	39,748
Accounts payable and accrued liabilities	1,922	1,550
Deferred contributions	5,268	3,522
Concession liability	6,229	6,387
Total liabilities	13,419	11,459
Shareholder's equity	$ 29,780	$ 28,289
Total revenue	$ 4,888	$ 4,224
Total expenses	3,397	3,182
Net income	$ 1,491	$ 1,042

Included in accounts payable and accrued liabilities in the City's consolidated statement of financial position are payables to LIEC in the amount of $1,375,799 (2017 - $360,766).

On October 30, 2014, LIEC and the Oval Village district energy utility developer ("the Concessionaire") entered into a 30-year Concession Agreement, which is a public-private partnership project ("P3"), where the Concessionaire will design, construct, finance, operate, and maintain the infrastructure for the district energy utility at the Oval Village community. As part of the Agreement, the infrastructure will be owned by LIEC.

On October 30, 2014, the Concessionaire and the City entered into a Limited Guarantee Agreement. The City is the Guarantor and guarantees the performance of some of the Company's obligations under the Concession Agreement to a maximum of $18.2 million (2017 - $18.2 million).

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

5. Accounts receivable:

	2018	2017
Water and sewer utilities	$ 11,999	$ 12,661
Casino revenue	4,010	4,025
Capital grants	5,003	2,929
Other trade receivables	8,139	7,421
	$ 29,151	$ 27,036

6. Debt reserve fund deposits and contingent demand notes:

The City issues its debt instruments through the Municipal Finance Authority (the "MFA"). As a condition of these borrowings, a portion of the debenture proceeds is withheld by the MFA in a Debt Reserve Fund. The City also executes demand notes in connection with each debenture whereby the City may be required to loan certain amounts to the MFA. These demand notes are contingent in nature and are not reflected in the City's accounts. The details of the cash deposits and contingent demand notes at December 31, 2017 and 2018 are as follows:

	Cash deposits	Contingent demand notes
General Revenue Fund	$ 508	$ 2,447

7. Accounts payable and accrued liabilities:

	2018	2017
Trade and other liabilities	$ 64,917	$ 68,618
Post-employment benefits (note 15)	30,314	30,418
	$ 95,231	$ 99,036

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

8. Development cost charges:

	2018	2017
Balance, beginning of year	$ 130,684	$ 117,597
Contributions	42,792	26,866
Interest	2,838	1,931
Revenue recognized	(17,432)	(15,710)
Balance, end of year	$ 158,882	$ 130,684

9. Deposits and holdbacks:

	Balance December 31, 2017	Deposit contributions	Refund/ expenditures	Balance December 31, 2018
Security deposits	$ 58,083	$ 63,785	$ (32,311)	$ 89,557
Developer contributions	6,953	360	-	7,313
Contract holdbacks	7,830	2,748	(3,928)	6,650
Other	9,920	8,814	(8,634)	10,100
	$ 82,786	$ 75,707	$ (44,873)	$ 113,620

10. Deferred revenue:

	Balance December 31, 2017	External restricted inflows	Revenue earned/ adjustments	Balance December 31, 2018
Taxes and utilities	$ 19,613	$ 20,450	$ (19,613)	$ 20,450
Building permits/development	13,726	7,545	(5,673)	15,598
Oval	6,515	10,304	(10,500)	6,319
Capital grants	20,278	7,240	(7,960)	19,558
Business licenses	2,510	2,136	(2,123)	2,523
Parking easement/leased land	2,423	54	(47)	2,430
Other	1,222	6,833	(7,569)	486
	$ 66,287	$ 54,562	$ (53,485)	$ 67,364

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

11. Debt, net of MFA sinking fund deposits:

The interest rate for the year ended December 31, 2018 on the principal amount of the MFA debentures was 3.30% (2017 - 3.30%) per annum. Interest expense incurred for the year on the long-term debt was $1,676,895 (2017 - $1,676,895). The maturity date of the MFA debt is April 7, 2024.

The City obtains debt instruments through the MFA pursuant to security issuing bylaws under authority of the Community Charter to finance certain capital expenditures.

Gross amount for the debt less principal payments and actuarial adjustments to date are as follows:

	Gross amount borrowed	Repayments and actuarial adjustments	Net debt 2018	Net debt 2017
General Fund	$ 50,815	$ 17,973	$ 32,842	$ 37,603

Repayments on net outstanding debt over the next five years and thereafter are as follows:

2019	$ 4,951
2020	5,149
2021	5,355
2022	5,570
2023	5,792
Thereafter	6,025
	$ 32,842

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

12. Tangible capital assets:

Cost	Balance December 31, 2017	Additions and transfers	Disposals	Balance December 31, 2018
Land	$ 905,118	$ 78,883	$ -	$ 984,001
Building and building improvements	416,029	26,210	(58)	442,181
Infrastructure	1,697,075	47,729	(3,124)	1,741,680
Vehicles, machinery and equipment	130,776	16,434	(4,417)	142,793
Library's collections, furniture and equipment	9,047	1,072	(674)	9,445
Assets under construction	140,752	10,544	-	151,296
	$ 3,298,797	$ 180,872	$ (8,273)	$ 3,471,396

Accumulated amortization	Balance December 31, 2017	Disposals	Amortization expense	Balance December 31, 2018
Building and building improvements	$ 170,579	$ (52)	$ 15,752	$ 186,279
Infrastructure	789,365	(2,865)	33,887	820,387
Vehicles, machinery and equipment	81,260	(4,148)	9,714	86,826
Library's collections, furniture and equipment	5,692	(671)	1,189	6,210
	$ 1,046,896	$ (7,736)	$ 60,542	$ 1,099,702

Net book value	December 31, 2018	December 31, 2017
Land	$ 984,001	$ 905,118
Buildings and building improvements	255,902	245,450
Infrastructure	921,293	907,710
Vehicles, machinery and equipment	55,967	49,516
Library's collection, furniture and equipment	3,235	3,355
Assets under construction	151,296	140,752
Balance, end of year	$ 2,371,694	$ 2,251,901

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

12. Tangible capital assets (continued):

(a) Assets under construction:

Assets under construction having a value of $151,295,702 (2017 - $140,751,542) have not been amortized. Amortization of these assets will commence when the asset is put into service.

(b) Contributed tangible capital assets:

Contributed tangible capital assets have been recognized at fair market value at the date of contribution. The value of contributed assets received during the year is $88,020,879 (2017 - $52,248,550) comprised of land in the amount of $69,654,386 (2017 - $36,128,140), infrastructure in the amount of $13,666,004 (2017 - $13,694,410), and buildings in the amount of $4,700,489 (2017 - $2,426,000).

(c) Tangible capital assets disclosed at nominal values:

Where an estimate of fair value could not be made, the tangible capital asset was recognized at a nominal value.

(d) Works of art and historical treasures:

The City manages and controls various works of art and non-operational historical cultural assets including building, artifacts, paintings, and sculptures located at City sites and public display areas. The assets are not recorded as tangible capital assets and are not amortized.

(e) Write-down of tangible capital assets:

There were no write-downs of tangible capital assets during the year (2017 - nil).

13. Accumulated surplus:

	General and Reserve Funds	Waterworks Utility Fund	Sewerworks Utility Fund	Richmond Olympic Oval	Library	2018 Total	2017 Total
Investment in tangible capital assets	$ 2,323,998	$ -	$ -	$ 9,256	$ 3,235	$ 2,336,489	$ 2,211,771
Reserves (note 14)	533,829	-	-	6,324	-	540,153	484,883
Appropriated surplus	183,477	13,533	8,576	1,357	230	207,173	205,010
Investment in LIEC	29,780	-	-	-	-	29,780	28,289
Surplus	15,750	247	6,247	592	1,193	24,029	22,618
Other equity	3,466	-	-	-	-	3,466	3,558
Balance, end of year	$ 3,090,300	$ 13,780	$ 14,823	$17,529	$ 4,658	$ 3,141,090	$ 2,956,129

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

14. Reserves:

	Balance, December 31, 2017	Change during year	Balance, December 31, 2018
Affordable housing	$ 10,168	$ 668	$ 10,836
Arts, culture and heritage	4,183	(180)	4,003
Capital building and infrastructure	69,731	12,032	81,763
Capital reserve	163,599	12,543	176,142
Capstan station	19,725	12,607	32,332
Child care development	3,006	3,800	6,806
Community legacy and land replacement	8,623	229	8,852
Drainage improvement	56,956	(824)	56,132
Equipment replacement	22,168	(2,568)	19,600
Hamilton area plan community amenity	735	17	752
Leisure facilities	6,765	12,000	18,765
Local improvements	6,047	1,108	7,155
Neighborhood improvement	7,100	420	7,520
Oval	4,749	1,575	6,324
Public art program	3,861	999	4,860
Sanitary sewer	42,909	1,198	44,107
Steveston off-street parking	310	7	317
Steveston road ends	211	(56)	155
Waterfront improvement	344	(27)	317
Watermain replacement	53,693	(278)	53,415
	$ 484,883	$ 55,270	$ 540,153

15. Post-employment benefits:

The City provides certain post-employment benefits, non-vested sick leave, compensated absences, and termination benefits to its employees.

	2018	2017
Accrued benefit liability, beginning of year	$ 30,418	$ 31,303
Current service cost	1,947	1,814
Interest cost	879	1,015
Past service credit	(397)	-
Amortization of actuarial gain	(25)	(61)
Benefits paid	(2,508)	(3,653)
Accrued benefit liability, end of year	$ 30,314	$ 30,418

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

15. Post-employment benefits (continued):

An actuarial valuation for these benefits was performed to determine the City's accrued benefit obligation as at December 31, 2018. The difference between the actuarially determined accrued benefit obligation of approximately $28,423,000 (2017 - $29,892,000) and the liability of approximately $30,314,000 (2017 - $30,418,000) as at December 31, 2018 is an unamortized net actuarial gain of $1,891,000 (2017 - $526,000). This actuarial gain is being amortized over a period equal to the employees' average remaining service lifetime of 10 years (2017 - 10 years).

	2018	2017
Actuarial benefit obligation:		
Liability, end of year	$ 30,314	$ 30,418
Unamortized actuarial gain	(1,891)	(526)
Balance, end of year	$ 28,423	$ 29,892

Actuarial assumptions used to determine the City's accrued benefit obligation are as follows:

	2018	2017
Discount rate	3.30%	2.90%
Expected future inflation rate	2.00%	2.00%
Expected wage and salary range increases	2.50% to 3.00%	2.50% to 3.00%

16. Pension plan:

The City and its employees contribute to the Municipal Pension Plan (a jointly trusteed pension plan). The board of trustees, representing plan members and employers, is responsible for administering the plan, including investment of assets and administration of benefits. The plan is a multi-employer defined benefit pension plan. Basic pension benefits are based on a formula. As at December 31, 2017, the plan has about 197,000 active members and approximately 95,000 retired members. Active members include approximately 39,000 contributors from local governments.

Every three years, an actuarial valuation is performed to assess the financial position of the plan and adequacy of plan funding. The actuary determines an appropriate combined employer and member contribution rate to fund the plan. The actuary's calculated contribution rate is based on the entry-age normal cost method, which produces the long-term rate of member and employer contributions sufficient to provide benefits for average future entrants to the plan. This rate is then adjusted to the extent there is amortization of any funding deficit.

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

16. Pension plan (continued):

The most recent valuation for the Municipal Pension Plan as at December 31, 2015, indicated a $2,224 million funding surplus for basic pension benefits on a going concern basis. As a result of the 2015 basic account actuarial valuation surplus and pursuant to the joint trustee agreement, $1,927 million was transferred to the rate stabilization account and $297 million of the surplus ensured the required contribution rates remained unchanged.

The City paid $12,759,865 (2017 - $12,284,569) for employer contributions while employees contributed $10,615,884 (2017 - $10,154,394) to the plan in fiscal 2018.

The next valuation will be as at December 31, 2018, with results available in 2019.

Employers participating in the plan record their pension expense as the amount of employer contributions made during the fiscal year (defined contribution pension plan accounting). This is because the plan records accrued liabilities and accrued assets for the plan in aggregate, resulting in no consistent and reliable basis for allocating the obligation, assets and cost to individual employers participating in the plan.

17. Contingent assets and contractual rights:

(a) Contingent assets:

Contingent assets are possible assets arising from existing conditions or situations involving uncertainty. That uncertainty will ultimately be resolved when one or more future events not wholly within the City's control occurs or fails to occur.

The City has legal claims, service agreements, and land dedications that may qualify as contingent assets. Amounts cannot be estimated as of December 31, 2018. Contingent assets are not recorded in the consolidated financial statements.

(b) Contractual rights:

The City has entered into contracts or agreements in the normal course of operations that it expects will result in revenue and assets in future fiscal years. The City's contractual rights are comprised of leases, licenses, grants and various other agreements, including the provision of police services with the Vancouver Airport Authority. The following table summarizes the expected revenue from the City's contractual rights:

2019	$ 13,609
2020	8,814
2021	2,576
2022	2,169
2023	724
Thereafter	5,573

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

17. Contingent assets and contractual rights (continued):

(b) Contractual rights (continued):

The City is entitled to receive revenue from certain other agreements. The revenue from these agreements cannot be quantified and has not been included in the amounts noted above.

18. Commitments and contingencies:

(a) Joint and several liabilities:

The City has a contingent liability with respect to debentures of the Greater Vancouver Water District, Greater Vancouver Sewerage and Drainage District and Greater Vancouver Regional District, to the extent provided for in their respective Enabling Acts, Acts of Incorporation and Amending Acts. Management does not consider payment under this contingency to be likely and therefore no amounts have been accrued.

(b) Lease payments:

The City is committed to operating lease payments for premises and equipment in the following approximate amounts:

2019	$ 4,808
2020	3,050
2021	3,059
2022	2,329
2023	2,314
Thereafter	9,963

(c) Litigation:

As at December 31, 2018, there were a number of claims or risk exposures in various stages of resolution. The City has made no specific provision for those where the outcome is presently not determinable.

(d) Municipal Insurance Association of British Columbia (“Association”):

The City is a participant in the Association. Should the Association pay out claims in excess of premiums received, it is possible that the City, along with other participants, would be required to contribute towards the deficit. Management does not consider external payment under this contingency to be likely and therefore, no amounts have been accrued.

(e) Contractual obligation:

The City has entered into various contracts for services and construction with periods ranging beyond one year. These commitments are in accordance with budgets passed by Council.

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

18. Commitments and contingencies (continued):

(f) E-Comm Emergency Communications for Southwest British Columbia Incorporated ("E-Comm"):

The City is a shareholder of the E-Comm whose services provided include: regional 9-1-1 call centre for the Greater Vancouver Regional District; Wide Area Radio network; dispatch operations; and records management. The City has 2 Class A shares and 1 Class B share (of a total of 32 Class A and 21 Class B shares issued and outstanding as at December 31, 2018). As a Class A shareholder, the City shares in both funding the future operations and capital obligations of E-Comm (in accordance with a cost sharing formula), including any lease obligations committed to by E-Comm up to the shareholder's withdrawal date.

(g) Community associations:

The City has agreements with the various community associations which operate the community centers throughout the City. The City generally provides the buildings and grounds, pays the operating costs of the facilities, and provides certain staff and other services such as information technology. Typically the community associations are responsible for providing programming and services to the community. The community associations retain all revenue which they receive.

19. Trust funds:

Certain assets have been conveyed or assigned to the City to be administered as directed by agreement or statute. The City holds the assets for the benefit of and stands in fiduciary relationship to the beneficiary. The following trust fund is excluded from the City's consolidated financial statements.

	2018	2017
Richmond Community Associations	$ 1,837	$ 1,800

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

20. Collections for other authorities:

The City is obligated to collect certain taxation revenue on behalf of other government bodies. These funds are excluded from the City's consolidated financial statements since they are not revenue of the City. Such taxes collected (after supplementary adjustments) and remitted to the government bodies during the year are as follows:

	2018	2017
Province of British Columbia - Schools	$ 169,005	$ 162,120
Greater Vancouver Regional District and others	47,298	44,702
	$ 216,303	$ 206,822

21. Other revenue:

	2018	2017
Developer contributions	$ 33,672	$ 13,014
Tangible capital assets gain on sale of land	-	4,217
Penalties and fines	3,784	3,247
Parking program	2,054	1,818
Other	9,168	9,206
	$ 48,678	$ 31,502

22. Government transfers:

Government transfers are received for operating and capital activities. The operating transfers consist of gaming revenue and provincial and federal grants. Capital transfers are included in other capital funding sources revenue. The source of the government transfers are as follows:

	2018	2017
Operating		
Province of British Columbia	$ 21,899	$ 21,368
TransLink	3,593	2,656
Government of Canada	1,700	1,580
Capital		
Province of British Columbia	5,685	746
TransLink	1,680	456
Government of Canada	36	803
	$ 34,593	$ 27,609

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

23. Segmented reporting:

The City provides a wide variety of services to its residents. For segment disclosure, these services are grouped and reported under service areas/departments that are responsible for providing such services. They are as follows:

(a) **Community Safety** brings together the City's public safety providers such as Police (RCMP), Fire-Rescue, Emergency Programs, and Community Bylaws. It is responsible for ensuring safe communities by providing protection services with a focus on law enforcement, crime prevention, emergency response, and protection of life and properties.

(b) **Utilities** provide such services as planning, designing, constructing, operating, and maintaining the City's infrastructure of water and sewer networks and sanitation and recycling.

(c) **Engineering, Public Works and Project Development** comprises of General Public Works, Roads and Construction, Storm Drainage, Fleet Operations, Engineering, Project Development, and Facility Management. The services provided are construction and maintenance of the City's infrastructure and all City owned buildings, maintenance of the City's road networks, managing and operating a mixed fleet of vehicles, heavy equipment and an assortment of specialized work units for the City operations, development of current and long-range engineering planning and construction of major projects.

(d) **Community Services** comprises of Parks, Recreation, Arts, Culture and Heritage Services and Community Social Development. These departments ensure recreation opportunities in Richmond by maintaining a variety of facilities such as arenas, community centres, pools, etc. It designs, constructs and maintains parks and sports fields to ensure there is adequate open green space and sports fields available for Richmond residents. It also addresses the economic, arts, culture, and community issues that the City encounters.

(e) **General Government** comprises of Mayor and Council, Corporate Administration, and Finance and Corporate Services. It is responsible for adopting bylaws, effectively administering city operations, levying taxes, legal services, providing sound management of human resources, information technology, City finance, and ensuring high quality services to Richmond residents.

(f) **Planning and Development** is responsible for land use plans, developing bylaws and policies for sustainable development in the City including the City's transportation systems.

(g) **Richmond Olympic Oval Corporation** is formed as a wholly owned subsidiary of the City. The City uses the Richmond Olympic Oval facility as a venue for a wide range of sports, business and community activities.

(h) **Richmond Public Library** provides public access to information by maintaining 5 branches throughout the City.

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

23. Segmented reporting (continued):

	Community safety	Utilities	Engineering, public works and project development	Community services	General government	Planning and development	Total City subtotal
Revenue:							
Taxation and levies	$ -	$ -	$ -	$ -	$ 216,908	$ -	$ 216,908
User fees	-	91,168	11,747	-	-	-	102,915
Sales of services	6,196	2,816	2,646	9,050	7,730	2,246	30,684
Payments-in-lieu of taxes	-	-	-	-	15,489	-	15,489
Provincial and federal grants	154	-	3,658	139	3,125	-	7,076
Development cost charges	-	1,226	2,911	4,517	2,202	6,576	17,432
Other capital funding sources	-	1,013	15,966	6,402	69,654	2,824	95,859
Other revenue:							
Investment income	-	543	-	-	20,143	-	20,686
Gaming revenue	687	-	-	-	16,150	-	16,837
Licenses and permits	4,480	6	588	-	10	8,553	13,637
Other	2,373	3,248	701	936	39,303	106	46,667
Equity income	-	-	-	-	1,491	-	1,491
	13,890	100,020	38,217	21,044	392,205	20,305	585,681
Expenses:							
Wages and salaries	41,735	12,698	23,450	32,656	25,445	10,258	146,242
Public works maintenance	61	6,694	5,910	1,950	(1,447)	235	13,403
Contract services	50,867	8,957	3,609	4,609	3,552	1,484	73,078
Supplies and materials	3,094	31,151	1,777	14,438	10,641	673	61,774
Interest and finance	70	21,217	-	67	1,792	-	23,146
Transfer from (to) capital for tangible capital assets	(50)	1,113	7,353	3,241	455	1,291	13,403
Amortization of tangible capital assets	2,750	8,070	26,809	6,921	11,764	1,331	57,645
Loss (gain) on disposal of tangible capital assets	(27)	59	(115)	-	347	96	360
	98,500	89,959	68,793	63,882	52,549	15,368	389,051
Annual surplus (deficit)	**$ (84,610)**	**$ 10,061**	**$ (30,576)**	**$ (42,838)**	**$ 339,656**	**$ 4,937**	**$ 196,630**

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

23. Segmented reporting (continued):

	Total City subtotal	Richmond Olympic Oval	Richmond Public Library	2018 Consolidated	2017 Consolidated
Revenue:					
Taxation and levies	$ 216,908	$ -	$ -	$ 216,908	$ 206,901
User fees	102,915	-	-	102,915	99,493
Sales of services	30,684	8,346	81	39,111	39,430
Payments-in-lieu of taxes	15,489	-	-	15,489	14,647
Provincial and federal grants	7,076	2,899	380	10,355	9,276
Development cost charges	17,432	-	-	17,432	15,710
Other capital funding sources	95,859	-	-	95,859	57,570
Other revenue:					
Investment income	20,686	-	19	20,705	17,832
Gaming revenue	16,837	-	-	16,837	16,753
Licenses and permits	13,637	-	-	13,637	13,011
Other	46,667	1,764	247	48,678	31,502
Equity income	1,491	-	-	1,491	1,042
	585,681	13,009	727	599,417	523,167
Expenses:					
Wages and salaries	146,242	8,919	7,170	162,331	159,576
Public works maintenance	13,403	-	2	13,405	14,973
Contract services	73,078	-	401	73,479	64,912
Supplies and materials	61,774	4,798	1,347	67,919	65,959
Interest and finance	23,146	-	3	23,149	23,216
Transfer from (to) capital for tangible capital assets	13,403	-	(96)	13,307	25,712
Amortization of tangible capital assets	57,645	1,707	1,190	60,542	58,012
Loss (gain) on disposal of tangible capital assets	360	-	(36)	324	924
	389,051	15,424	9,981	414,456	413,284
Annual surplus (deficit)	**$ 196,630**	**$ (2,415)**	**$ (9,254)**	**$ 184,961**	**$ 109,883**

CITY OF RICHMOND

Notes to Consolidated Financial Statements (continued)
(Tabular amounts expressed in thousands of dollars)

Year ended December 31, 2018

24. Budget data:

The budget data presented in these consolidated financial statements is based on the Consolidated Financial Plan adopted by Council on March 12, 2018. The table below reconciles the adopted Consolidated Financial Plan to the budget amounts reported in these consolidated financial statements.

	Financial plan Bylaw No. 9800	Financial statement budget
Consolidated financial plan:		
Revenue	$ 521,494	$ 521,494
Expenses	439,367	439,367
Annual surplus	82,127	82,127
Less:		
Acquisition of tangible capital assets	(419,998)	-
Contributed tangible capital assets	(47,410)	-
Transfer to reserves	(66,999)	-
Debt principal	(4,761)	-
Add:		
Capital funding	422,925	-
Transfer from surplus	34,116	-
Annual surplus	$ -	$ 82,127

25. Comparative information:

Certain comparative information has been reclassified to conform to the consolidated financial statement presentation adopted for the current year.

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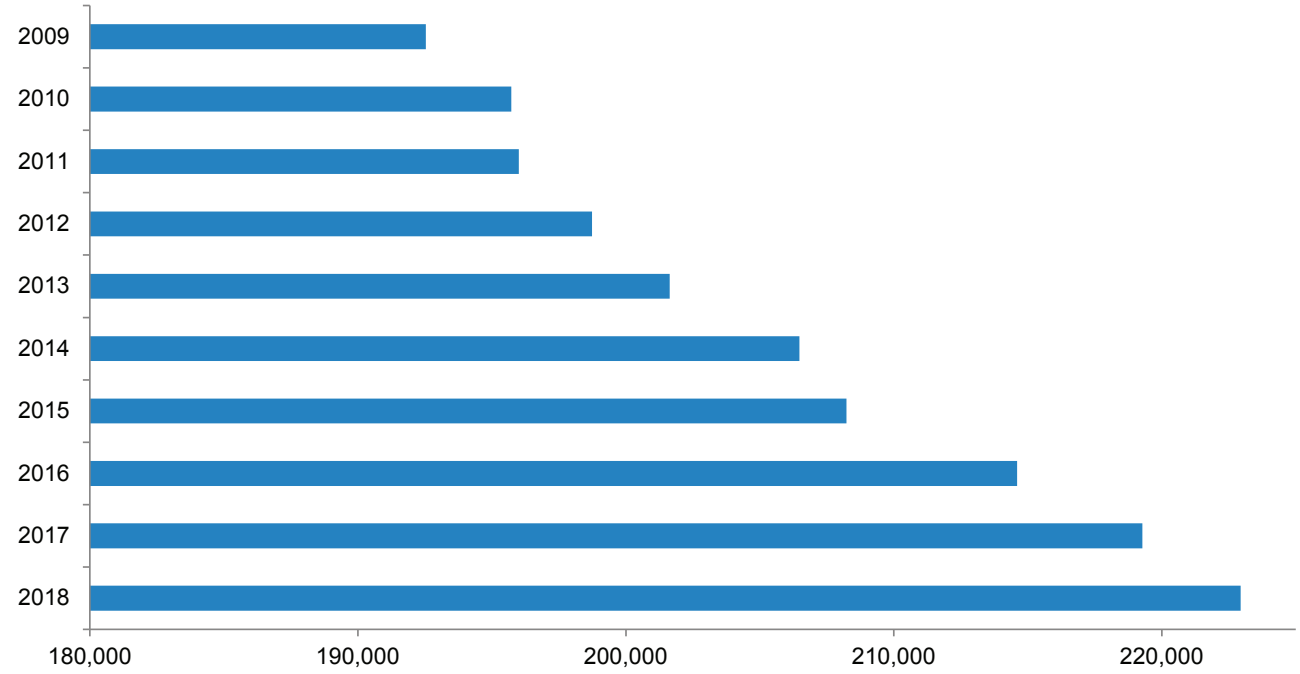
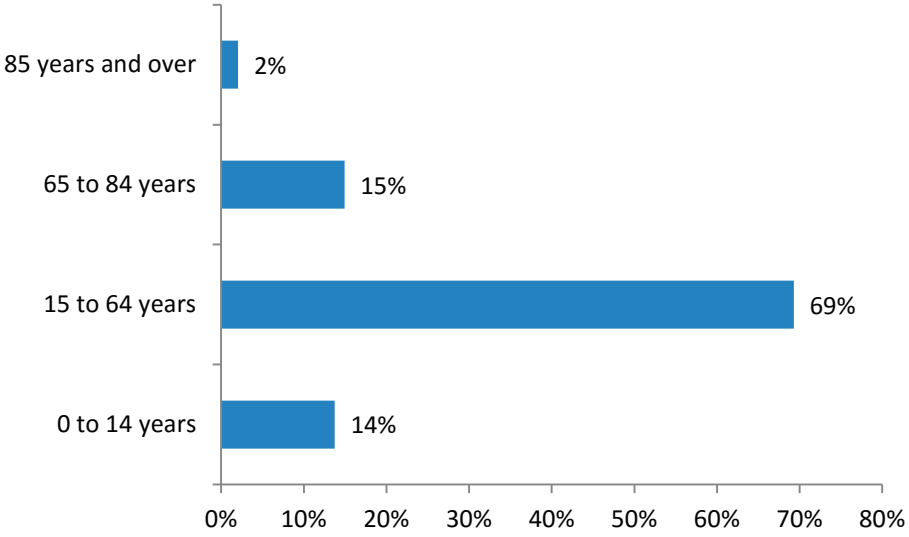
City of Richmond population 2009–2018



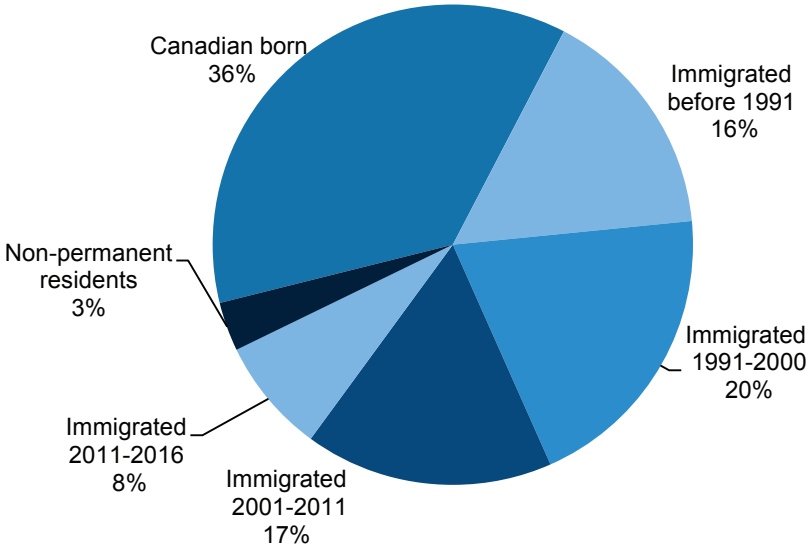
Source: BC Stats

Total population by age groups



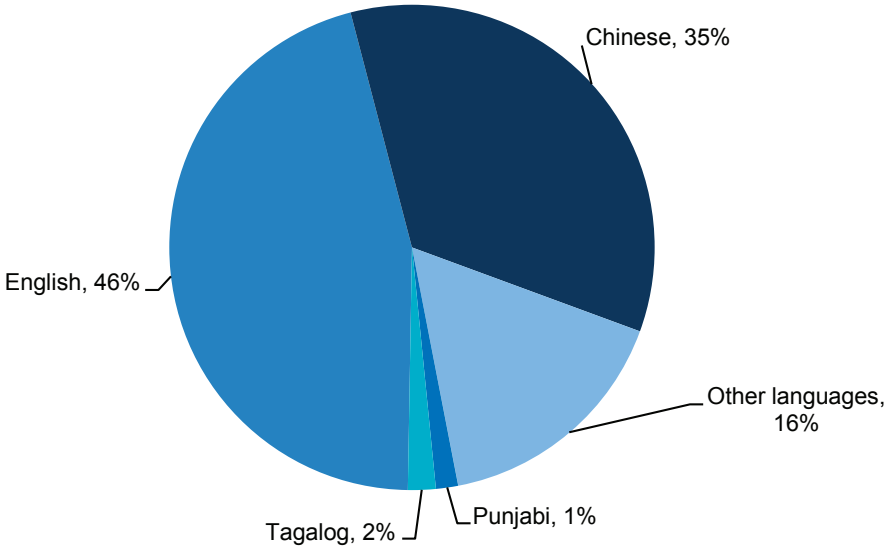
Source: Statistics Canada, 2016 Census of Population

Immigrant status of Richmond residents by period of immigration



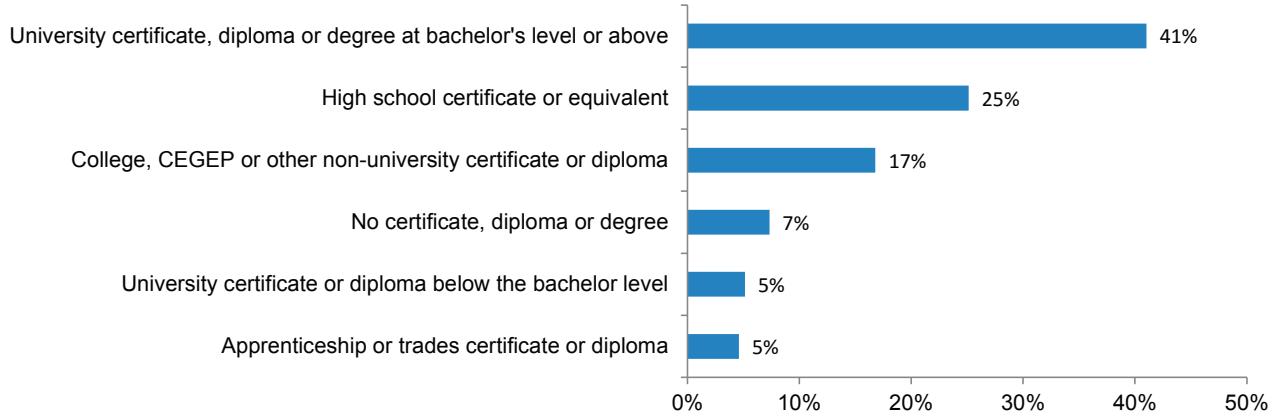
Source: Statistics Canada, 2016 Census of Population

Language spoken most often at home



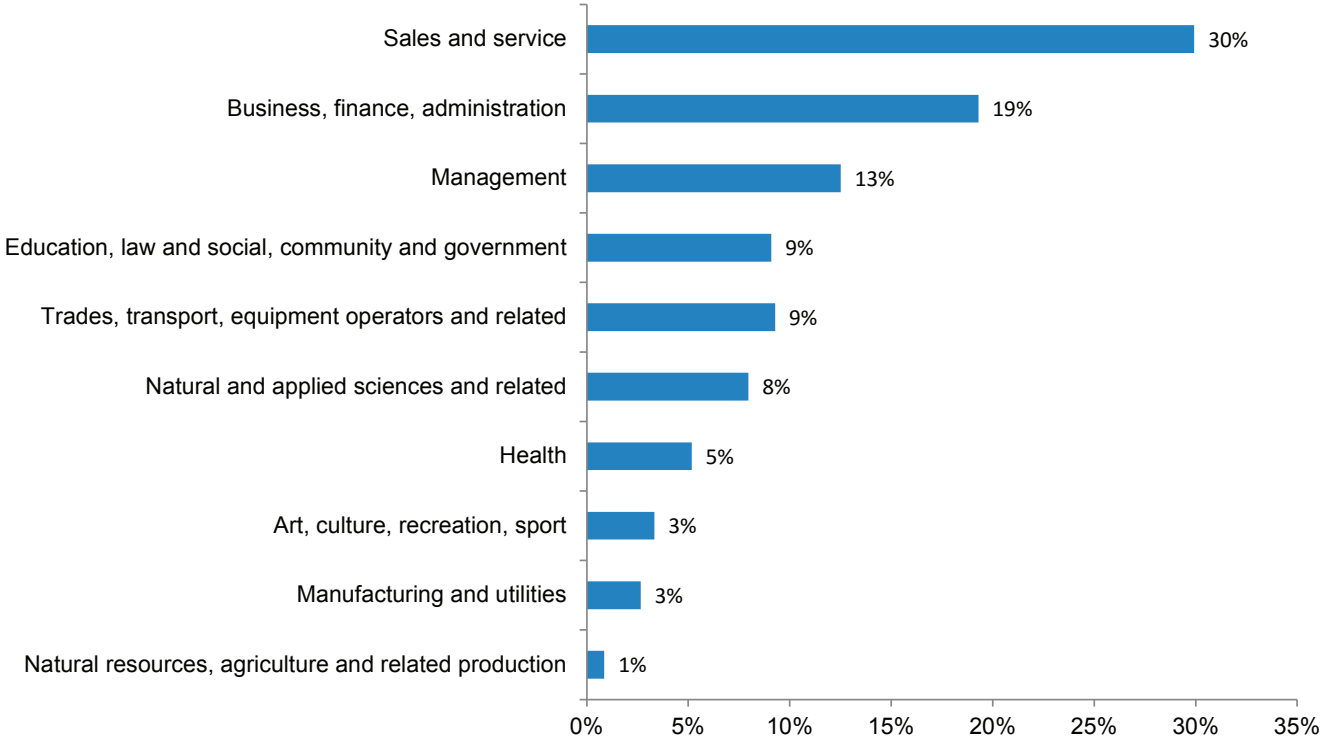
Source: Statistics Canada, 2016 Census of Population

Highest level of education attainment for the population aged 25 to 64



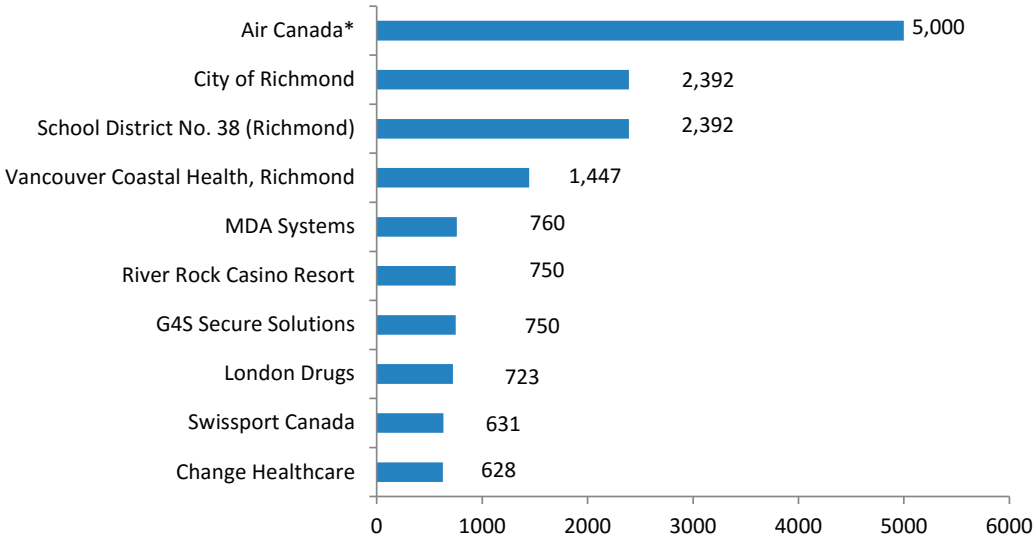
Source: Statistics Canada, 2016 Census of Population

Occupations of Richmond residents



Source: Statistics Canada, 2016 Census of Population

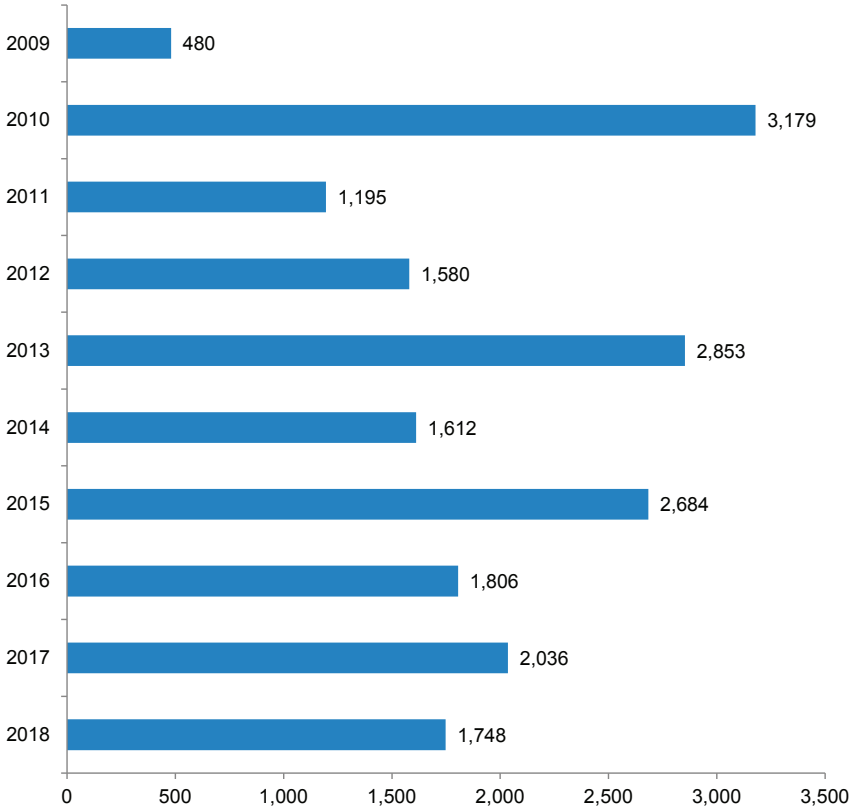
Top 10 Largest employers in Richmond



Source: 2018 City of Richmond—Business Licences

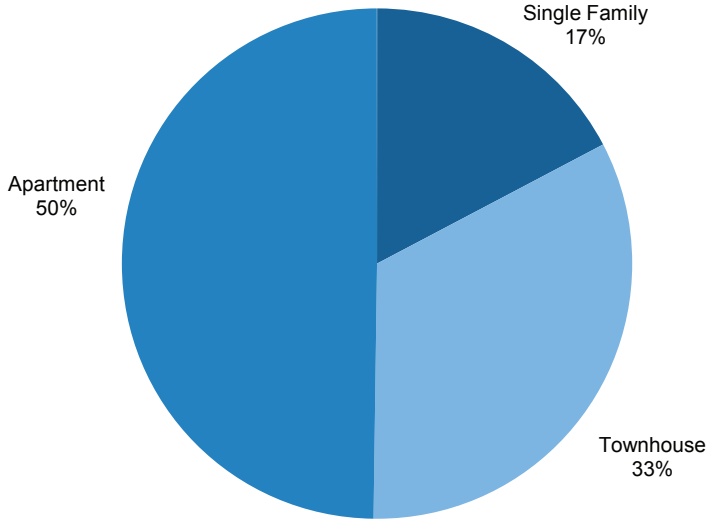
**Approximate*

Housing starts in Richmond 2009–2018



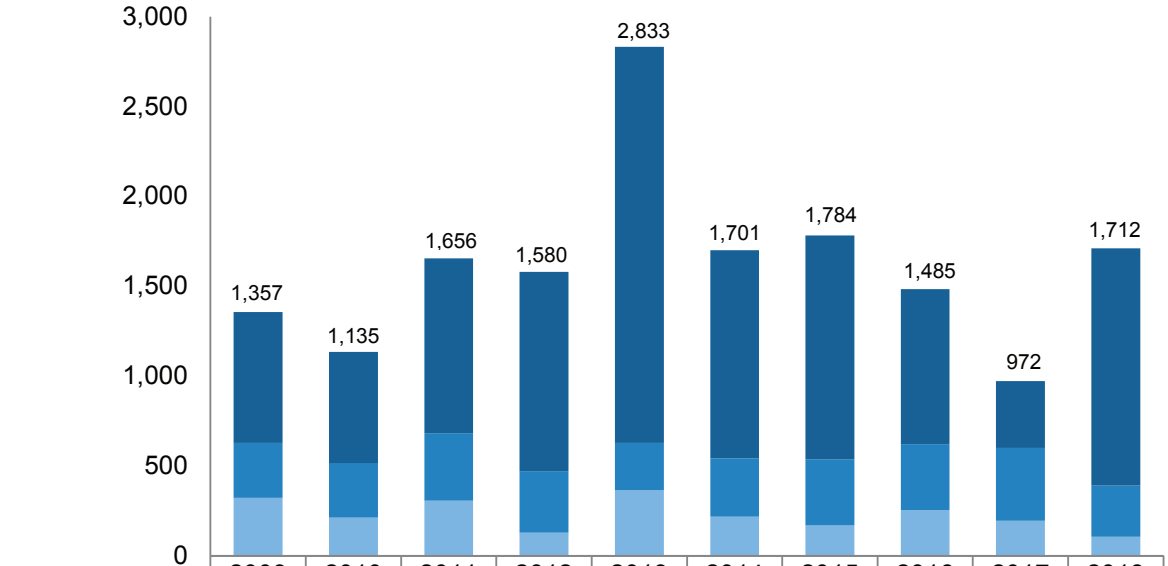
Source: City of Richmond building permit records. Includes only projects for new residential construction receiving final building permit in given year.

Richmond housing starts by type of units 2018



Source: City of Richmond building permit records. Includes only projects for new residential construction receiving final building permit in given year.

New dwelling units constructed 2009–2018

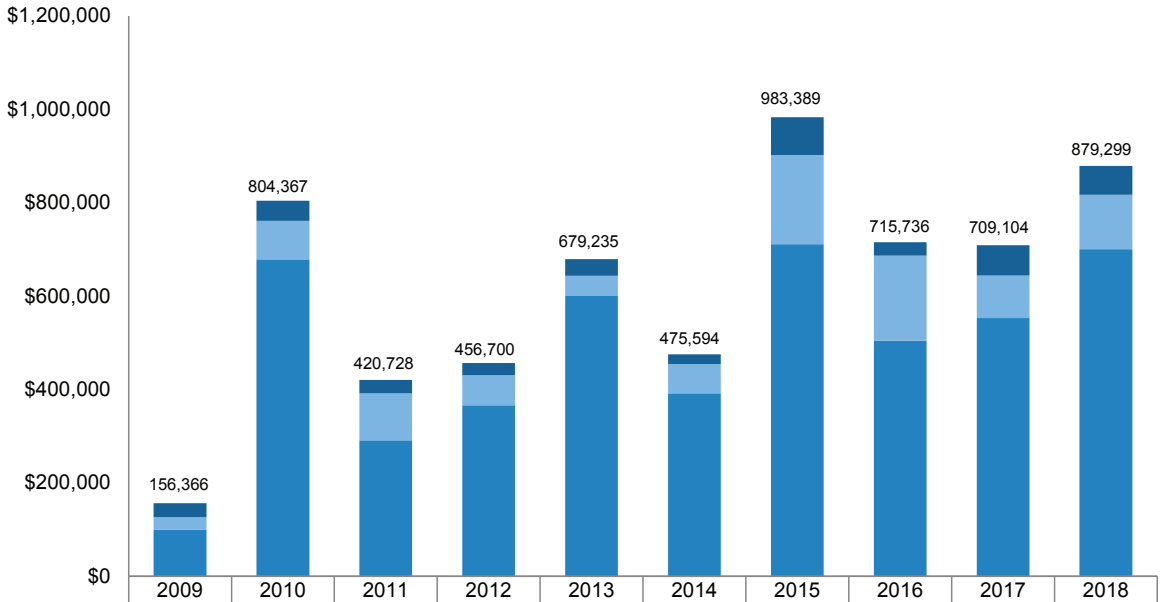


	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Apartment	728	619	974	1108	2204	1158	1246	863	372	1321
Single Family *	306	304	374	343	265	325	368	368	404	284
Townhouse	323	212	308	129	364	218	170	254	196	107

**Includes one family and two family dwellings*

Source: City of Richmond building permit records. Includes only projects for new residential construction receiving final building permit in given year.

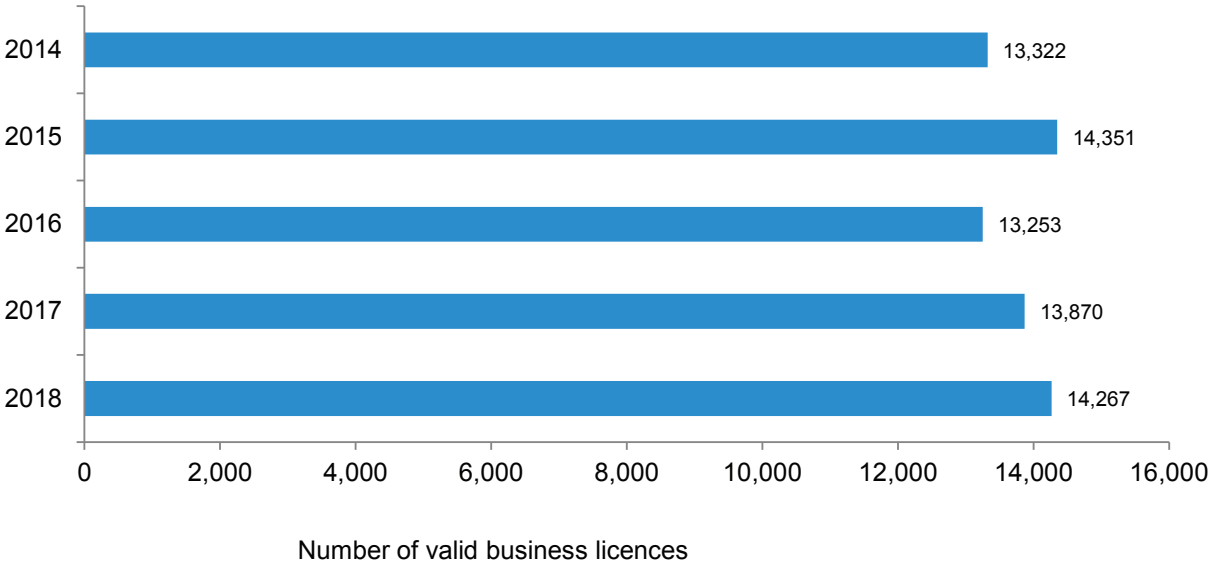
Construction value of building permits issued 2009–2018 (in $000s)



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Industrial ($000)	$29,634	$42,905	$28,710	$26,210	$35,560	$20,789	$80,884	$29,115	$65,098	$62,171
Commercial ($000)	$26,979	$82,834	$100,578	$64,134	$42,268	$63,231	$191,303	$181,952	$90,927	$116,709
Residential ($000)	$99,753	$678,628	$291,440	$366,356	$601,407	$391,574	$711,202	$504,669	$553,079	$700,419

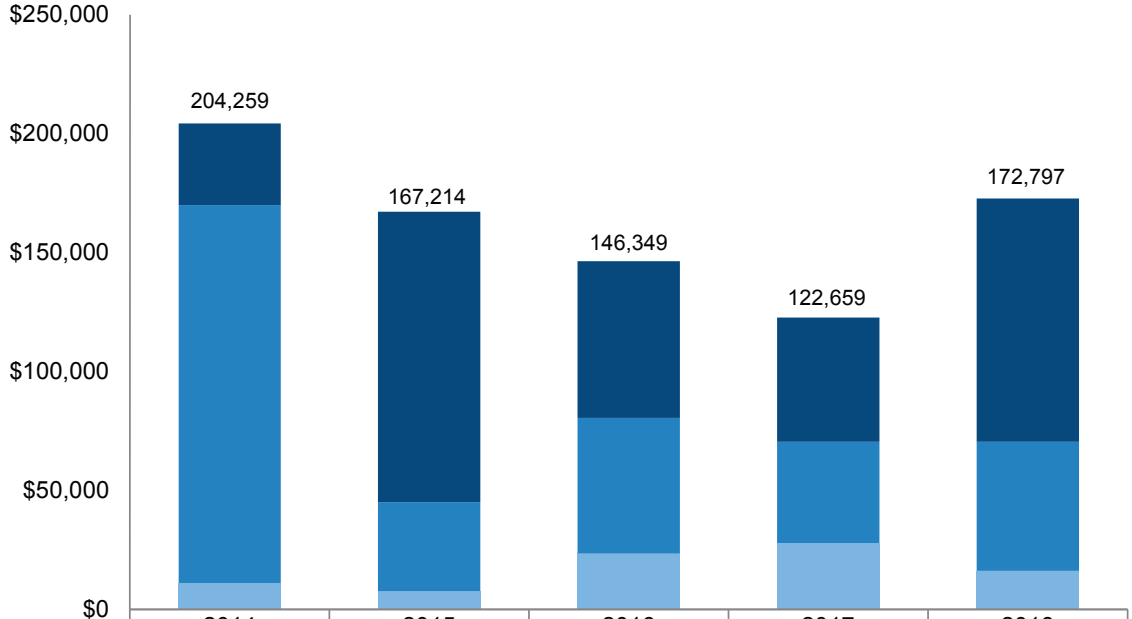
Source: City of Richmond building permit records

Richmond business licences 2014–2018



Source: 2018 City of Richmond—Business Licences

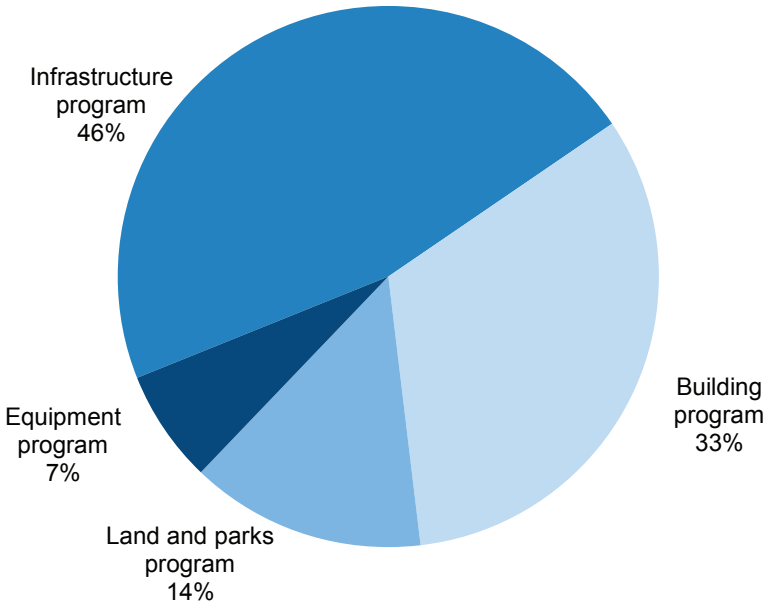
City of Richmond budgeted capital costs 2014–2018 (in $000s)



	2014	2015	2016	2017	2018
New Capital	$34,324	$122,179	$65,860	$52,140	$102,327
Replacement Capital	$158,906	$37,374	$57,000	$42,564	$54,292
Other Capital	$11,029	$7,661	$23,490	$27,955	$16,178

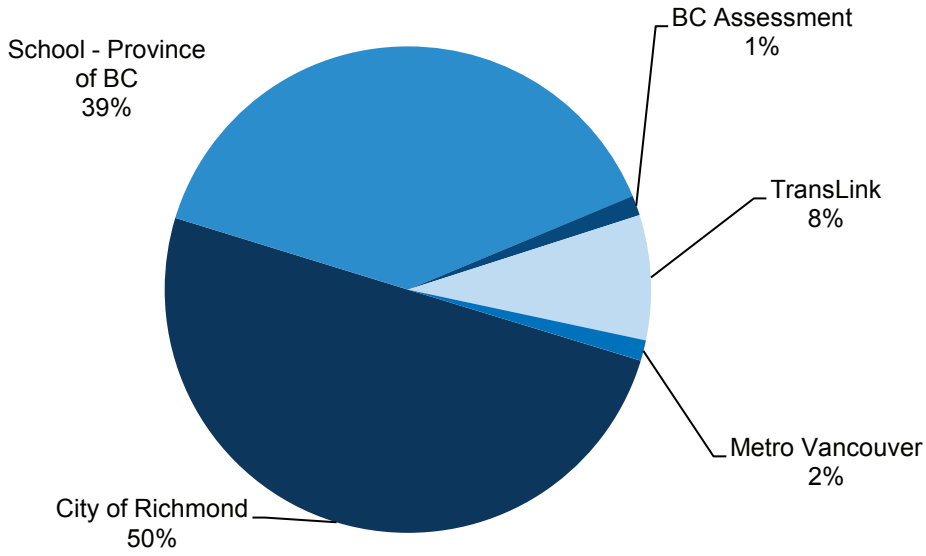
Source: City of Richmond Finance and Corporate Services

Capital program by type 2018



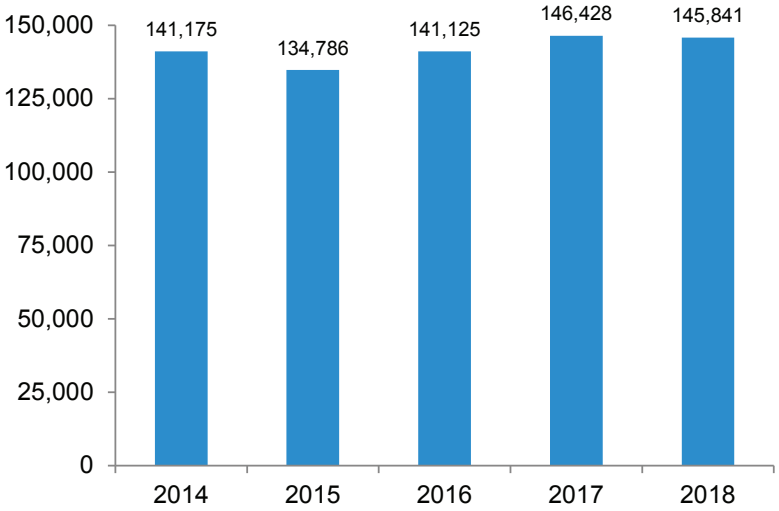
Source: City of Richmond Finance and Corporate Services

Breakdown of residential tax bill 2018



Source: City of Richmond Finance and Corporate Services

Registration in Richmond Recreation and Cultural Services programs 2014–2018



Source: City of Richmond Finance and Corporate Services

2018 tax rates

	City of Richmond	School - Province of BC	Metro Vancouver	BC Assessment	Municipal Finance Authority	TransLink
Residential	1.51524	1.06780	0.04248	0.04030	0.00020	0.21150
Business	4.83440	4.20000	0.10409	0.12410	0.00050	0.93960
Light industrial	4.83440	4.20000	0.14445	0.12410	0.00070	1.16200
Seasonal / Recreational	1.58328	2.50000	0.04248	0.04030	0.00020	0.18580
Major industrial	11.80024	1.68000	0.14445	0.50370	0.00070	1.69930
Farm	13.47100	3.50000	0.04248	0.04030	0.00020	0.34580
Utilities	31.59054	13.40000	0.14870	0.50370	0.00070	2.45570

Source: City of Richmond Finance and Corporate Services

2018 general revenue fund assessment and taxation by property class (in $000s)

	Assessment	% of assessment by class	Taxation	% of taxation by class
Residential	$80,530,838	80.66%	$122,023	56.19%
Business	15,848,533	15.87%	76,308	35.14%
Light industrial	2,998,757	3.00%	14,807	6.82%
Seasonal / Recreational	200,893	0.20%	318	0.15%
Major industrial	204,542	0.20%	2,414	1.11%
Farm	26,297	0.03%	354	0.16%
Utilities	29,250	0.03%	924	0.43%
Total	**$99,839,110**	**100.00%**	**$217,149**	**100.00%**

Source: City of Richmond Finance and Corporate Services
Amounts are based on billing

Taxes levied on behalf of taxing authorities (in $000s)

	2014	2015	2016	2017	2018
City of Richmond	$183,687	$190,074	$199,744	$207,802	$216,908
School Board	133,539	147,087	150,420	162,120	169,005
Metro Vancouver	4,253	4,499	4,859	5,216	5,915
BC Assessment	4,843	4,973	5,087	5,517	5,737
TransLink	31,935	32,644	32,623	34,380	35,991
Other	15	16	18	23	26
Total Taxes	**$358,272**	**$379,293**	**$392,752**	**$415,058**	**$433,582**

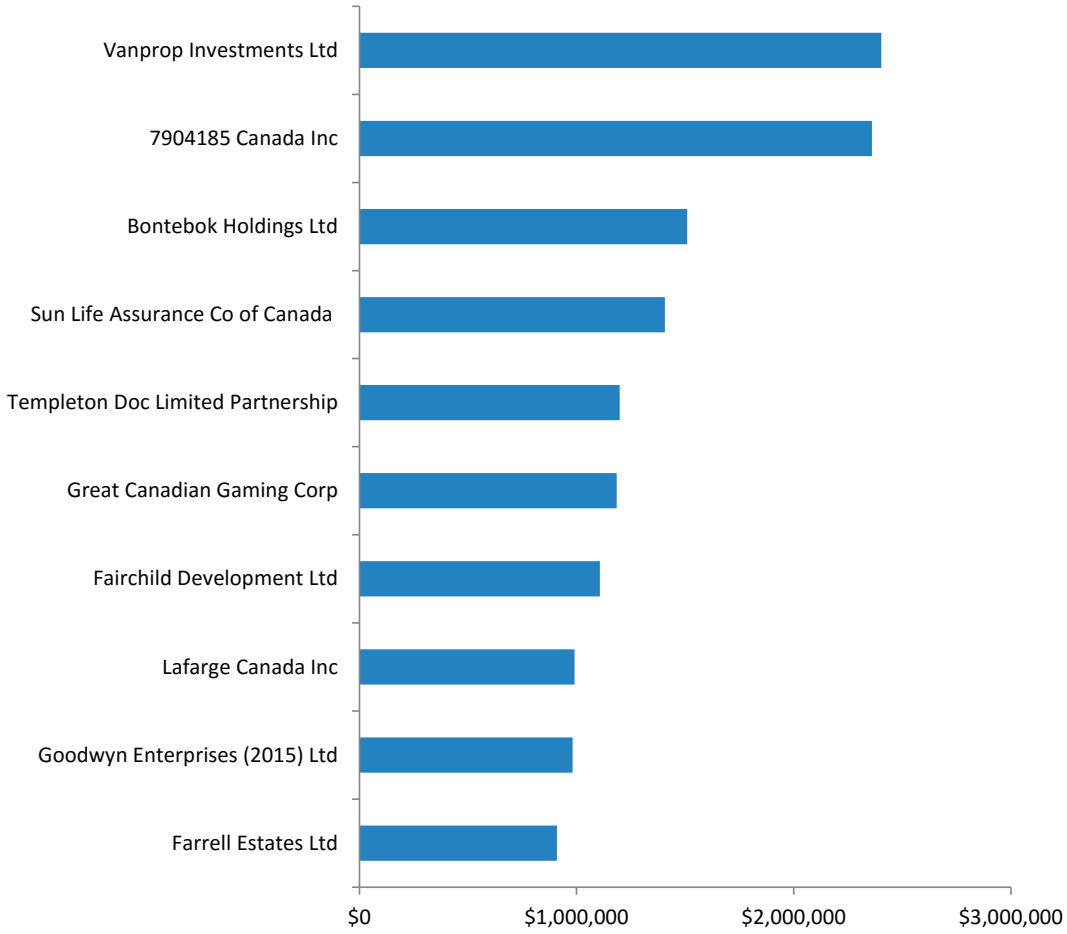
Source: City of Richmond Finance and Corporate Services
Amounts are less supplementary adjustments

2014–2018 general assessment by property class (in $000s)

	2014	2015	2016	2017	2018
Residential	$44,543,518	$47,402,471	$53,427,310	$73,414,252	$80,530,838
Business	9,001,342	9,770,812	10,669,183	13,093,222	15,848,533
Light industrial	2,100,089	2,208,027	2,338,871	2,624,855	2,998,757
Seasonal / Recreational	97,338	144,622	126,430	183,360	200,893
Major industrial	125,716	137,265	139,616	215,246	204,542
Farm	26,112	26,364	26,650	26,566	26,297
Utilities	20,888	21,195	22,181	26,541	29,250
Total	**$55,915,003**	**$59,710,756**	**$66,750,242**	**$89,584,043**	**$99,839,110**

Source: City of Richmond Finance and Corporate Services

Top 10 corporate taxpayers in Richmond



Source: City of Richmond Finance and Corporate Services

Debt servicing costs compared to general taxation revenue 2014–2018 (in $000s)

	2014	2015	2016	2017	2018
Debt servicing costs	2,563	5,931	5,916	5,909	5,909
General taxation revenue	$183,687	$189,136	$198,612	$206,901	$216,908
Debt servicing costs as a % of general Taxation revenue	1.40%	3.14%	2.98%	2.86%	2.72%

Source: City of Richmond Finance and Corporate Services

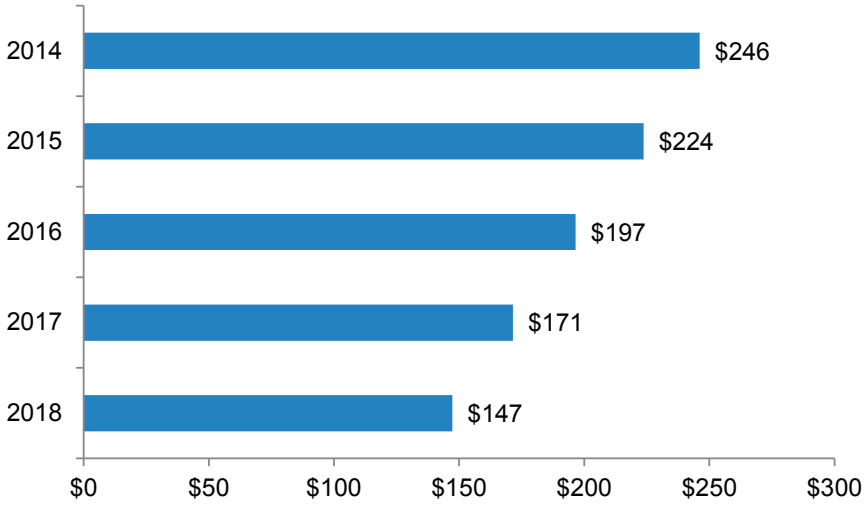
Liability servicing limit 2014–2018 (in $000s)

	2014	2015	2016	2017	2018
Liability servicing limit	97,839	102,323	103,514	107,317	112,425

The liability servicing limit is a calculated amount based on 25% of specific municipal revenues.

Source: City of Richmond Finance and Corporate Services

City of Richmond debt per capita 2014–2018



Source: City of Richmond Finance and Corporate Services

Net debt 2014–2018 (in $000s)

	2014	2015	2016	2017	2018
Net debt	$50,815	$46,583	$42,181	$37,603	$32,842

Source: City of Richmond Finance and Corporate Services

Expenses by function 2014–2018 (in $000s)

	2014*	2015	2016*	2017	2018
Community safety	$83,820	$85,386	$88,702	$89,933	$98,500
Utilities	79,552	83,650	84,183	87,757	89,959
Engineering and public works	55,899	56,294	61,243	66,120	68,793
Community services	65,137**	68,246**	59,618	77,387**	63,882
General government	42,582	43,438	45,634	51,720	52,549
Planning and development	13,301	13,211	14,233	15,417	15,368
Richmond Olympic Oval	11,065	13,395	15,120	15,331	15,424
Library services	9,563	9,463	9,788	9,619	9,981
Lulu Island Energy Company	8	491	943	-	-
Total expenses	**$360,927**	**$373,574**	**$379,464**	**$413,284**	**$414,456**

** Amounts have been restated.*
*** Includes one-time affordable housing contributions.*

Source: City of Richmond Finance and Corporate Services

Expenses by object 2014–2018 (in $000s)

	2014*	2015	2016*	2017	2018
Wages, salaries and benefits	$142,169	$147,996	$152,286	$159,576	$162,331
Contract services	58,121	59,073	63,583	64,912	73,479
Supplies, materials	53,749	55,750	60,227	65,959	67,919
Public works maintenance	14,548	15,294	14,368	14,973	13,405
Interest and finance	21,367	21,391	22,602	23,216	23,149
Transfer from (to) capital for tangible capital assets	18,192	19,349	9,417	25,712	13,307
Amortization of tangible capital assets	52,106	53,966	55,960	58,012	60,542
Loss/(gain) on disposal of tangible capital assets	675	755	1,021	924	324
Total Expenses	**$360,927**	**$373,574**	**$379,464**	**$413,284**	**$414,456**

** Amounts have been restated.*

Source: City of Richmond Finance and Corporate Services

Revenue by source 2014–2018 (in $000s)

	2014*	2015	2016*	2017	2018
Taxation and levies	$183,687	$189,136	$198,612	$206,901	$216,908
Utility fees	93,201	94,290	97,819	99,493	102,915
Sales of services	32,809	34,186	38,231	39,430	39,111
Licences and permits	9,819	10,747	12,422	13,011	13,637
Investment income	16,568	16,303	17,614	17,832	20,705
Grants including gaming revenue	43,073	43,318	41,430	40,676	42,681
Development cost charges	18,765	17,818	16,632	15,710	17,432
Other capital funding	63,221	72,575	34,283	57,570	95,859
Other	35,194	48,755	35,543	32,544	50,169
Total revenue	**$496,337**	**$527,128**	**$492,586**	**$523,167**	**$599,417**

**Amounts have been restated*

Source: City of Richmond Finance and Corporate Services

Accumulated surplus 2014–2018 (in $000s)

	2014*	2015	2016*	2017**	2018
Accumulated surplus, beginning of year	$2,442,230	$2,577,640	$2,735,306	$2,846,246	$2,956,129
Annual surplus	135,410	153,554	113,122	109,883	184,961
Accumulated surplus, end of year	$2,577,640	$2,731,194	$2,848,428	$2,956,129	$3,141,090

**Amounts have been restated*

*** Opening adjustment for change in accounting treatment for a government business enterprise*

Source: City of Richmond Finance and Corporate Services

Changes in net financial assets 2014–2018 (in $000s)

	2014*	2015	2016*	2017	2018
Change in net financial assets	$53,623	$61,390	($1,271)	$35,351	$65,031
Net financial assets, end of year	$602,620	$664,010	$662,739	$698,090	763,121

**Amounts have been restated*

Source: City of Richmond Finance and Corporate Services

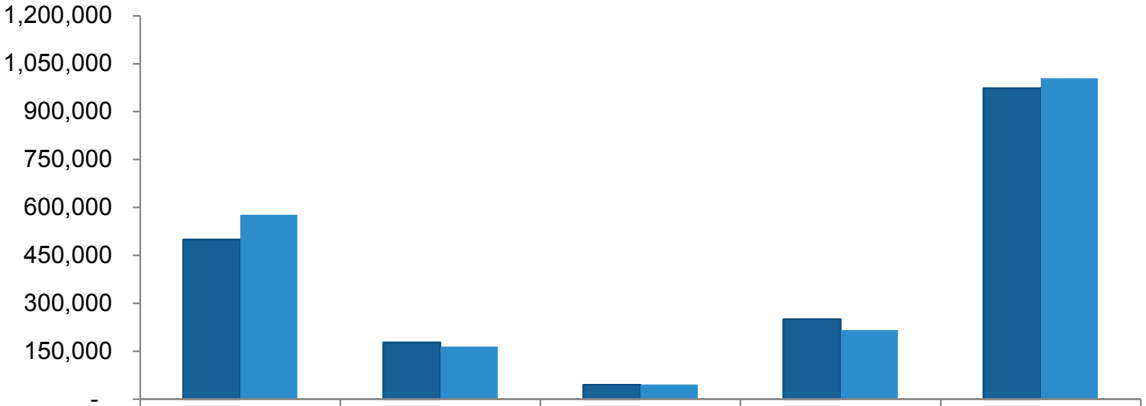
Reserves 2014–2018 (in $000s)

	2014*	2015	2016	2017	2018
Affordable housing	$12,551	$24,934	$23,726	$10,168	$10,836
Arts, culture and heritage	4,362	4,449	4,538	4,183	4,003
Capital building and infrastructure	55,651	60,412	63,476	69,731	81,763
Capital reserve	103,806	157,778	155,672	163,599	176,142
Capstan Station	8,241	9,508	14,957	19,725	32,332
Child care development	2,201	2,335	3,789	3,006	6,806
Community legacy and land replacement	16,720	16,994	8,413	8,623	8,852
Drainage improvement	44,505	52,922	55,903	56,956	56,132
Equipment replacement	17,241	16,882	18,571	22,168	19,600
Hamilton area plan community amenity	-	-	-	735	752
Leisure facilities	3,621	5,275	5,568	6,765	18,765
Local improvements	6,643	6,767	6,222	6,047	7,155
Neighbourhood improvement	6,724	6,975	6,933	7,100	7,520
Richmond Olympic Oval	4,328	3,191	4,261	4,749	6,324
Public art program	2,554	3,056	3,108	3,861	4,860
Sanitary sewer	39,504	41,687	44,527	42,909	44,107
Steveston off-street parking	293	299	305	310	317
Steveston road ends	623	458	407	211	155
Waterfront improvement	659	642	615	344	317
Watermain replacement	46,375	46,614	50,855	53,693	53,415
Total Reserves	**$376,602**	**$461,178**	**$471,846**	**$484,883**	**$540,153**

** Amounts have been restated.*

Source: City of Richmond Finance and Corporate Services

Investment portfolio per type 2017–2018 (in $000s)



	Short-term notes and deposits	Government and Government Guaranteed Bonds	MFA pooled investments	Other bonds	Total Investments
2017	499,541	177,648	45,065	250,529	972,783
2018	577,416	164,943	46,150	216,419	1,004,928

Source: City of Richmond Finance and Corporate Services

Ratio analysis indicators of financial condition

	2018	2017
Sustainability ratios		
Assets to liabilities (times)	7.7	8.1
Financial assets to liabilities (times)	2.6	2.7
Net debt to total revenues	5.5%	7.2%
Net debt to the total assessment	0.03%	0.04%
Expenses to the total assessment	0.4%	0.5%
Flexibility ratios		
Public debt charges to revenues	0.3%	0.3%
Net book value of capital assets to its cost	68.3%	68.3%
Own source revenue to the assessment	0.5%	0.5%
Vulnerability ratios		
Government transfers to total revenues	4.5%	5.0%

Source: City of Richmond Finance and Corporate Services

2018 permissive property tax exemptions

In accordance with Section 98 (2)(b) of the Community Charter, we disclose that the following properties were provided permissive property tax exemptions by Richmond City Council in 2018. Permissive tax exemptions are those exemptions granted by bylaw in accordance with Section 224 of the Community Charter.

Property / Organization	Address	2018 Municipal tax exempted
Churches and religious properties		
Aga Khan Foundation Canada	4000 May Drive	$ 24,810
BC Muslim Association	12300 Blundell Road	2,315
Bakerview Gospel Chapel	8991 Francis Road	3,708
Beth Tikvah Congregation	9711 Geal Road	18,197
Bethany Baptist Church	22680 Westminster Highway	21,173
Brighouse United Church	8151 Bennett Road	19,577
Broadmoor Baptist Church	8140 Saunders Road	15,515
Canadian Martyrs Parish	5771 Granville Avenue	25,378
Christian and Missionary Alliance	3360 Sexmith Road	5,175
Christian Reformed Church	9280 No. 2 Road	21,721
Church in Richmond	4460 Brown Road	3,618
Church of Latter Day Saints	8440 Williams Road	25,492
Cornerstone Evangelical Baptist Church	12011 Blundell Road	755
Dharma Drum Mountain Buddhist Temple	8240 No. 5 Road	2,301
Emmanuel Christian Community	10351 No. 1 Road	11,042
Faith Evangelical Church	11960 Montego Street	4,967
Fraserview Mennonite Brethren Church	11295 Mellis Drive	12,791
Fujian Evangelical Church	12200 Blundell Road	5,609
Gilmore Park United Church	8060 No. 1 Road	5,627
I Kuan Tao (Fayi Chungder) Association	8866 Odlin Crescent	4,734
Immanuel Christian Reformed Church	7600 No. 4 Road	4,181
India Cultural Centre	8600 No. 5 Road	6,486
International Buddhist Society	9160 Steveston Highway	4,822
Johrei Fellowship Inc	10380 Odlin Road	7,666
Lansdowne Congregation Jehovah's Witnesses	11014 Westminster Highway	2,990
Larch St. Gospel Meeting Room	8020 No. 5 Road	2,998
Ling Yen Mountain Temple	10060 No. 5 Road	4,964
Nanaksar Gurdwara Gursikh Temple	18691 Westminster Highway	2,739
North Richmond Alliance Church	9140 Granville Avenue	6,415
Our Savior Lutheran Church	6340 No. 4 Road	4,977
Parish of St. Alban's	7260 St. Albans Road	18,159

Churches and religious properties continued . . .

Patterson Road Assembly	9291 Walford Street	$ 1,201
Peace Evangelical Church	8280 No 5 Road	3,769
Peace Mennonite Church	11571 Daniels Road	22,939
Richmond Alliance Church	11371 No. 3 Road	4,056
Richmond Baptist Church	6560 Blundell Road	3,624
Richmond Baptist Church	6640 Blundell Road	12,737
Richmond Bethel Mennonite Church	10160 No. 5 Road	10,427
Richmond Chinese Alliance Church	10100 No. 1 Road	17,750
Richmond Chinese Evangelical Free Church	8040 No. 5 Road	3,675
Richmond Emmanuel Church	7451 Elmbridge Way	14,967
Richmond Pentecostal Church	9300 Westminster Highway	9,582
Richmond Pentecostal Church	9260 Westminster Highway	2,057
Richmond Presbyterian Church	7111 No. 2 Road	11,871
Richmond Sea Island United Church	8711 Cambie Road	17,042
Salvation Army Church	8280 Gilbert Road	4,718
Science of Spirituality SKRM Inc	11011 Shell Road	1,886
Shia Muslim Community	8580 No. 5 Road	2,042
South Arm United Church	11051 No. 3 Road	1,883
St. Anne's Anglican Church	4071 Francis Road	8,896
St. Gregory Armenian Apostolic Church	13780 Westminster Highway	2,053
St. Joseph the Worker Roman Catholic Church	4451 Williams Road	4,844
St. Monica's Roman Catholic Church	12011 Woodhead Road	13,568
St. Paul's Roman Catholic Parish	8251 St. Albans Road	18,811
Steveston Buddhist Temple	4360 Garry Street	27,437
Steveston Congregation Jehovah's Witnesses	4260 Williams Road	11,586
Steveston United Church	3720 Broadway Street	6,871
Subramaniya Swamy Temple	8840 No. 5 Road	1,614
Thrangu Monastery Association	8140 No. 5 Road	4,323
Thrangu Monastery Association	8160 No. 5 Road	1,553
Towers Baptist Church	10311 Albion Road	10,660
Trinity Lutheran Church	7100 Granville Avenue	19,703
Trinity Pacific Church	10011 No. 5 Road	7,489
Ukrainian Catholic Church	8700 Railway Avenue	5,458
Vancouver Airport Chaplaincy	3211 Grant McConachie Way	3,233
Vancouver International Buddhist Progress Society	6690 - 8181 Cambie Road	6,373
Vancouver International Buddhist Progress Society	8271 Cambie Road	8,715
Vedic Cultural Society of B.C.	8200 No. 5 Road	3,719
West Richmond Gospel Hall	5651 Francis Road	6,977

Recreation, child care, and community service properties

Atira Women's Resource Society	650-5688 Hollybridge Way	$ 4,496
Canadian Sport Institute Pacific Society	2005 - 6111 River Road	4,655
Cook Road Children's Centre	8300 Cook Road	1,882
Cranberry Children's Centre	23591 Westminster Highway	2,876
Girl Guides of Canada	4780 Blundell Road	2,637
Girl Guides of Canada	11551 Dyke Road	16,040
Navy League of Canada	7411 River Road	9,202
Richmond Animal Protection Society	12071 No. 5 Road	10,215
Richmond Caring Place	7000 Minoru Boulevard	110,279
Richmond Centre for Disabilities	100 - 5671 No. 3 Road	21,255
Richmond Family Place	8660 Ash Street	9,320
Richmond Ice Centre	14140 Triangle Road	186,498
Richmond Lawn Bowling Club	6131 Bowling Green Road	37,507
Richmond Gymnastics Association	140-7400 River Road	9,982
Richmond Olympic Oval	6111 River Road	1,272,677
Richmond Public Library	11580 Cambie Road	2,892
Richmond Public Library	11688 Steveston Highway	5,173
Richmond Rod and Gun Club	7760 River Road	24,856
Richmond Rod and Gun Club	140-7400 River Road	4,991
Richmond Tennis Club	6820 Gilbert Road	45,385
Richmond Winter Club	5540 Hollybridge Way	196,912
Riverside Children's Centre	5862 Dover Crescent	836
Scotch Pond Heritage	2220 Chatham Street	6,497
Terra Nova Children's Centre	6011 Blanchard Drive	2,033
Treehouse Learning Centre	100 - 5500 Andrews Road	1,613
Watermania	14300 Entertainment Boulevard	194,412
West Cambie Childcare Centre	4033 Stolberg Street	3,030

Senior citizen housing

Richmond Legion Senior Citizen Society	7251 Langton Road	$ 18,476

Community care facilities

Canadian Mental Health Association	8911 Westminster Highway	$ 10,264
Developmental Disabilities Association	6531 Azure Road	2,573
Developmental Disabilities Association	8400 Robinson Road	3,158
Developmental Disabilities Association	7611 Langton Road	3,080
Greater Vancouver Community Service	4811 Williams Road	2,691
Pinegrove Place, Mennonite Care Home Society	11331 Mellis Drive	13,601
Richmond Lions Manor	9020 Bridgeport Road	16,605
Richmond Society for Community Living	303 - 7560 Moffatt Road	773
Richmond Society for Community Living	4433 Francis Road	2,140
Richmond Society for Community Living	5635 Steveston Highway	1,953
Richmond Society for Community Living	9 - 11020 No. 1 Road	1,019
Richmond Society for Community Living	9580 Pendleton Road	2,935
Rosewood Manor, Richmond Intermediate Care Society	6260 Blundell Road	28,741
Western Recovery Foundation	10411 Odlin Road	2,466

Major services provided by the City of Richmond

Administration

Includes the office of the Chief Administrative Officer who oversees the overall administration of the City's operations. Also includes the Deputy Chief Administrative Officer, Human Resources, Intergovernmental Relations and Protocol, Corporate Communications and Marketing and the Corporate Planning and Programs Management Group.

Community Safety

Includes the City's public safety providers including police, Richmond Fire-Rescue, Emergency Programs, Community Bylaws and Business Licences.

Community Services

Coordinates, supports and develops Richmond's community services including Parks, Recreation Services, Arts, Culture and Heritage Services and Community Social Development.

Finance and Corporate Services

Includes Customer Service, Information Technology, Finance, Economic Development, Real Estate Services, Law, City Clerk and Corporate Business Service Solutions.

Engineering and Public Works

The Engineering and Public Works Departments deliver public works services and utilities and engineering planning, design, construction and maintenance services for all utility and City building infrastructure.

Planning and Development

Includes the Policy Planning, Transportation, Development Applications and Building Approvals Departments. This division provides policy directions that guide growth and change in Richmond with emphasis on land use planning, development regulations, environmental protection, heritage and livability.

Other City entities

Gateway Theatre

Operates the City's performing arts theatre.

Lulu Island Energy Company

Operates the City's district energy utilities.

Richmond Olympic Oval Corporation

Operates the Richmond Olympic Oval and the Richmond Sport Hosting program.

Richmond Public Library

Operates Richmond's public library, including four branches.

City of Richmond contacts

The City of Richmond offers many civic services to the community. Additional services to the community are provided through the Richmond Olympic Oval, Richmond Public Library, Gateway Theatre and Lulu Island Energy Company. For more information on City services contact:

City of Richmond

6911 No. 3 Road
Richmond, British Columbia
V6Y 2C1 Canada
Phone: 604-276-4000
Email: infocentre@richmond.ca
www.richmond.ca

 @CityofRichmondBC

 @Richmond_BC

 /CityofRichmondBC

Gateway Theatre

6500 Gilbert Road
Richmond, BC V7C 3V4
Phone: 604-270-6500
Box Office: 604-270-1812
www.gatewaytheatre.com

 @GatewayThtr

 @GatewayThtr

 @gatewaythtr

Lulu Island Energy Company

6911 No. 3 Road
Richmond, British Columbia
V6Y 2C1 Canada
Phone: 604-276-4011
www.luluislandenergy.ca

Richmond Public Library

Hours: 604-231-6401 (Brighouse Branch)
www.YourLibrary.ca

 @yourlibraryRichmond

 @RPLBC

 /YourLibraryRichmond

 Account: RPLYourlibrary

 @rplbc

Richmond Olympic Oval

6111 River Road
Richmond, BC V7C 0A2
Phone: 778-296-1400
info@richmondoval.ca
www.richmondoval.ca

 @RichmondOval

 @RichmondOval

 @RichmondOval

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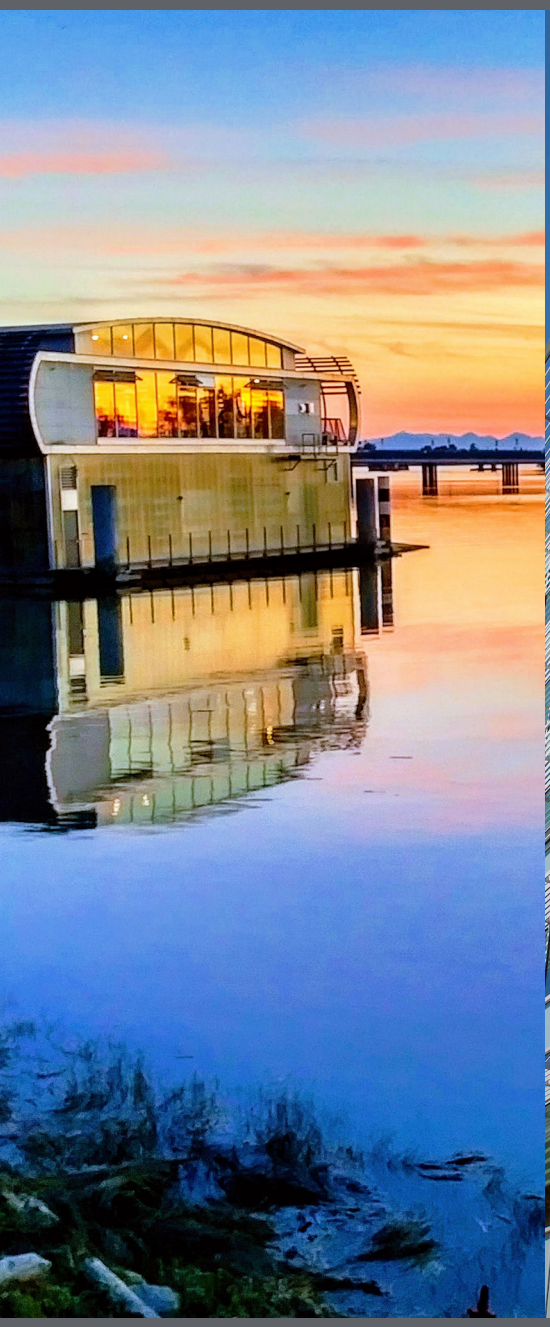
City of Richmond
British Columbia, Canada

2018 Annual Report Highlights

For the year ended December 31, 2018



Richmond

RICHMOND CITY COUNCIL

AS OF NOVEMBER 5, 2018

Front row, left to right:
Councillor Michael Wolfe,
Councillor Bill McNulty,
Mayor Malcolm Brodie,
Councillor Linda McPhail,
Councillor Kelly Greene
Back row, left to right:
Deputy Fire Chief Kevin Gray,
Richmond Fire-Rescue,
Councillor Harold Steves,
Councillor Carol Day,
Councillor Chak Au,
Councillor Alexa Loo,
Constable Leah Riske,
Richmond RCMP

UNTIL NOVEMBER 4, 2018

Front row, left to right:
Councillor Carol Day,
Councillor Bill McNulty,
Mayor Malcolm Brodie,
Councillor Linda McPhail,
Councillor Harold Steves
Back row, left to right:
Constable Adam Carmichael,
Richmond RCMP,
Councillor Chak Au,
Councillor Derek Dang,
Councillor Ken Johnston,
Councillor Alexa Loo,
Captain Jack Beetstra,
Richmond Fire-Rescue

CONNECT WITH RICHMOND CITY COUNCIL

To contact Council: **mayorandcouncillors@richmond.ca** or call **604-276-4000**.
For Council Meetings agendas and minutes, visit: **www.richmond.ca/cityhall/council/agendas**.
To watch Council meetings on live streaming or view videos of past meetings visit:
www.richmond.ca/cityhall/council/watch-video.

COVER PHOTOS: RICHMOND CITY HALL (MIDDLE) AND TWO WINNING SUBMISSIONS IN THE CITY'S 2018 STREET BANNER CONTEST.

CITY OF RICHMOND, BRITISH COLUMBIA 2018 ANNUAL REPORT HIGHLIGHTS

FOR THE YEAR ENDED DECEMBER 31, 2018

"Our vision is to be the most appealing, livable and well-managed community in Canada."

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For an online copy of this report, please visit www.richmond.ca (City Hall > Finance, Taxes & Budgets > Budgets & Financial Reporting > Annual Reports).

This report features highlights from Richmond's 2018 Annual Report. For the detailed 2018 Annual Report that meets legislated requirements, please visit www.richmond.ca (City Hall > Finance, Taxes & Budgets & Financial Reporting > Annual Reports).

This report was prepared by the City of Richmond Finance and Corporate Communications and Marketing Departments. Design, layout and production by the City of Richmond Production Centre.

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MESSAGE FROM THE MAYOR

The City of Richmond's 2018 Annual Report reflects another banner year for our community.

2018 saw the opening of the new Brighouse No.1 Fire Hall. As our central fire hall serving our busy City Centre, this new state of the art facility is a key public safety building. The opening of No. 1 Fire Hall also marked the conclusion of the ambitious community safety infrastructure program. Since 2007, the City has constructed five new fire halls and completed a major retrofit of a sixth fire hall. We also acquired and completed a retrofit of the Richmond Community Safety Building to serve as home for the Richmond RCMP detachment.

Council continues to make community safety a top priority. In 2018, we approved funding for an expanded City Centre Community Policing Office. This satellite facility will provide enhanced police presence and service within the City Centre. Council also made further investments in increased police staffing to meet the needs of our growing population, which has passed 225,000.

The continued strong growth of our community was reflected in another busy year of construction, with building permit value exceeding $879 million, the second highest total ever, while the number of licenced businesses surpassed 14,000.

RICHMOND WAS NAMED AS A FINALIST IN THE SMART CITIES CHALLENGE.

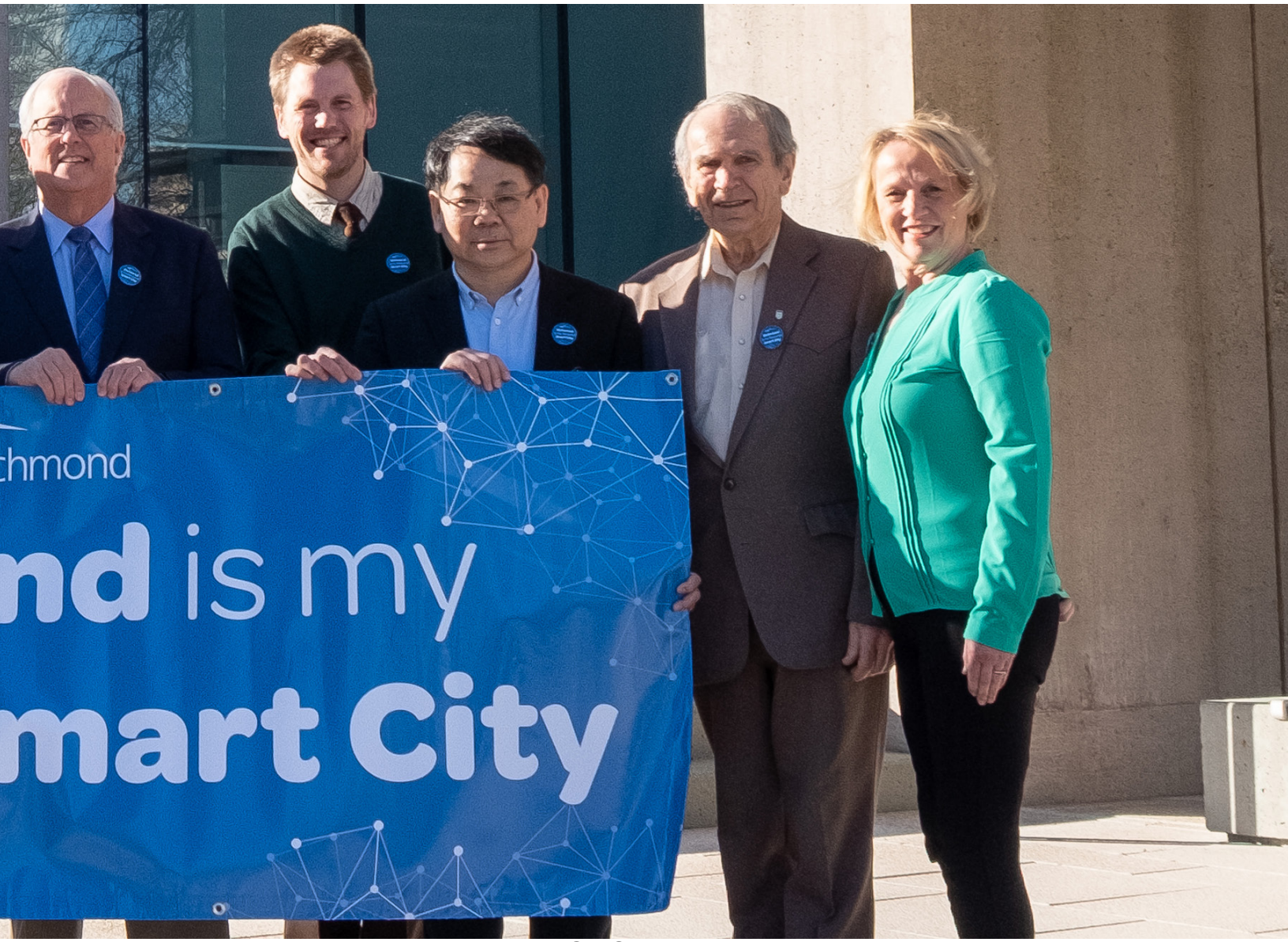
With added growth, community mobility is another top priority for Council. The City continues to make significant investments in transportation infrastructure across Richmond. Of note, construction began on the new River Parkway. This will provide a major new arterial route bisecting our City Centre.

Improving our enviable quality of life is always top of mind for Council. In 2018, Richmond was among the first cities in the world to be named as a Global Active City. To earn this designation, a city must offer residents the opportunity to enjoy active, healthy lifestyles while improving their well-being. Richmond joins Buenos Aires, Hamburg, Liverpool and others among the first six cities to receive this prestigious recognition.

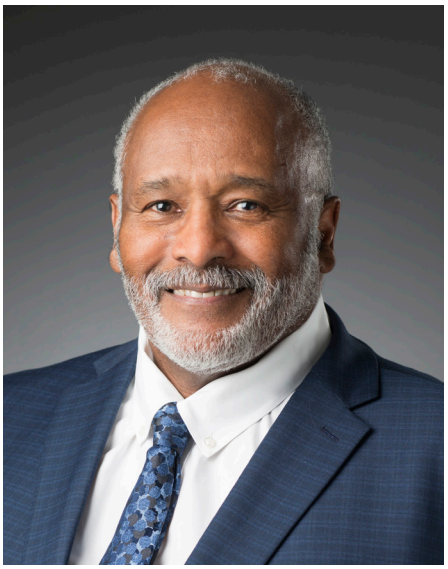
Richmond's long-standing reputation for innovation and excellence was further highlighted as we were named a finalist in the Government of Canada's Smart Cities Challenge. Our innovative concept proposes using technology and data to improve community resiliency to disaster, enhance transportation and combat climate change.

We owe our success to many who contribute to making Richmond a better place, including our staff, volunteers, business, and community and government partners. The detailed Annual Report contains considerable more information on our goals and achievements and, as always, I invite your comments and questions through my office.

Malcolm Brodie
Mayor, City of Richmond



MESSAGE FROM THE CHIEF ADMINISTRATIVE OFFICER



I am pleased to present the City of Richmond's Annual Report Highlights for the year 2018. This report details our outstanding financial position, while illustrating how we are achieving a key element of our vision, which is for Richmond to be Canada's best managed city.

During the past Council term, which concluded in 2018, our administration made major strides in delivering on Council's nine term goals. Those achievements are highlighted throughout the Annual Report.

Corporate and community sustainability continues to be one of Council's top priority areas. Richmond has long been recognized as a leader in embracing the three pillars of sustainability. A strong focus on the long-term economic, social and environmental health of our community is always at the forefront of our planning and actions.

Environmentally, we have made significant inroads in offsetting the impact of global climate change. From 2007 to 2015, we were able to reduce overall greenhouse gas emissions in the City by 12 per cent, even as our population grew by 12 per cent during the same period. This has reduced greenhouse gas emissions and energy costs for the City, local residents and businesses. Our award-winning District Energy Utility is on track to become the largest of its kind in North

America. In 2018, we became the first in North America to require that all parking stalls in new developments be energized to support Level 2 Electric Vehicle charging.

Our innovative diking and drainage utility allows us to make substantive annual investments to ensure our island city is protected from any potential flood risk, including extreme weather events and rising sea levels.

On the social side, the City has secured hundreds of affordable housing units and child care spaces, while updating policies to ensure we continue to address these critical needs in our community.

Strong financial stewardship through our Long Term Financial Management Strategy is also a hallmark of our City administration. This Strategy has allowed Council to limit property tax increases, while still making significant investments in infrastructure and programs. Richmond's property taxes remain among the lowest in the region and we maintain a favourable business-residential tax balance.

Our strong commitment to community sustainability allows us to continue to provide for the needs of a growing and evolving community, while delivering services that are second to none and providing great value for our taxpayers.

George Duncan
Chief Administrative Officer

RICHMOND IS ADDRESSING THE IMPACT OF CLIMATE CHANGE ON OUR ISLAND CITY THROUGH OUR DISTRICT ENERGY PROGRAM AND OTHER INITIATIVES.

2018 Awards

The City's commitment to excellence is reflected in the recognition we receive from peers and others.

In 2018, the City was proud to be one of the first six cites in the world to be designated as a Global Active City for our commitment to promoting community wellness and encouraging active lifestyles.

Richmond was also named as a finalist for a $10 million prize in the Government of Canada's prestigious Smart Cities Challenge, which encourages use of technology and data to improve quality of life in our community.

For more information on awards and other recognition received by the City of Richmond in 2018, please see pages 14–17.

GLOBAL Active City

SMART CITIES CHALLENGE
#smartcitiesCanada

TOTAL CONSTRUCTION VALUE FOR BUILDING PERMITS ISSUED IN 2018 WAS THE SECOND HIGHEST EVER FOR RICHMOND.

RICHMOND WAS ONE OF THE FIRST IN THE WORLD TO RECEIVE A GLOBAL ACTIVE CITY DESIGNATION.

2018 Achievement Highlights

During the past four years, the City's work was driven by Council's Term Goals 2014–2018. This document set out nine focus areas, each with numerous sub-goals and objectives. The following achievements represent highlights of our work to fulfil these goals 2018:

1. SAFE COMMUNITY

City Council approved an additional 16 police officers for the Richmond RCMP, meaning a total increase of 40 new officers during the 2014-2018 Council term.

2. VIBRANT, ACTIVE AND CONNECTED COMMUNITY

Richmond was selected as one of the first six Global Active Cities in the world, recognizing our ongoing commitment to community wellness and active lifestyles.

3. WELL PLANNED COMMUNITY

Council approved development of a new 40-unit temporary modular housing project to serve persons experiencing homelessness.

4. SUSTAINABILITY

The Richmond recycling program was expanded with acceptance of flexible plastic packaging at the Recycling Depot.

5. PARTNERSHIPS AND COLLABORATION

The City was named a finalist for a $10 million prize in the national Smart Cities Challenge competition.

6. QUALITY INFRASTRUCTURE NETWORKS

A ground breaking ceremony was held for the River Parkway, a major new arterial route that will bisect the City Centre and significantly enhance community mobility.

7. FINANCIAL STEWARDSHIP

Council's Long Term Financial Management Strategy has resulted in the City and its subsidiaries accumulating $540 million in Reserves as at December 31, 2018. This positions the City well for the future.

8. ECONOMIC DEVELOPMENT

The construction value of building permits issued in 2018 was $879 million, the second highest total ever.

9. WELL-INFORMED CITIZENRY

The new MyRichmond e-services portal was launched, providing citizens with enhanced access to select online City services.

THROUGH CONTINUED INNOVATION IN OUR GARBAGE AND RECYCLING PROGRAMS, THE CITY HAS ACHIEVED 78% DIVERSION OF SINGLE FAMILY HOME WASTE FROM LANDFILLS.

COUNCIL APPROVED FUNDING FOR AN ADDITIONAL 16 POLICE OFFICERS IN 2018.

Community Safety Building

The opening of the Brighouse Fire Hall No. 1 in the fall of 2018 was a momentous occasion for the City of Richmond.

It is the City's central fire hall, serving the rapidly growing City Centre and is headquarters for Richmond Fire-Rescue's administration. It is also home to the City's Emergency Programs department.

The completion of Brighouse Fire Hall No. 1 also marked the conclusion of an ambitious 10-year building program, in which the City replaced or upgraded virtually all of its public safety buildings, Beginning in 2007, the City completed construction of five new fire halls, completed a major retrofit of a sixth fire hall, and acquired and renovated the Richmond Community Safety Building, which serves as the home of the City's police detachment.

ABOVE: BRIGHOUSE FIRE HALL NO. 1 OFFICIALLY OPENED IN 2018 WITH A CELEBRATION THAT INCLUDED FUN ACTIVITIES FOR THE WHOLE FAMILY AND DEDICATION OF A NEW PUBLIC ART STATUE HONOURING FIREFIGHTERS.
OPPOSITE PAGE: SINCE 2007, THE CITY HAS ALSO COMPLETED A NEW COMMUNITY SAFETY BUILDING, WHICH HOUSES THE CITY'S POLICE DETACHMENT (TOP) AND FIVE NEW FIRE HALLS, INCLUDING THE CAMBIE (MIDDLE), STEVESTON, SEA ISLAND AND HAMILTON FIRE HALLS (BOTTOM).

Program

Major milestones of the Community Safety Building Program included the openings of the following buildings:

- **2007** Hamilton Fire Hall
- **2007** Sea Island Fire Hall
- **2011** Richmond Community Safety Building
- **2011** Steveston Fire Hall
- **2017** Cambie Fire Hall
- **2018** Brighouse Fire Hall

All the new buildings were built to post-disaster standard to ensure they would remain operable after a major seismic event. Sustainable building design was also incorporated into all the new facilities, with a number achieving gold certification under the Leadership in Energy and Environmental Design (LEED) ranking program.

The Cambie Fire Hall is also home to a BC Ambulance Service station, the first time these two critical emergency response agencies have been co-housed in an urban centre in BC.

THE NEW NO. 2 ROAD NORTH PUMP STATION WAS NAMED PROJECT OF THE YEAR BY THE PUBLIC WORKS ASSOCIATION OF BC.

2018 Awards

A measurement of the City's success in achieving its goals are the honours and recognition we received from our peers and others. In 2018, Richmond again received numerous international, national and provincial awards recognizing our commitment to excellence and innovation.

SMART CITIES CHALLENGE

Richmond was selected as a finalist in the national Smart Cities Challenge. Richmond was chosen as one of 10 finalists in its category, competing for two $10 million prizes. The Government of Canada competition challenged local governments to envision innovative ways to engage technologies and data that will improve the lives of residents and enhance service delivery.

GLOBAL ACTIVE CITY

Richmond was among the first six cities in the world to be named as a Global Active City based on work with our partners in developing key initiatives such as our Community Wellness Strategy and the Recreation and Sport Strategy.

DISTRICT ENERGY PROGRAM

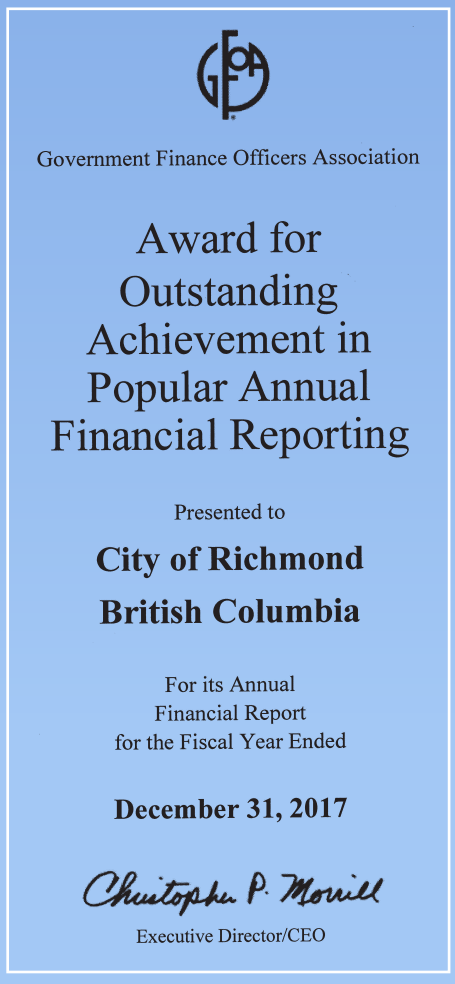
Richmond's District Energy Program has been the subject of more than a dozen awards since 2011, including two awards in 2018 – the Innovative Energy Project of the Year Award from the Association of Energy Engineers and the District Energy Leadership Award from the International District Energy Association.

FINANCIAL REPORTING

The Government Finance Officers Association of the US and Canada presented Richmond with the Canadian Award for Financial Reporting for the 16th year in a row and the Popular Finance Reporting Award for the 9th year in a row for our 2017 Annual Report.

STOREYS AFFORDABLE HOUSING PROJECT

Richmond received the Planning Excellence Award in Social Planning from the Canadian Institute of Planners for the new Storeys affordable housing project on Granville Avenue east of No. 3 Road.



MYRICHMOND

Richmond was named as one of the 50 Top Smart Cities in the World in the Smart 50 competition for the development of our new MyRichmond e-services portal, part of the City's Digital Strategy.

CITY FLEET PROGRAM

The American Public Works Association and Government Fleet magazine honoured Richmond with their Leading Fleets Award.

ELECTRIC VEHICLE READINESS POLICY

The City received the Governance Award from the Union of BC Municipalities for our innovative Electric Vehicle Readiness Policy, a North American first.

THE STOREYS AFFORDABLE HOUSING PROJECT RECEIVED NATIONAL HONOURS FOR PLANNING EXCELLENCE.

NO. 2 ROAD DRAINAGE PUMP STATION

The Public Works Association of BC awarded Richmond the Project of the Year Award for the design of our new No. 2 Road North Pump Station.

CITY CENTRE COMMUNITY CENTRE

The BC Recreation and Parks Association presented Richmond with the Building Excellence Award for the City Centre Community Centre.

POLLINATOR PASTURE

Richmond received the BC Recreation and Parks Association Program Excellence Award, recognizing a creative, successful and innovative program that serves as a model for other recreation and parks agencies to enhance their services. The award was for the Pollinator Pasture, a community-engaged public art project by the City of Richmond in partnership with Border Free Bees.

REPORT FROM THE GENERAL MANAGER, FINANCE AND CORPORATE SERVICES

I am pleased to submit the highlights of the Consolidated Financial Statements for the City of Richmond for the year ended December 31, 2018.

Management is responsible for the preparation and presentation of the financial statements and related information in the 2018 Annual Report. The consolidated financial statements have been prepared in accordance with Canadian public sector accounting standards as prescribed by the Public Sector Accounting Board (PSAB) of the Chartered Professional Accountants of Canada. The City maintains a system of internal controls designed to provide reasonable assurances for the safeguarding of assets and the reliability of financial information.

KPMG LLP was appointed by City Council to independently audit the City's consolidated financial statements. They have expressed an opinion, that the City's consolidated financial statements present fairly, in all material respects, the consolidated financial position of the City of Richmond as at December 31, 2018 and its consolidated results of operations, its changes in net consolidated financial assets and its consolidated cash flows for the year then ended in accordance with Canadian public sector accounting standards.

The financial statements combine the accounts of the City of Richmond, Richmond Olympic Oval, and Richmond Public Library (collectively referred to as the "City"), as well as the City's investment in Lulu Island Energy Company which is accounted for as a Government Business Enterprise.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION (IN $000s)

	2018 Actual	2017 Actual	Change
Financial Assets	$1,231,060	$1,114,486	$116,574
Financial Liabilities	467,939	416,396	51,543
Net Financial Assets	763,121	698,090	65,031
Tangible Capital Assets	2,371,694	2,251,901	119,793
Inventory	3,602	3,762	(160)
Prepaid Expenses	2,673	2,376	297
Non-Financial Assets	2,377,969	2,258,039	119,930
Accumulated Surplus	**$3,141,090**	**$2,956,129**	**$184,961**

The City's financial position remains strong with an increase in the assets resulting from additions to capital and statutory reserves. This is offset by liabilities that include deferred revenue related to the collection of Development Cost Charges as well as deposits for restricted purposes, including performance on development projects. The City's long-term debt with the Municipal Finance Authority continues to decline with an outstanding balance at the end of 2018 of $32.8 million or approximately $147 per capita.

The City has established several reserve funds by Bylaw. These reserve balances increased to $540.2 million as at December 31, 2018 mainly due to annual transfers and developer contributions. These funds support the City's capital program, including infrastructure construction and renewal.

The City's tangible capital assets increased by $119.8 million, which includes $88.0 million of in-kind contributions from development. The majority of these additional assets are related to land received as conditions of re-zoning, along with new infrastructure required to support the growing community.

Overall, the City's accumulated surplus increased to $3.1 billion as at December 31, 2018. Accumulated surplus represents the net resources that can be used to provide future services.

CONSOLIDATED STATEMENT OF OPERATIONS (IN $000s)

	2018 Budget	2018 Actual	2017 Actual
Revenue	$521,494	$599,417	$523,167
Expenses	439,367	414,456	413,284
Annual Surplus	**$82,127**	**$184,961**	**$109,883**

The City's consolidated revenue for the year totaled $599.4 million and represents an increase of $76.3 million over 2017. Continuing growth in the community has resulted in the additional development-related revenue and contributions.

Expenses increased by $1.2 million from prior year. 2017 expenses include an extraordinary contribution towards the Storeys affordable housing initiative.

The annual surplus for 2018 was $185.0 million and represents in the change in investment in tangible capital assets, reserves and other accumulated surplus.

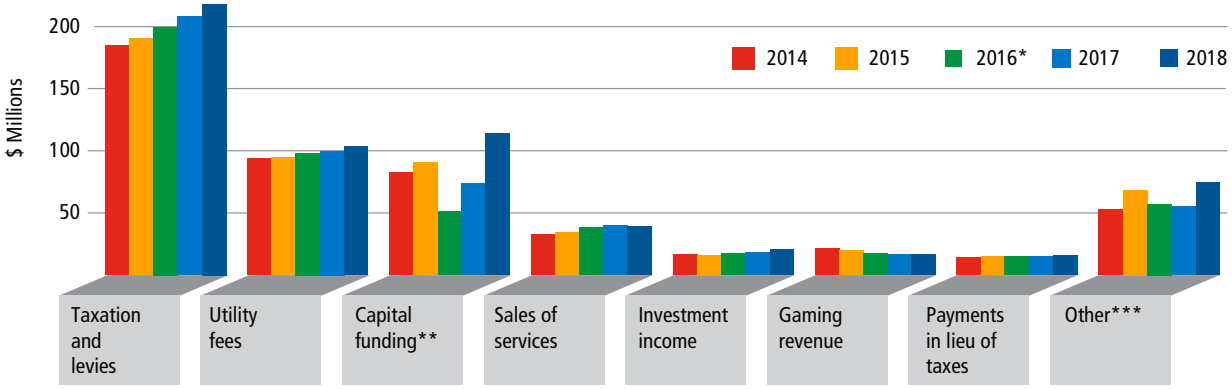
FINANCIAL SUSTAINABILITY

City Council adopted the Long Term Financial Management Strategy to ensure prudent fiscal practices while maintaining the City's high service standards and balancing current and long term financial needs. The effects of this policy can be seen in the current financial health of the organization.

The City's financial management has positioned it well to continue to carry out and meet Council goals and service commitments to provide a safe and desirable community to live, work and play in, while providing value for taxpayers.

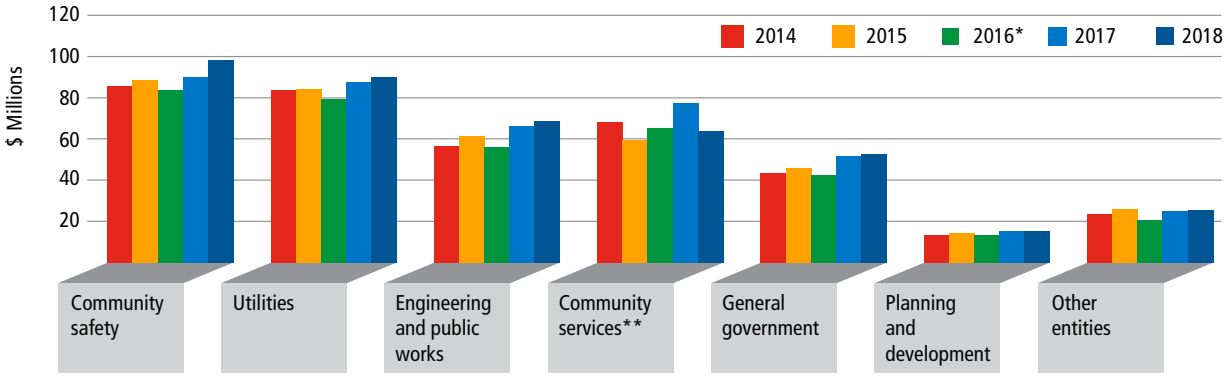
Andrew Nazareth, BEc, CPA, CGA
General Manager,
Finance and Corporate Services
May 13, 2019

REVENUE BY SOURCE 2014–2018



Source: City of Richmond Finance and Corporate Services
*Amounts have been restated
** Capital funding includes: Development Cost Charges and other capital funding sources
*** Other includes: provincial and federal grants, licenses and permits and other sources

EXPENSES BY FUNCTION 2014–2018



Source: City of Richmond Finance and Corporate Services
* Amounts have been restated
** Expenses for Community Services include one-time contributions towards affordable housing of 11.8m in 2014, 12.3m in 2015 and 17.0m in 2017

Richmond at a glance

222,945
2018 POPULATION

November 10, 1879
INCORPORATED AS MUNICIPALITY

129.27
SIZE OF CITY IN SQUARE KM

17
ISLANDS COMPRISING THE CITY

December 3, 1990
DESIGNATED AS CITY OF RICHMOND

Fast facts

$206.6 million
2018 HOTEL ROOM REVENUES

48.71 million
2018 CANADA LINE BOARDINGS

85.79
AVERAGE LIFE EXPECTANCY, LONGEST IN CANADA

$879 million
CONSTRUCTION VALUE OF BUILDING PERMITS ISSUED IN 2018, 2ND HIGHEST EVER

25.9 million
2018 PASSENGERS PASSING THROUGH VANCOUVER INTERNATIONAL AIRPORT IN RICHMOND, A NEW RECORD

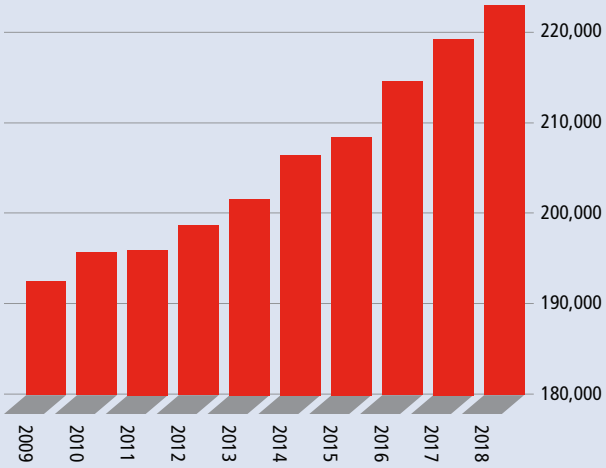
38.6 million
INVENTORY OF INDUSTRIAL SPACE IN SQUARE FEET, LARGEST IN THE REGION

807
HECTARES OF CRANBERRY FIELDS IN PRODUCTION, LARGEST IN CANADA

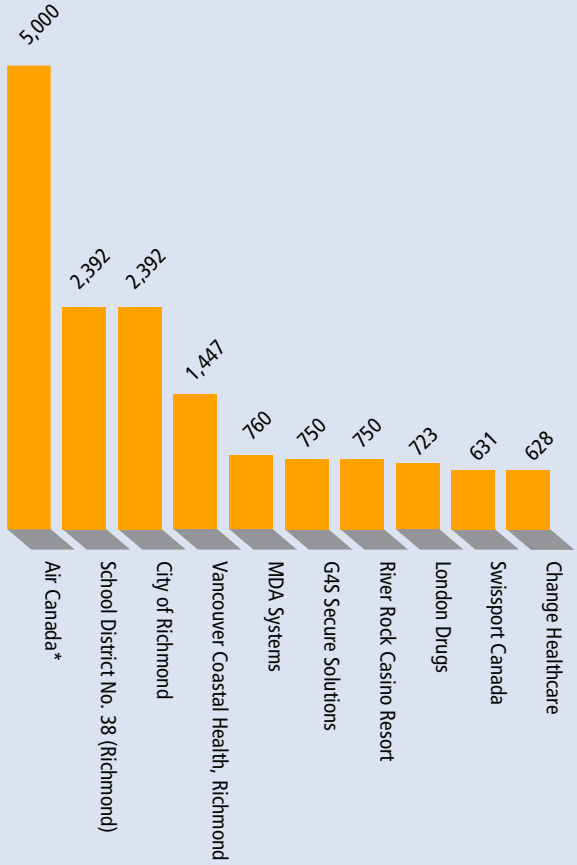
145,841
2018 REGISTRATIONS IN CITY PARKS, RECREATION AND CULTURE PROGRAMS

1.08 million
2018 SITE VISITS TO RICHMOND OLYMPIC OVAL

CITY OF RICHMOND POPULATION 2009–2019

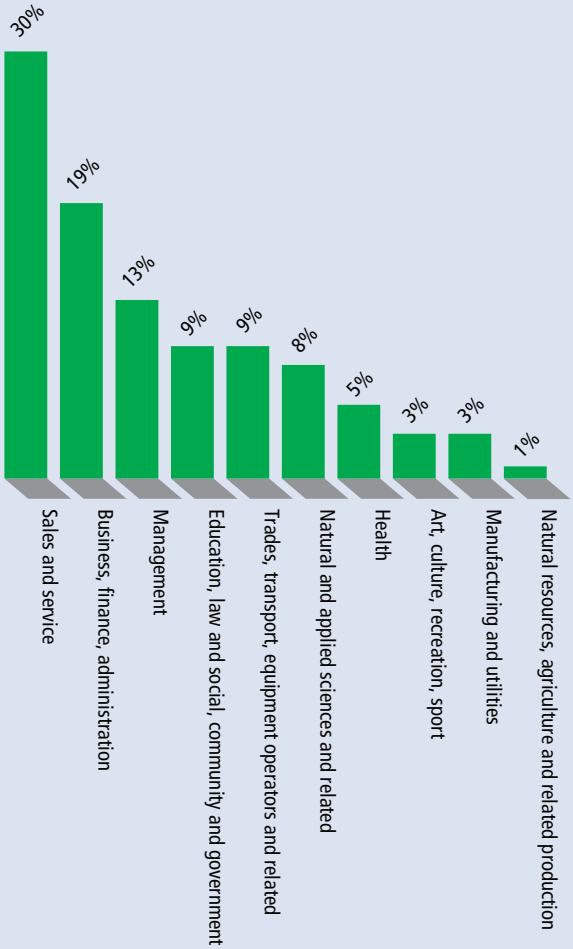


TOP 10 LARGEST EMPLOYERS IN RICHMOND



*Approximate

OCCUPATIONS OF RICHMOND RESIDENTS



Sources: Statistics Canada, City of Richmond, Vancouver International Airport Authority, Steveston Harbour Authority, Metro Vancouver, Richmond School District.

MAJOR SERVICES PROVIDED BY THE CITY OF RICHMOND

ADMINISTRATION
Includes the office of the Chief Administrative Officer who oversees the overall administration of the City's operations. Also includes the Deputy Chief Administrative Officer, Human Resources, Intergovernmental Relations and Protocol, Corporate Communications and Marketing and the Corporate Planning and Programs Management Group.

COMMUNITY SAFETY
Includes the City's public safety providers including police, Richmond's Fire-Rescue, Emergency Programs, Community Bylaws and Business Licences.

COMMUNITY SERVICES
Coordinates, supports and develops Richmond's community services including Parks, Recreation Services, Arts, Culture and Heritage Services and Community Social Development.

FINANCE AND CORPORATE SERVICES
Includes Customer Service, Information Technology, Finance, Economic Development, Real Estate Services, Law, City Clerk and Corporate Business Service Solutions.

ENGINEERING AND PUBLIC WORKS
The Engineering and Public Works Departments deliver public works services and utilities and engineering planning, design, construction and maintenance services for all utility and City building infrastructure.

PLANNING AND DEVELOPMENT
Includes the Policy Planning, Transportation, Development Applications and Building Approvals Departments. This division provides policy directions that guide growth and change in Richmond with emphasis on land use planning, development regulations, environmental protection, heritage and livability.

THE CITY'S MAJOR EVENTS SECTION PRODUCES THE RICHMOND WORLD FESTIVAL AND OTHER COMMUNITY CELEBRATIONS.

CITY OF RICHMOND CONTACTS

The City of Richmond offers many civic services to the community. Additional services to the community are provided through the Richmond Olympic Oval, Richmond Public Library and Gateway Theatre. For more information on City services, contact:

CITY OF RICHMOND

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604-276-4000
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www.richmond.ca
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@Richmond_BC
/CityofRichmondBC

GATEWAY THEATRE

6500 Gilbert Road
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Box Office: 604-270-1812
www.gatewaytheatre.com
@GatewayThtr
@GatewayThtr
@gatewaythtr

LULU ISLAND ENERGY COMPANY

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Richmond, BC V6Y 2C1
604-276-4011
www.luluislandenergy.ca

RICHMOND PUBLIC LIBRARY

604-231-6404 (Brighouse Branch)
www.yourlibrary.ca
@YourlibraryRichmond
@RPLBC
/YourLibraryRichmond
RPLYourlibrary
@rplbc

RICHMOND OLYMPIC OVAL

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City of Richmond

Report to Committee

To:	Community Safety Committee	**Date:**	May 8, 2019
From:	Cecilia Achiam General Manager, Community Safety	**File:**	12-8060-01/20-Vol01
Re:	**Community Bylaws Monthly Activity Report – April 2019**		

Staff Recommendation

That the staff report titled "Community Bylaws Monthly Activity Report – April 2019", dated May 8, 2019, from the General Manager, Community Safety, be received for information.

Cecilia Achiam
General Manager, Community Safety
(4122)

REPORT CONCURRENCE	
ROUTED TO:	**CONCURRENCE**
Finance	☑
Parks Services	☑
Engineering	☑
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** CJ
APPROVED BY CAO	

Staff Report

Origin

This monthly report for the Community Bylaws department provides information on Grease, Soils, Property Use, Short-Term Rentals, Pay Parking, Parking Enforcement, Animal Control, Dog Licencing and Public Awareness Initiatives.

Analysis

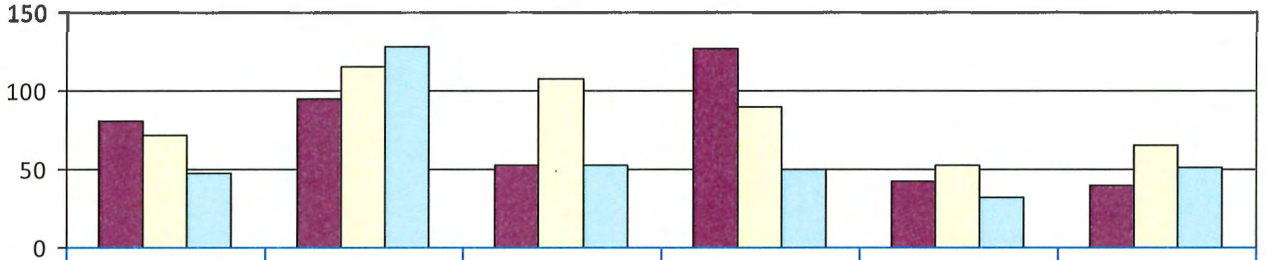
Property Use enforcement matters are divided among several groups in Community Bylaws, Engineering, Business Licencing and Vancouver Coastal Health. Figure 1 shows the calls for service (files opened) by Property Use Inspectors in the Community Bylaws department. Figure 2 shows all other property related enforcement.

Property Use

Property Use Officers investigate property matters based on public complaints as well as conduct proactive enforcement for self-evident infractions such as boulevard obstructions, unsightly properties and short-term rentals. This group also responds to complaints and investigates concerns relating to vacant homes and homeless camps.

During the month of April, bylaw officers continued to provide daily patrols of homeless camps in the Hamilton area in order to check on the well-being of the occupants and to ensure the site remains safe and clean. Staff are also preparing for an expected seasonal increase in complaints regarding short-term rentals.

Figure 1: Property Use Calls For Service - April Year-To-Date Comparison

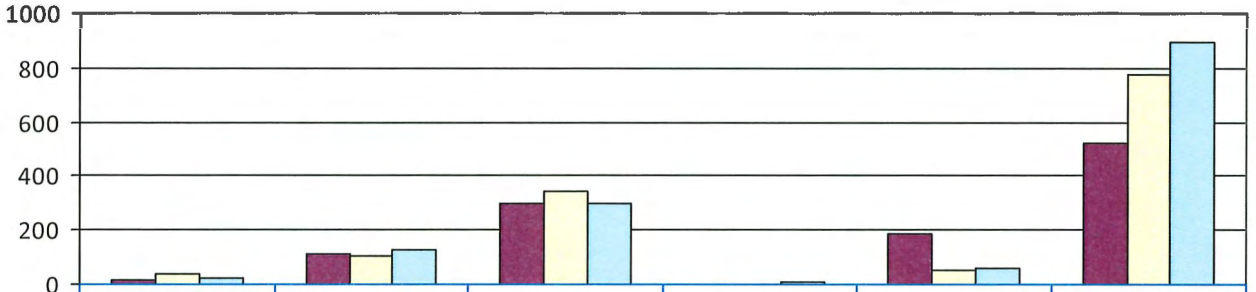


	Boulevard Maintenance	Unsightly Premises	Noise	Short Term Rentals	Recycling	Zoning Regulations
2017	81	95	53	127	42	40
2018	72	116	108	90	53	65
2019	48	128	53	50	32	51

Grease

The Grease Officer remains focused on education and voluntary compliance. During the month of April, the Grease Officer undertook 81 grease-trap inspections which are reflected in the cumulative total shown in Figure 2. There were no violation notices issued for contraventions of the Drainage, Dike and Sanitary Sewer System Bylaw No. 7551.

Figure 2: Other Calls For Service - April Year-To-Date Comparison



	Soils	Tow Permit Application	Grease	Smoking	Signs	Parking
2017	12	113	298	0	190	522
2018	35	103	347	0	52	778
2019	26	125	295	10	58	897

Soils

The Soil Bylaw Officer continues to respond to complaints and issues of non-compliance with Soil Removal & Fill Deposit Regulation Bylaw No. 8094. Four soil files were opened in April. The Officer continues to address issues of non-compliance on 38 properties in addition to monitoring 16 approved sites. There are 13 soil deposit proposals under various stages of review by City staff and/or the ALC. During the month of April, the Soil Bylaw Officer conducted 73 site inspections.

Dog Licencing and Patrols

During the month of April, 200 dogs were licenced. The total amount of dogs licenced to date is 6,407.

Regional Animal Protection Society (RAPS) Officers, conduct monthly rotational patrols of the dikes, parks and school grounds within the City. The following were patrolled during the month of April which resulted in no contraventions of the Animal Control Regulation Bylaw No. 7932 or the Dog Licencing Bylaw No. 7138.

- McLean Park
- Brighouse Park
- Hugh Boyd Secondary
- McDonald Beach
- Dover Park
- Sea Island Elementary
- Steveston Village
- Garry Point
- William Cook Elementary
- Steveston Water Park
- South Arm Park
- Mitchell Elementary

- Cambie Community Park
- West Dikes Trail
- Manoah Steves Elementary
- Homma Elementary
- Britannia Shipyards
- Terra Nova Park

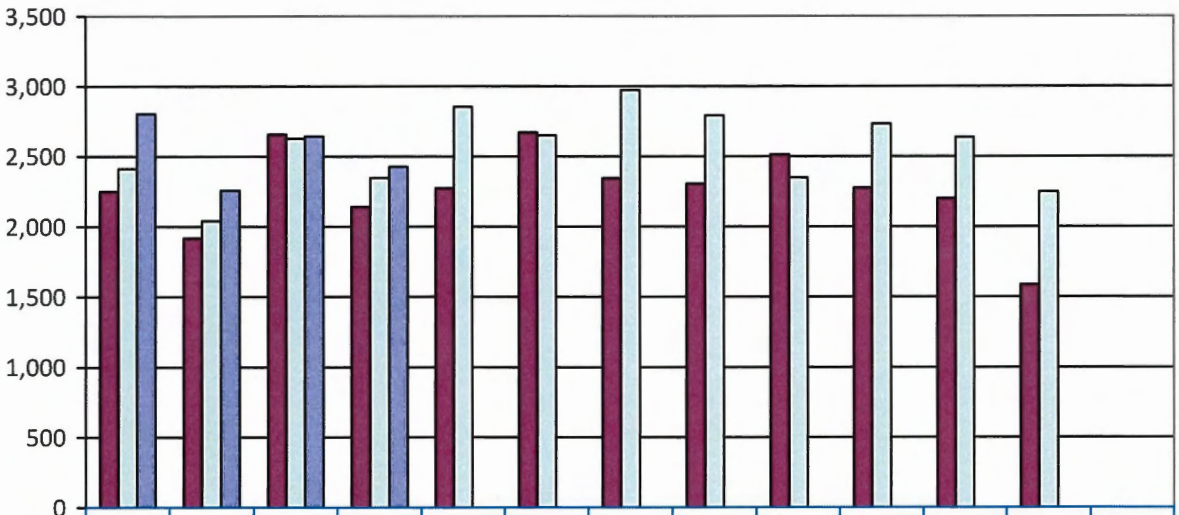
Parking

Parking Officers continue to focus on safety and gain compliance through education and ticketing while conducting their daily patrols. During the month of April, Parking Officers saw an increase in vehicles parking overnight where prohibited, such as the Bowling Green. Staff will be conducting evening patrols beginning in May to deter overnight parking in restricted areas.

For the month of April, Parking Officers issued 2,427 violations associated with various parking and stopping offences.

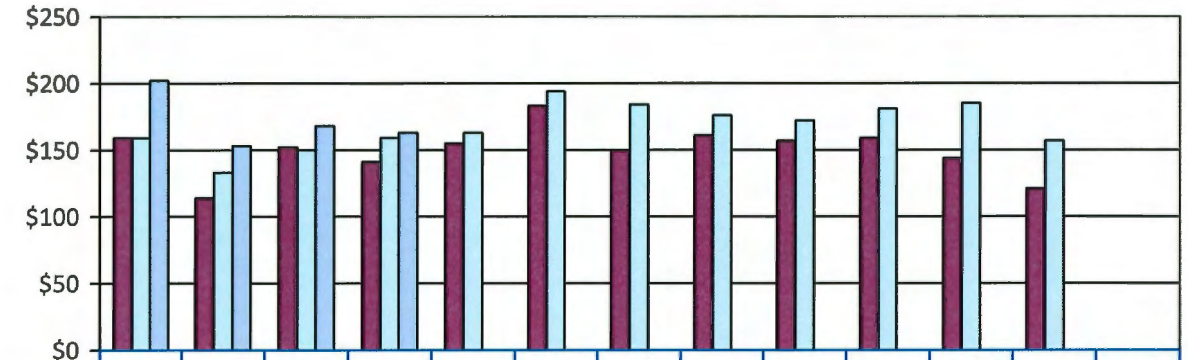
Figure 3 reflects monthly and year-to-date parking enforcement activity measured by violation issuance. The corresponding revenue is reflected in Figure 4.

Figure 3: Parking Violations Issuance Comparison



	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
2017	2,252	1,919	2,659	2,143	2,275	2,673	2,345	2,307	2,515	2,276	2,202	1,587	27,153
2018	2,415	2,041	2,630	2,348	2,855	2,651	2,975	2,793	2,350	2,734	2,639	2,250	30,681
2019	2,804	2,258	2,645	2,427									10,134

Figure 4: Consolidated Parking Program Revenue Comparison (000's)



	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Total
2017	$159	$114	$152	$141	$155	$183	$150	$161	$157	$159	$144	$121	$1796
2018	$159	$133	$150	$159	$163	$194	$184	$176	$172	$181	$185	$157	$2013
2019	$202	$153	$168	$163									$686

All Enforcement Activity

While parking violations make up the majority of tickets issued by City of Richmond bylaw enforcement staff, there are a number of other categories which are of interest to the public. Table 1 shows the number of violations in parking plus those in other categories. The number of tickets issued, in areas other than parking, is not necessarily an indication of staff effort as staff are instructed to pursue compliance as the main goal which sometimes is better served with a warning instead of a ticket.

Table 1: Community Bylaw Violations

Ticket Issuance (BVN's & MTI's)	April	YTD
Short-Term Rental Offences	1	12
Soil Removal & Fill Deposit Offences	0	1
Grease Trap Offences	0	4
Parking & Stopping Offences	2427	10134
Animal Control Offences	10	37
Totals	**2438**	**10185**

Adjudication

The next adjudication session, scheduled for June 11, 2019, will consist of 13 violations in contravention of City of Richmond Bylaws.

Revenue

The Community Bylaws Department derives most of its revenue from parking meters, parking permits and parking violations with the remainder of revenue generated from dog licences, false

alarm incidents (which are reported at year end only), tow permits and other permits and bylaw fines. These figures are shown in Table 2.

Table 2: Department Revenue by Source

Program Revenue	Budget Apr 2019	Actual Apr 2019	YTD Budget Apr 2019	YTD Actual Apr 2019
Contract Revenue[1]	0	0	0	15,000
Filming Revenue	0	1,833	0	11,871
Dog Licences	11,825	9,125	133,676	150,383
Towing Permits	989	2,003	7,367	7,231
Other Permits[2]	2,349	600	17,502	37,007
Other Bylaw Fines[3]	2,804	11,425	22,836	35,450
Parking Revenue[4]	199,769	162,742	615,405	686,097
Total Revenue	**$217,736**	**$187,728**	**$796,786**	**$943,039**

Financial Impact

None.

Conclusion

Community Bylaws staff strive to maintain the quality of life and the safety of residents through coordinated efforts with other City departments and community partners. Further, all department personnel remain committed to educating the public and promoting a culture of voluntary compliance.

Carli Williams
Manager, Community Bylaws
And Licencing
(604-276-4136)

Susan Lloyd
Manager, Parking Enforcement,
Animal Control And Administration,
Community Bylaws
(604-247-4467)

[1] City Towing Contract with Rusty's
[2] Newspaper box and soil permit applications
[3] Property Use and Animal control violations
[4] Parking Revenue consists of Parking Meters, Monthly Parking Permits, and Parking Enforcement

City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	May 14, 2019
From:	Peter Russell, Senior Manager, Sustainability and District Energy	**File:**	10-6125-07-02/2019-Vol 01
	Tony Capuccinello Iraci, City Solicitor		

Re: Recovering Costs for Local Climate Change Impacts

Staff Recommendation

1. That the draft letter to the Premier of British Columbia attached to the report titled "Recovering Costs for Local Climate Change Impacts" from the Senior Manager, Sustainability and District Energy dated May 14, 2019, be endorsed; and

2. That the draft Union of British Columbia Municipalities resolution attached to the report titled "Recovering Costs for Local Climate Change Impacts" from the Senior Manager, Sustainability and District Energy dated May 14, 2019, be endorsed.

Peter Russell MCIP RPP
Senior Manager, Sustainability
and District Energy
(604-276-4130)

Tony Capuccinello Iraci
City Solicitor
(604-247-4636)

Att. 2

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Engineering	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** CJ	**APPROVED BY CAO**

Staff Report

Origin

At the Regular Council meeting held on April 23, 2019, West Coast Environmental Law delegated on their effort to encourage the Province of BC to enable local governments to recover costs by cities for addressing climate change. Following the presentation and discussion, Council endorsed the following resolution:

That the presentation titled "Recovering Climate Costs" by Gordon Cornwall be referred to staff to:

(1) examine how it aligns with City policies and strategies;
(2) provide an analysis of the impacts of any proposed legislation
(3) prepare a draft letter to the Province of BC; and
(4) prepare a draft resolution to UBCM.

Background

West Coast Environmental Law presented their 'Climate Law in our Hands' campaign and requested that Richmond "*take action to hold the fossil fuel industry accountable for its role in causing climate change and in the climate costs being caused by fossil fuel pollution*" by:

1. Preparing a letter to 20 of the world's fossil fuel companies asking them to pay for climate costs incurred by the City; and

2. Signing on to the letter to Premier Horgan requesting climate liability legislation.

This report responds to the referral by identifying City's climate-related programs as it relates to West Coast Environmental Law's campaign and discussing legal aspects for consideration. A draft letter for distribution to the Premier (Attachment 1) and a draft resolution for the Union of BC Municipalities (Attachment 2) are included in this report.

Analysis

Alignment with City Policies and Strategies

The City has policies and strategies that respond to climate change induced impacts. City assessments and provincial report that the average annual temperature across the province has risen by 1.4 °C since 1900 and that temperatures are expected to increase between 1.3 °C to 2.7 °C by 2050. Average annual rainfall amounts in the winter are expected to increase between 2% to 12% by 2050 but longer periods of drought are predicted in the summer months. Local impacts from these weather variations including longer growing seasons; more frequent and severe heat waves; increased frequency and intensity of storms; and new infectious diseases and pests continue to be recorded in the region. Richmond has made significant investments in response to these climate related concerns including:

- **Sea-level Rise and Flood Protection** – Richmond's drainage and flood protection system is comprised of 581 km of drainage pipes, 61 km of culverts, 165 km of watercourses, 39 pump

stations and is currently valued at approximately $1.5 billion. Richmond's dikes are currently at an average elevation of 3.5 m above mean sea level. Climate change studies predict up to a 1 m rise in sea level and 0.2 m of ground settlement by 2100. Predictions also indicate an increase in the frequency and intensity of storms in the region that can lead to extreme flooding and infrastructure loss.

The Council endorsed 2008-2031 Richmond Flood Protection Strategy provides the City with a framework for developing appropriate adaptation responses. The strategy identified the need to address climate change implications specific to Richmond relating to flood protection and called on the City to implement a comprehensive dike improvement program. The Dike Master Plan identifies a long-term upgrade strategy for the City's dikes. The plan sets a goal of increasing the height of Richmond's dike system to a minimum elevation of 4.7 m and further requires that dike upgrades to be able to facilitate a further raising to 5.5 m to accommodate possible additional sea level rise in future years.

The estimated dike upgrade costs to address the predicted 2100 sea level rise scenario is estimated to be hundreds of millions. As dike master planning continues and projects are completed, more information and financial requirements will be available to update costs. The Flood Protection Strategy indicates that the City should pursue a minimum of 50% funding for dike raising from senior government to assist with this program.

The City has prioritized investments for the continued maintenance and improvement of the drainage and flood protection system. Council endorsed the introduction of the Drainage and Diking Utility in 2003 as a dedicated source of funding for drainage and diking improvements. The utility currently generates approximately $11 million each year. Funds are invested annually into Capital projects to address the effects of infrastructure age, population growth and climate change.

- **Richmond's Invasive Species Action Plan** – Endorsed in 2016 to reduce the economic and environmental risks of invasive species that are influenced, in part, by climate change. The Invasive Species Action Plan has secured $845,000 in Capital funding since 2015 and $225,000 provincial funding in 2018.

Analysis of the Impacts of any Proposed Legislation

There is currently limited ability for governments and class action groups to sue fossil fuel producers in nuisance, trespass, and/or negligence for compensation costs incurred as a result of climate change based on current Canadian law. There are currently a number of U.S. cities and states seeking compensation for climate-related infrastructure costs through the federal U.S. court system (under U.S. nuisance and negligence law, similar to that in Canada). Three of these cases in San Francisco, Oakland and New York have recently been dismissed through federal decisions and are awaiting appeal. There are currently no Canadian court cases involving municipalities or provinces, although the City of Victoria (endorsement of a class action suit), and City of Port Moody (sent a letter to 20 fossil fuel companies as requested by West Coast Environmental Law) have initiated courses of action against the fossil fuel industry.

West Coast Environmental Law is seeking provincial legislation for BC that targets large scale fossil fuel producers whose global operations, and use of their products, result in globally detectable levels of emissions. The legislation is modeled on Ontario's tobacco damages and health care cost-recovery legislation and is similar to the climate change legislation bill introduced and defeated in Ontario. Legislation in BC is intended to improve the likelihood of successful court decisions and awards for the Province and municipalities. Establishing causation and attributing the degree of responsibility to a specific group of companies may, however, prove to be an insurmountable evidentiary hurdle in such litigation.

A former member of the Ontario Provincial Parliament put forward a private member's bill (Bill 37) for the enactment of the *Liability for Climate-Related Harms Act* in 2018, which introduced the strict liability standard for climate-related claims. The bill was carried at 2nd reading in April 2018 and was sent to the relevant standing committee, prior to the 2018 Ontario election. It was reintroduced to parliament in October 2018 and was defeated at 2nd reading. It is unlikely that the legislation will be enacted under the current Ontario government. Had the legislation been successfully enacted by the Province of Ontario it would have:

- Reduced the burden of proving causation by setting out a number of criteria for strict liability and various assumptions that create lower evidentiary standards than would normally apply in court without the legislation;

- Applied the legal concept of 'strict liability' to all producers (exploration, recovery, refining, sale) of fossil fuels where globally detectable levels of greenhouse gas emissions can be attributed to their actions/product; and

- Enabled those in Ontario who suffer harms related to climate change impacts to prosecute the fossil fuel industry and seek compensation.

If the Province of BC enacted a similar statute (and accompanying regulations) potential lawsuits would be similar to the Canadian tobacco related health costs recovery lawsuits that are still before the courts. Various private class actions have settled or concluded; including an award of $15-billion in Quebec. Two big tobacco companies subsequently filed for creditor protection in 2019 however. Even with the evidentiary challenges, the legislation may nevertheless be a useful tool for local governments to pursue compensation for climate change-related costs and harms from the fossil fuel industry if enacted. Although, lengthy, expensive lawsuits would be expected; partnering with the Province and other municipalities in joint litigation may be a solution to reduce legal costs and improve the likelihood of a successful ruling against the fossil fuel industry. In the event such claims are held to be fatally flawed on an evidentiary basis, then this may motivate the Province to enact more effective cost recovery legislation for the benefit of government, including municipalities.

Province of BC and the Union of British Columbia Municipalities

Two municipalities in BC have put forward separate motions that consider legal action against the fossil fuel industry to recover climate change-related costs and that the Province should consider enacting supporting legislation. At the Association of Vancouver Island and Coastal Communities meeting held in April 2019, the City of Victoria resolved:

1. *That UBCM explore the initiation of a class action lawsuit on behalf of member local governments to recover costs arising from climate change from major fossil fuel corporations; and*

2. *That the Province of British Columbia consider legislation to support local governments in recovering costs arising from climate change from fossil fuel corporations.*

The resolution was defeated during the meeting.

The City of Port Moody forwarded similar resolutions to the Union of BC Municipalities and the Federation of Canadian Municipalities in April 2019 that call upon the provincial and federal governments to enact legislation that holds fossil fuel companies financially liable for harms caused by their contributions to climate change. Both resolutions are currently awaiting consideration.

A draft letter to the Premier of BC is included in Attachment 1; it conveys the scale of the impact the City must address related to a changing climate. A draft UBCM resolution from the City of Richmond is also included as Attachment 2 for Council consideration for bringing forward to the 2019 UBCM conference for consideration by voting delegates.

Financial Impact

None.

Conclusion

West Coast Environmental Law is promoting their 'Climate Law in our Hands' campaign with a goal to protect taxpayers, the Province, and municipalities from incurring the rising costs of climate change related investments in BC. New provincial legislation would be required to assist in holding fossil fuel companies financially liable. A draft letter to the Premier of BC and draft a UBCM resolution are included in the report.

Peter Russell
Senior Manager, Sustainability and District Energy
(604-276-4130)

Tony Capuccinello Iraci
City Solicitor
(604-247-4636)

Att. 1: Draft Letter to Premier Horgan
2: Draft Union of BC Municipalities Resolution

May 14, 2019
File: 10-6125-07-02/2019-Vol 01

Mayor's Office
Telephone: 604-276-4123
Fax: 604-276-4332

REGISTERED

Premier John Horgan
P.P. Box 9041 STN PROV GOVT
Victoria, BC
V8W 9E1

Dear Premier Horgan:

Re: Liability for Climate-related Harms Act and Climate Leadership

The City of Richmond commends the government for its actions in 2018 to update the greenhouse gas emissions reduction targets and release CleanBC, which will serve both as a climate action strategy and an economic development plan. Within recent years, Council has provided input to the development of the 2015 BC Climate Leadership Plan and the Province's CleanBC plan, and has successfully championed resolutions on building energy benchmarking and the right to a clean environment through the Union of BC Municipalities.

Climate change is currently the greatest threat facing the Province of BC. As Mayor and Council of the City of Richmond, we write to request that government take immediate action to hold global fossil fuel companies accountable for climate change-related harm and costs that occur in BC, through enactment of a *Liability for Climate-related Harms Act* that establishes clear legal rules of liability for harm caused by climate change. This statute is essential both to protect BC taxpayers against rising costs from climate-related impacts and to give global fossil fuel companies incentives to transition from fossil fuels and join the fight against climate change.

Richmond's location in southwestern BC, where the Fraser River converges with the Pacific Ocean, is adjacent to some of the most productive ecosystems in the world. The mixing of saline ocean water with the Fraser River's freshwater creates an estuary environment that supports a rich and diverse community of aquatic and terrestrial life. Richmond recognizes the importance of creating a sustainable community. Our vision of a healthy, safe and enriched island community with an innovative and prosperous economy and thriving natural systems, sustained for current and future generations is at risk from climate change.

Richmond has invested significantly in the establishment and maintenance of a world-class drainage and flood protection system comprised of 581 km of drainage pipes, 61 km of culverts, 165 km of watercourses, 39 pump stations that is currently valued at approximately $1.5 billion. The system utilizes the natural and built environment to provide ecosystem services such as drainage, water filtration, green space, and wildlife habitat needed to support the overall connectivity and resiliency of our community.

Richmond has had to invest significant resources to protect the City against against the threats of the climate change. The Province of BC reports that the average annual temperature across the province has risen by 1.4 °C since 1900 and that temperatures are expected to increase from 1.3 °C to 2.7 °C by 2050. Local rainfall patterns are also projected to change. Average annual rainfall amounts in the winter are expected to increase from 2% to 12% by 2050 but longer periods of drought are predicted in the summer months. Local impacts from these weather variations including longer growing seasons; more frequent and severe heat waves; and new infectious diseases and pests continue to be recorded in the region. Richmond has been taking strong action on climate change for over a decade and can demonstrate meaningful achievements. The City reduced its overall greenhouse gas emissions by eight per cent between 2007 and 2010, and by a further four per cent between 2010 and 2015, despite 12 per cent growth in population over that entire period.

Richmond has joined hundreds of cities around the world, representing more than 20 million citizens, who have declared a climate emergency. The movement is a response to the Intergovernmental Panel in Climate Change Report (2018) that listed the areas that drastic actions were needed to offset the risks of accelerating global warming.

Fossil fuel companies have profited by selling products that contribute to climate change. West Coast Environmental Law advised the City that ninety fossil fuel producers are responsible (through operations and products) for about two-thirds of greenhouse gases in the global atmosphere today. Richmond taxpayers have to bear the cost of the impacts of fossil fuel pollution. We are calling on the Province of BC to enact a *Liability for Climate-related Harms Act* to protect the BC taxpayer and send a global message to the fossil fuel industry that they are liable for their actions.

Yours truly,

Malcolm D. Brodie
Mayor

RECOVERY COST FOR LOCAL CLIMATE CHANGE **City of Richmond**

WHEREAS local governments have incurred significant costs in response to the real and projected threats of climate change including flooding, sea-level rise and weather variations;

AND WHEREAS fossil fuel corporations profit without sharing the costs of the pollution caused by their operations and their products:

THEREFORE BE IT RESOLVED that the Province enact legislation to hold the fossil fuel industry responsible for its role in causing climate change by making it accountable for costs incurred by governments to adapt to climate change.

City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	April 9, 2019
From:	Carli Williams, P.Eng. Manager, Comm Bylaws and Licencing	**File:**	12-8275-01/2019-Vol 01
Re:	**Business Regulation Bylaw No. 7538, Amendment Bylaw No. 10029 - 4280 No. 3 Road Unit 120**		

Staff Recommendation

That Business Regulation Bylaw No. 7538, Amendment Bylaw No. 10029, which amends Schedule A of Bylaw No. 7538, to add the address of 4280 No. 3 Road Unit 120 among the sites that permit an Amusement Centre to operate, be given first, second and third readings.

Carli Williams, P.Eng.
Manager, Comm Bylaws and Licencing
(604-276-4136)

Att. 1

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Law	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** CJ	**APPROVED BY CAO**

Staff Report

Origin

One of the categories of regulated businesses in Richmond is Amusement Centre which contains Amusement Machines, defined in Business Regulation Bylaw No. 7538 as:

> *A machine on which mechanical, electrical, automatic or computerized games are played for amusement or entertainment, and for which a coin or token must be inserted or a fee charged for use, and includes machines used for the purposes of gambling.*

Business Regulation Bylaw No. 7538 restricts a business from operating with more than four amusement machines unless the location is listed in Schedule A of the bylaw. This report deals with an application received from Kylin Enterprises Ltd., doing business as: Ace E-Sports Arena to operate 100 computer game systems for online/offline gaming from premises situated at 4280 No. 3 Road Unit 120. This premises is not listed as an approved address on Schedule A.

Ace E-Sports Arena is a new business and this company and its directors have no history with the City of Richmond. This location was previously occupied with a brake and muffler, vehicle service shop.

Analysis

Amusement Centre regulations and definitions cover different types of amusement machines such as 3D virtual reality computerized games, console gaming, computer games in the Internet Café and traditional arcades. Amusement Centres are a regulated business because of their potential to impact the community, including their historic role of attracting problematic activities. The City has imposed regulations to minimize this risk including restricted operating hours, prohibition on children under 15 to be present during school hours and rules prohibiting gambling, fighting and consumption of alcohol. These businesses may be inspected from time to time to ensure regulatory compliance of the regulations.

The location the applicant is intending to operate is zoned Auto-Oriented Commercial (CA), which permits among other uses, Amusement Centre. The unit is situated on a parcel with a single-level commercial building with 4 units. This zone provides for a mix of commercial and related uses oriented to vehicular access. There are currently 3 commercial businesses operating on this property. Two businesses providing the permitted use of vehicle repair and third business is under the permitted use of vehicle sale/rental use. This property is situated on No. 3 Road, south of Browngate Rd, (Attachment1).

In addition to the bylaw amendment, the applicant will be required to ensure that the premises meets all building and health regulations before a Business Licence would be issued. Richmond R.C.M.P. have no issues with this business or operator.

Financial Impact

None.

Conclusion

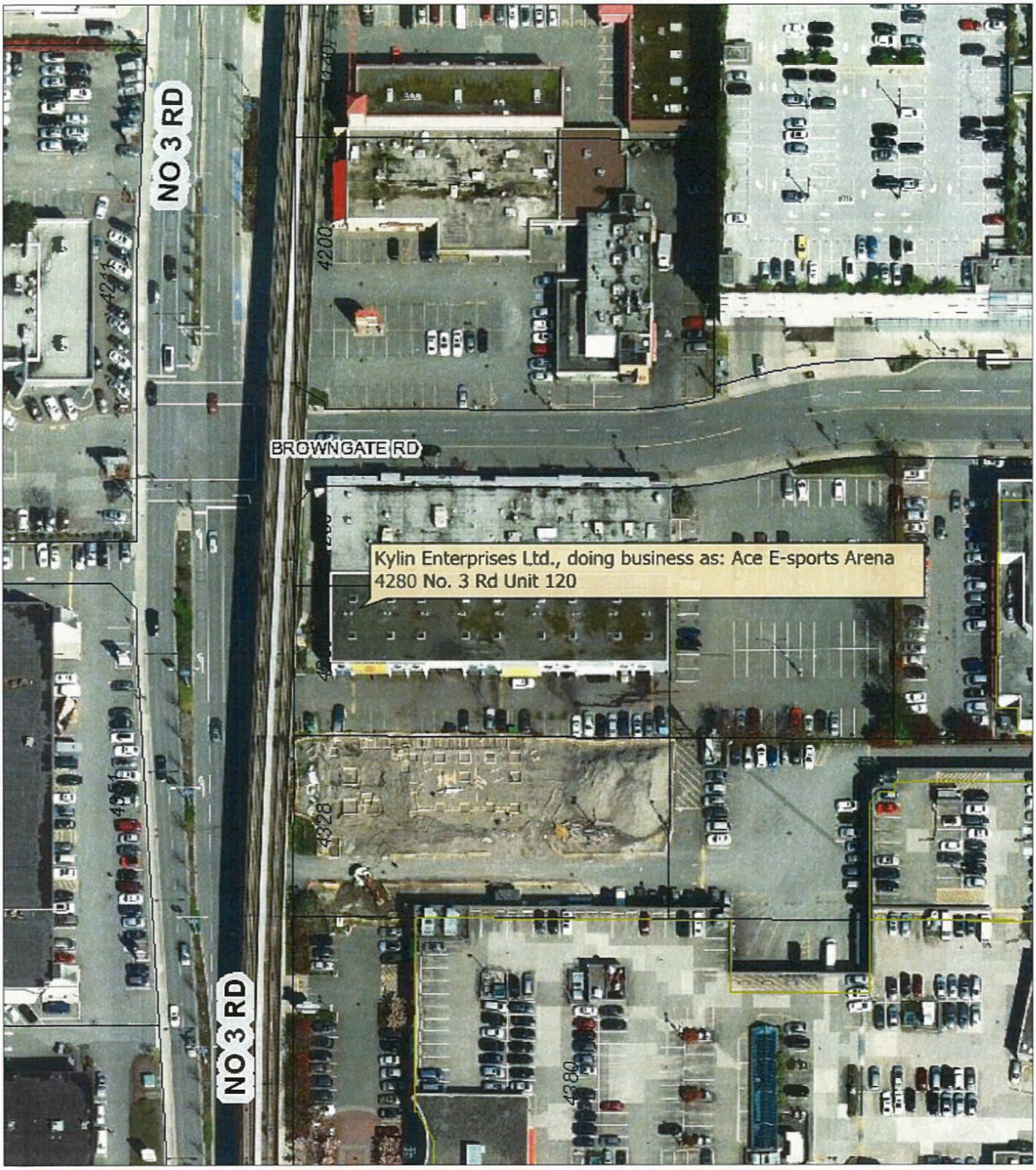
Amusement Centres are regulated under the City's Business Regulation Bylaw No. 7538 and staff are recommending that the applicant's request for 4280 No. 3 Road Unit 120, be added to Schedule A of the bylaw to allow more than four amusement machines to be operated.

Victor M. Duarte
Supervisor, Business Licences
(604-276-4389)

VMD:vmd

Att. 1: Aerial View Map

City of Richmond Interactive Map



52.4 0 26.20 52.4 Meters

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

City of Richmond

Bylaw 10029

Business Regulation Bylaw No. 7538, Amendment Bylaw No. 10029

The Council of the City of Richmond enacts as follows:

1. That Business Regulation Bylaw No. 7538, as amended, is further amended by adding the following address in Schedule A item 9:

	Civic Address	Civic Number	Original Bylaw Reference
9.	No. 3 Road	4280 Unit 120	10029

and renumbering the rest of the remaining items in Schedule A in numerical order.

2. This Bylaw is cited as **"Business Regulation Bylaw No. 7538, Amendment Bylaw No. 10029".**

FIRST READING _____

SECOND READING _____

THIRD READING _____

LEGAL REQUIREMENTS SATISFIED _____

ADOPTED _____

CITY OF RICHMOND
APPROVED for content by originating dept.
APPROVED for legality by Solicitor
BRB

_____ MAYOR

_____ CORPORATE OFFICER

City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	May 15, 2019
From:	Cecilia Achiam General Manager, Community Safety	**File:**	09-5350-01/2019-Vol 01
Re:	**UBCM Resolution on Legislative Reform of Beneficial Ownership of Corporations and Land**		

Staff Recommendation

That the proposed UBCM resolution titled "Transparency and legislative reform of beneficial ownership of land and corporations" be submitted to the Union of BC Municipalities as outlined in the staff report titled "UBCM Resolution on Legislative Reform of Beneficial Ownership of Corporations and Land", dated May 15, 2019, from the General Manager of Community Safety.

Cecilia Achiam
General Manager, Community Safety
(604-276-4122)

REPORT CONCURRENCE	
ROUTED TO:	**CONCURRENCE**
RCMP	☑
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** CJ
APPROVED BY CAO	

Staff Report

Origin

At the Council meeting on February 11, 2019, Council passed the following resolution:

> *That the City put forward a resolution to the UBCM requesting legislative reform to create transparency around beneficial ownership of corporations and land.*

Background

On April 2, 2019, the BC Ministry of Finance announced that it will table legislation, *Land Owner Transparency Act*, to establish a public registry of beneficial owners of property in B.C. All corporations, trusts and partnerships in BC will have to disclose their beneficial, often hidden, owners. Failure to disclose the beneficial ownership would result in fines of up to $100,000 or 15% of the assessed property value, whichever is greater.

The new Land owner transparency registry is anticipated to be operational in 2020 when the *Land Owner Transparency Act* comes into force. The Land Title and Survey Authority will administer the new transparency registry through its website. Similar to land titles, basic property information, including names of all corporate interest holders, beneficial owners or partners, will be publicly accessible.

The Ministry of Finance further addressed both enforcement and privacy concerns by asserting that only:

"Tax authorities, law enforcement and regulatory agencies will have access to more detailed and sensitive information, such as the nature of their beneficial interest, place of residence, citizenship, tax number and information about the person completing the report. The registry will be self-funded through fees for filing and for searching. The Ministry of Finance will be responsible for enforcement. The Canada Revenue Agency (CRA) will have access to information and may use it to crack down on tax evasion." [1]

The Provincial Government made further disclosure amendments to the *Business Corporations Act* in an effort to close loop holes around money laundering and tax evasion. Private companies will now be required to hold current information on beneficial owners of shares and will eliminate bearer shares which are unregistered and are effectively anonymous. Again tax authorities, law enforcement and select regulators will have access to the private companies transparency register in effort to "crack down on white collar crime."

Analysis

The Province did not propose a publicly accessible registry of corporate ownership. This omission and risk was identified by the BC Expert Panel on Money Laundering in BC Real Estate (Expert Panel) in their report, released on May 9, 2019:

[1] https://news.gov.bc.ca/releases/2019FIN0037-000545

"Recommendation 5

> *The BC Government should develop a discussion paper with draft legislation for consultation about the implementation of a full corporate beneficial ownership registry covering all legal persons that is consistent with best practices and that integrates with the Land Owner Transparency Act."* [2]

According to Dr. Peter German, in his report titled "Dirty Money - Part 2", there are 92,280 residential properties in BC that were owned through corporate entities which amounted to 7% of his research dataset. He estimated the value of these corporate owned properties to be $150.45 billion. He noted further that 29% of corporate owned properties, worth $28.24 billion were purchased without a mortgage. Dr. German noted that there was significant risk and a nexus to money laundering associated with unfinanced or cash-only real estate transactions. [3]

The Federal Budget, released on March 19, 2019, only partially acknowledged the above concerns regarding beneficial ownership:

> *"...The Canada Business Corporations Act was amended to require federally incorporated corporations to maintain beneficial ownership information. In Budget 2019, the Government proposes further amendments to the Act to make the beneficial ownership information maintained by federally incorporated corporations more readily available to tax authorities and law enforcement."* [4]

The Federal Government, however, did not propose a public registry for beneficial ownership for corporations or land and it remains unclear as to what specific measures will be enacted to improve law enforcement's and the CRA's access to beneficial ownership identities. Given the paucity of anti-money laundering law enforcement resources, the Federal Government should seize the opportunity to engage the public and media in uncovering financial crime.

There is no current consensus amongst the Provincial Governments and the Federal Government on whether to establish a public registry, such as in BC, or a secure law enforcement/regulator only accessible registry. However, the Federal and Provincial Ministers of Finance have announced a goal to have some form of an agreement in place by July 1, 2019. This agreement would likely mandate that all provincial and territorial corporations maintain accurate and up-to-date information on beneficial ownership that would be accessible to law enforcement. [5]

Given this lack of consensus, the Expert Panel recommended further that:

> *The BC Minister of Finance should encourage finance ministers across the country to implement the Agreement to Strengthen Beneficial Ownership*

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[2] https://news.gov.bc.ca/files/Combatting_Money_Laundering_Report.pdf, pg. 76.
[3] https://news.gov.bc.ca/files/Dirty_Money_Report_Part_2.pdf
[4] https://budget.gc.ca/2019/docs/plan/budget-2019-en.pdf
[5] http://www.ourcommons.ca/Content/Committee/421/FINA/Reports/RP10170742/finarp24/finarp24-e.pdf pg.16

Transparency and enhance the disclosure of beneficial ownership of corporations, as soon as possible.[6]

Prior to the proposed deadline for reaching a national agreement in July, the Provincial Government should engage its provincial counterparts and the Federal Government to advocate for a public registry similar to what has been proposed in BC. A consistent transparency regime surrounding beneficial ownership is needed in place of the current inconsistent patchwork of federal and provincial disclosure regimes that enable owners of private corporations and land to hide their true identity.

It is important to note that the current provincial proposal of a beneficial ownership registry only addresses land ownership and not the broader issue of corporate beneficial ownership. Provincial companies are still at risk of being utilized by organized crime, tax evaders, and politically exposed persons in non-real estate based industries to hide their ownership identity from the public and media. For example, other high risk industries for financial and other crimes include: import and export, construction, money exchange services, digital currency, chemical industry, high value goods dealers and auction houses. While at the national level no public beneficial ownership registry of land or corporations has been proposed. The risk exists that criminals will simply shift to shell corporations in neighbouring provinces.

Financial Impact

None.

Conclusion

Only the Provincial Minister of finance has tabled this beneficial land ownership registry legislation and it is inadequate because it does not apply to other industries such as import and export based companies. The Federal Minister of Finance has not tabled any similar legislation so criminals and money laundering will likely move to other Provinces and rebound back on to BC. Last, a public registry is essential to allow the public, media, foreign governments and private sector companies (competitors) to act as a force multiplier in detecting fraud, money laundering etc. The creation of both a provincial and national level public registry of beneficial owners of land and corporations would be another important step towards assisting law enforcement in targeting tax evaders, tax fraudsters and money launders. A resolution to the UBCM requesting legislative reform to create transparency around beneficial ownership of corporations and land would signal strong local government support on this issue to the senior levels of government.

Based on Council's direction, staff have drafted the following proposed resolution to the UBCM for Council's consideration:

TRANSPARENCY AND LEGISLATIVE REFORM OF BENEFICIAL OWNERSHIP OF LAND AND CORPORATIONS

[6] https://news.gov.bc.ca/files/Combatting_Money_Laundering_Report.pdf. 76

WHEREAS the provincial Ministry of Finance has not proposed legislation around the establishment of a publicly searchable registry around beneficial ownership of corporations;

AND WHEREAS the federal Minister of Finance has not proposed legislation for a public registry of beneficial ownership of land or corporations:

THEREFORE BE IT RESOLVED that the UBCM call on the provincial Minister of Finance to propose both a new provincial publicly searchable registry of corporate beneficial ownership and advocate to the federal Minister of Finance to create a new national public registry around beneficial ownership of corporations and land.

Mark Corrado
Senior Manager, Community Safety Policy and Programs
(604-204-8673)

MC:mc

City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	May 21, 2019
From:	Cecilia Achiam General Manager, Community Safety	**File:**	09-5000-01/2019-Vol 01
Re:	**UBCM Cannabis Costs Survey**		

Staff Recommendation

That the responses summarized in the staff report titled "UBCM Cannabis Costs Survey", dated May 21, 2019, from the General Manager, Community Safety be approved for submission to the UBCM.

Cecilia Achiam
General Manager, Community Safety
(604-276-4122)

Att. 3

REPORT CONCURRENCE	
ROUTED TO:	**CONCURRENCE**
Finance Department	☑
Community Bylaws	☑
Fleet	☑
Parks	☑
Fire Rescue	☑
RCMP	☑
Policy Planning	☑
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** CJ
APPROVED BY CAO	

Staff Report

Origin

On October 17, 2018, the legalization of non-medical cannabis came into full force along with the Federal-Provincial-Territorial Agreement on Cannabis. This two year agreement enables the Federal Government to collect a 25% share, limited to a maximum of $100 million, of the excise tax revenue on cannabis. The provinces and territories collect the remaining 75% or more share of the excise tax revenue. The Federal Government has not mandated any share of the excise tax revenue to local governments. As a result, each province or territory and their respective municipalities underwent separate negotiations on cannabis revenue sharing.

According to the Federation of Canadian Municipalities, only three provinces (Ontario, Quebec and Alberta) have publicly announced local government revenue sharing agreements on cannabis. [1] For the past two years, the UBCM and the Province have had ongoing discussions regarding revenue sharing of the cannabis excise tax. In July 2018, the UBCM proposed a revenue sharing model, similar to Ontario, where the Province would commit 40% of the cannabis excise tax revenue to local governments. UBCM's proposal was predicated on a claim that 46.4% of provincial excise tax revenue could cover the costs to local governments following cannabis legalization. The Province is now requesting that the UBCM provide "evidence from its members that supports the assertion that local governments will incur tangible one-time and ongoing costs that result from cannabis legalization in Canada."[2]

Analysis

On May 1, 2019, the UBCM launched a survey of local governments that explored the costs associated with the legalization of cannabis.[3] This survey was developed with input from Government Finance Officers Association of British Columbia (GFOABC), and centres on a cannabis costing model that will be populated with survey data from local governments. The model consists of seven major cost categories: general government; development services; health, social and housing; protective services; solid waste; transportation and transit; airport services; and other services.

As a result of previous Council direction and research, attachment 1 is proposed as a response to the UBCM Cannabis Survey of incremental costs associated with cannabis legalization.

From 2018-2020, it is estimated that the City will incur a three year total of $2,193,578 in costs directly or indirectly associated with the legalization of cannabis.[4] A significant portion ($1.8 million) of these costs will be borne by the Community Safety Division.

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[1] https://www.cbc.ca/news/politics/marijuana-cannabis-legalization-municipalities-cities-excise-1.5101880
[2] https://www.ubcm.ca/assets/Resolutions~and~Policy/Policy/Community~Safety/Marijuana~Regulation/02-UBCM%20Cannabis%20Cost%20Tracking%20Model%20-%20Introduction%20FINAL%20v2.pdf
[3] https://www.ubcm.ca/EN/meta/news/news-archive/2019-archive/for-cfos-cannabis-costs-survey.html
[4] Cost estimates were utilized for all years (2018-2019) to ensure a comprehensive accounting of both the direct and indirect financial impact of cannabis legalization. Of note, the UBCM model originally advised that 2018 should include actuals costs and 2019-2020 should include estimates. However, UBCM staff later advised that estimates for all years were acceptable.

The cost estimate for Richmond Fire-Rescue (RFR) is $932,176 and under the UBCM model the costs are associated with:

- RFR staff training regarding revisions to the BC Fire Code, and on emerging hazardous home cultivation processes such as the extraction of cannabis oils and the use of flammable hydrocarbons.
- Public education campaigns informing the public about the dangers of cannabis extract production etc.
- Inspection costs associated with legal/illegal home cultivation.
- HAZMAT and emergency response costs associated with legal/illegal home cultivation.

The cost estimate for the RCMP is $597,087 and under the UBCM model the costs are associated with:

- Training costs for road side screening and drug recognition expertise to detect cannabis related impaired driving.
- Public education and prevention campaigns associated with addiction and illegal underage consumption.
- Increased investigative and emergency response burden associated with impaired accidents and illegal grow operations.

The cost estimate for Community Bylaws is $299,916 and under the UBCM model the costs are associated with:

- Property standards enforcement to address issues/complaints related to potential degradation/danger to property such as smoke dispersion in multi-residential units or home cultivation, as well as the purchase of testing equipment.
- Increased staff training on enforcing bylaws and provincial/federal laws associated with the cannabis framework.
- Increased burden to enforcing smoke-free bylaws.

The cost estimate for Public Works' Fleet and Environmental Programs is $148,002 and under the UBCM model the costs are associated with:

- Disposal of refuse from cannabis cultivation.

The cost estimate for the Planning and Development is $131,597 and under the UBCM model the costs are associated with:

- Reviews, updates and management of zoning bylaws.

The cost estimate for the Community Services is $84,800 and under the UBCM model the costs are associated with:

- Marketing and signage in parks, trails, and coordination and response to general public inquires or complaints.

Financial Impact

None.

Conclusion

Following direction from the General Purposes Committee, staff will submit the above response to the UBCM survey. This survey response provides an overview of the three years of estimated and incremental costs associated with cannabis legalization (2018-2020). Each City division was required to review and estimate any direct or indirect costs as per the UBCM cannabis costing model. While the majority of these costs will be borne by Community Safety Division there are notable costs in other departments. Staff will continue to research cost and other issues surrounding the Federal government's proposed regulatory regime for the *Cannabis Act* as well as the Province's *Cannabis Control and Licensing Act.*

Mark Corrado
Senior Manager, Community Safety Policy and Programs
(604-204-8673)

MC:mc

Att. 1: Richmond Submission: Cannabis Cost Survey
Att. 2: Overview of Local Government Tracking Model for Incremental Costs Associated with Cannabis Legalization
Att. 3: Local Government Guide for Recording Incremental Costs Associated with Cannabis Legalization 2018-2020

Richmond Submission: Cannabis Cost Survey

UNION OF BRITISH COLUMBIA MUNICIPALITIES
INCREMENTAL COSTS ASSOCIATED WITH CANNABIS LEGALIZATION
FOR THE YEARS 2018 - 2020

NAME OF LOCAL GOVERNMENT: City of Richmond
POPULATION: 222,945
RETAIL STORES APPROVAL: NONE

	2018			2019			2020			TOTALS 2018 - 2020		
	CAPITAL	OPERATING COSTS		CAPITAL	OPERATING COSTS		CAPITAL	OPERATING COSTS		CAPITAL	OPERATING COSTS	
SERVICE AREA	COSTS	ONE-TIME	ONGOING	COSTS	ONE-TIME	ONGOING	COSTS	ONE-TIME	ONGOING	COSTS	ONE-TIME	ONGOING
GENERAL GOVERNMENT												
Municipal Admin and Support		23,000	12,000		15,000	5,000		7,000	5,000	-	45,000	22,000
DEVELOPMENT SERVICES												
Planning / Zoning			43,000			43,860			44,737	-	-	131,597
PROTECTIVE SERVICES												
Enforcement Services	-	-	97,514	-	-	99,952	-	-	102,450	-	-	299,916
Fire and Emergency Services	4,500	76,549	270,164	-	7,755	276,918	4,500	7,949	283,841	9,000	92,253	830,923
Policing	306,000	127,074	17,553	26,400	28,614	17,991	26,400	28,614	18,441	358,800	184,302	53,985
SOLID WASTE				50,000		48,516			49,486	50,000	-	98,002
OTHER SERVICES												
Marketing and Signage	7,000	1,800		3,000	2,000		2,000	2,000		12,000	5,800	-
TOTALS	317,500	228,423	440,231	79,400	53,369	492,237	32,900	45,563	503,955	429,800	327,355	1,436,423
		TOTAL 2018	986,154		TOTAL 2019	625,006		TOTAL 2020	582,418		TOTAL 2018-2020	2,193,578

CNCL - 177

Overview of Local Government Tracking Model for Incremental Costs Associated with Cannabis Legalization

UBCM

May 2019

1. INTRODUCTION

The Union of British Columbia Municipalities (UBCM) has been engaged with the Province of British Columbia over the past two years in the lead up and adoption of legislation legalizing non-medical cannabis in Canada. A UBCM proposal for excise tax revenue sharing between the Province and local governments has been discussed with MLAs and Ministry of Finance officials but no excise tax revenue has been committed to address local costs.

Among the many issues arising from legislative changes, the tracking of incremental costs has been of interest in several provinces, particularly in terms of supporting revenue sharing, including both compensatory payments and the potential for 'community good' consideration should there be excise tax revenue available to a province that exceeds all costs.

The Province is looking to UBCM to provide evidence from its members that supports the assertion that local governments will incur tangible one-time and ongoing costs that result from cannabis legalization in Canada.

2. BACKGROUND

The federal government, in legalizing non-medical cannabis, determined that there would be a 10% excise tax added to the retail price of cannabis (minimum $1 on product less than $10).[1] Initially, 50% of this tax revenue was to be passed on to provincial governments and 50% retained to cover federal costs. The provinces' share was subsequently raised to 75% recognizing that local governments in each province would be incurring substantial costs, although revenue sharing decisions are entirely at the discretion of each province.

To date, revenue sharing commitments across Canada have been mixed. For example, the Province of Manitoba has determined that local governments will not receive a share of provincial excise tax revenue. The Province of Ontario made an agreement with its local governments early in the process to allocate $40 million of excise tax revenue over the first 2 years based on initial projections. While there was no requirement originally for sharing to be contingent on costs, the Province has now stated that local governments will only receive revenue allocations up to the total of 'permitted' costs. Permitted costs are only those costs directly associated with cannabis legislation and incremental to any pre-legislation expenditures. Ontario has determined there will be an initial

[1] The proposed excise tax for cannabis edibles, extracts and topicals will be calculated based on THC content.

allocation of $15 million distributed among all local governments, followed subsequently by a second $15 million allocation available only to those jurisdictions agreeing to host retail stores. A total of $10 million will be held in a contingency fund for unforeseen circumstances with no current timeline commitment.

UBCM's proposal for excise tax revenue sharing adopted the agreement framework utilized in Ontario, with a request for 40% of the estimated $125 million Provincial portion of projected revenue over the first two years.[2]

3. MODELLING EXERCISE OVERVIEW

The Province has put forward the idea that local governments quantify incremental expenditures associated with cannabis legalization. To best accomplish this goal, it is important to develop a model that will provide consistency with regard to types of costs and facilitate analysis of information based on various criteria (e.g. size of local government, expenditure type, etc.).

The model will report on expenditures for the 3-year period, 2018-2020. Reporting for 2018 is to be based on actual expenditures; 2019-2020 reporting is to reflect budgeted expenditures. To ensure consistency, reporting will be based on current dollars and will not project inflation. Ongoing expenditures are to be recorded in each year.

The 3-year period was selected recognizing that, as of February 2019, there were over 400 paid applications for private retail cannabis storefronts and close to 300 have been forwarded to local governments for approval. While only a portion will be approved, there are incremental costs associated with review, licensing, bylaw development, etc. that may not be incurred until at least 2020.

[2] The provincial government, in February 2018, initially projected that it would receive $125 million in excise tax revenue over the first two years of legalization ($50 million in 2018/19 and $75 million in 2019/20). The most recent 2019 provincial forecast projects $10 million in 2018/19, $38 million in 2019/20, and $68 million in 2020/21.

UBCM

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604-270-8226
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Local Government Guide for Recording Incremental Costs Associated with Cannabis Legalization 2018 - 2020

UBCM

May 2019

1. MODEL COMPONENTS

There are two main components to the model. The first, contained in this document, will provide narrative information that will be integral to completion of the spreadsheet and ensure the spreadsheet is free of excessive wording and complexity. The second will be the spreadsheet to be completed by all local governments.

Guide to Facilitate Completion of the Spreadsheet

A. Service Areas Identification

Intended to capture the majority of service areas/departments where incremental cannabis related costs are incurred. When completing the spreadsheet, leave blank any areas that are not applicable to your local government.

B. Definitions/Descriptions

Within each service area/department, there is general guidance regarding the types of expenditures that are or will be incurred.

C. Cost Estimate Information

There are specific expenditure areas under which costs will be accumulated and recorded in the spreadsheet. Examples are provided in this document to assist in determining the calculation of costs to be included. These are not intended to be all-inclusive but serve as a guide for those completing the spreadsheet.

Spreadsheet for Cost Recording

There is a single spreadsheet for the years 2018 – 2020. Please insert the name of your local government, population and complete the drop down menu indicating the type(s) of cannabis retail permitted in your community. Currency formatting is set to the dollar.

Each year includes columns for both capital and operating costs. Operating costs are further defined as either one-time or ongoing.

Recorded costs are totalled for the three years on the far right side of the spreadsheet. Completion of all years on one spreadsheet will help facilitate the

consolidation of information from all reporting local governments and guide discussions with the Province.

Please record costs only in the coloured cells. Generally, the service areas identified are consistent with how Local Government Data Entry (LGDE) information is reported. Should you have material costs that do not match well with the service areas provided, replace the cell or cells in the 'Service Area' column that read *'Add Service Area Here'* under Other Services. There is space allocated for up to 4 additional service areas.

2. SERVICE AREAS, DESCRIPTIONS AND COST ESTIMATE INFORMATION

GENERAL GOVERNMENT

Municipal Administration and Administrative Support

Description:

Time spent by senior municipal departmental staff, senior leadership teams and staff in supporting departments such as Finance, Legal and Communications to implement, administer, coordinate and support all cannabis legalization work. This could include FTE hours for both start-up and ongoing administration in positions such as corporate policy development/revision/coordination, project management, business licensing administration, legal, communications and IT. These positions could be spread across several existing departments or centralized in a new department specifically for cannabis legalization.

Specific tasks may include but are not limited to: lawyers reviewing the enforceability of bylaws, a legal team providing ongoing support for enforcement of bylaws, intergovernmental staff to engage with other orders of government on this complex, multi-layered file, and/or development of a communications plan to help citizens understand bylaw changes.

There are also material costs such as public consultations, advertising public notices and communications products for specific local rules. It is recognized that costs under 'Administration' may be recorded in multiple departments within your local government and consolidated here.

New costs may be incurred related to workplace safety policies, air quality and areas associated with risk management.

There may also be costs associated with 311 or similar services, including increased staff time, particularly during implementation, to handle citizen enquiries regarding cannabis legalization. This could also include time and resources to train staff on the new changes and which local government departments address the principle areas of concern.

Cost Estimate Information/Examples:

- **New positions created:** Estimated hours x average hourly wage, or annual salary + benefits
- **Employee time spent on cannabis-related work, including responding to citizen enquiries and concerns:** Estimated hours x average hourly wage + benefits
- **Public engagement:** Number of engagements x average cost of engagement
- **Advertising and communications:** (Estimated hours x average hourly wage + benefits, or fee for professional services) + cost of material goods (signs, posters, etc.) + cost of paid advertisements (newspaper, radio, internet, etc.)
- **Graphic design, communications, and other related professional services and/or consultant fees**
- **Employee time spent updating administrative policies and procedures:** Estimated hours x average hourly wage + benefits, or annual salary + benefits
- **Training:** Cost per employee x number of employees receiving training
- **Legal fees for professional services**
- **Other local government administration costs including related facility costs**

Human Resources / Labour Relations

Description:

Internal and external staff time committed to ensuring local government drug policies are up-to-date/adequately address non-medical cannabis, and that employees are well informed of the new policies. This could include substance use guidelines and policy, workplace smoking policies, and/or hosting social event guidelines.

There may be additional FTE time spent engaging and negotiating with local government staff unions over drug policy changes.

Staff resources and capital costs may also be incurred to ensure there is capacity in place for testing local government employees, and if necessary, new staff training to address safety related to cannabis in the workplace and additional adjustments to safely integrate HR policies related to cannabis edibles when they are regulated federally.

Cost Estimate Information/Examples:

- **Legal fees to undertake research and update municipal drug and alcohol policies to reflect the legalization of non-medical cannabis**
- **HR staff:** Costs associated with the development of training for all staff; number of cannabis related incidents x number of hours to address cannabis in the workplace related incidents x hourly wage + benefits
- **Drug testing**
- **Other human resources/labour relations costs**

DEVELOPMENT SERVICES

Planning / Zoning

Description:

The personnel and capital cost to conduct bylaw reviews and updates, as well as the ongoing management of zoning bylaws. In addition to staff time (both in-house and consultant contracting) this also includes the cost to undertake

required public consultation processes and public education related to adding new criteria to zoning bylaws, business licensing and building code permits and inspections.

Cost Estimate Information/Examples:

- **In-house:** Additional staff, FTEs, legal fees to draft/amend bylaws, and time spent managing consultants
- **Consultant contracting:** Average daily rate x estimated number of consultant days to address suite of bylaw changes
- **Consultation:** Number of public consultations x average cost per consultation, public education content development (use equivalent existing campaign for comparison)
- **Staff training:** Number of staff x cost to develop and deliver new training (use equivalent training costs as estimate)
- **Other planning/zoning costs**

HEALTH, SOCIAL & HOUSING

Social Housing

Description:

In some jurisdictions where local governments have responsibilities or partner in the provision of social housing there may be costs associated with writing provisions in tenancy agreements which prohibit smoking cannabis in social housing units; additional FTEs to enforce the new provisions; and an operations and maintenance budget to address violations.

Cost Estimate Information/Examples:

- **Legal/consultant fees for professional services**
- **Security costs**
- **Consultation costs with tenants and housing authorities**

- **Employee time on agreements, policies, etc.:** Estimated hours x average hourly wage + benefits

PROTECTIVE SERVICES

Enforcement Services

Description:

Personnel and capital costs required to monitor and enforce the additional activities associated with cannabis legalization as predicated on local government bylaws and services.

This includes the costs associated with additional staffing requirements for bylaw management and enforcement in the following areas:

- Property use inspection – to investigate cannabis business license complaints.

- Zoning enforcement – to ensure cannabis retail and other cannabis related establishments are in adherence with local zoning bylaws.

- Property standards enforcement – to address issues/complaints related to potential degradation/danger to property such as smoke dispersion in multi-residential units or home cultivation, as well as the purchase of testing equipment.

- Training – time and capital spent to develop and undertake learning exercises related to the roles and responsibilities of local government staff tasked with administering and enforcing local government aspects of the cannabis framework such as business licensing.

- Community standards, public spaces and smoke-free bylaw enforcement - increase in service demand with new bylaws such as smoke-free bylaws and local government rules for vaping lounges, restaurants and cafes (where applicable) and public consumption.

Cost Estimate Information/Examples:

- **New positions created:** Estimated hours x average hourly wage + benefits, or annual salary + benefits

- **Employee time spent on cannabis related calls/inspections:** Number of cannabis-related calls/inspections x estimated hours spent per call/inspection x average hourly wage + benefits

- **Training:** Cost per employee x number of employees receiving training

- **Other enforcement services costs**

Fire Services

Description:

Cost increases directly or indirectly incurred by the local government department responsible for fire safety, prevention and submission. This includes the following positions and activities:

- Process changes - amendments to the fire inspection component of the business licensing approval process, protocol for one-time and ongoing inspections.

- Training – for fire department staff regarding revisions to the BC Fire Code, and on emerging hazardous home cultivation processes such as the extraction of cannabis oils and the use of flammable hydrocarbons.

- Public education – education campaigns informing the public about the dangers related to oil extraction processes and flammable hydrocarbons; development and printing of fire safety messaging.

- Fire investigation costs – costs primarily due to overtime pay for fire safety officers investigating code and safety issues (e.g. hazards in retail establishments); to a small extent for manufacturing/processing establishments; and, responding to fires associated with legal/illegal home cultivation.

- There are also public education, communications and citizen services costs to properly engage with the public and provide preventative public education campaigns.

- HAZMAT response - for both licenced and illegal producers.

Cost Estimate Information/Examples:

- **Training:** Cost per employee x number of employees receiving training
- **Public education:** (Estimated hours x average hourly wage + benefits, or fee for professional services) + cost of material goods (signs, posters, etc.) + cost of paid advertisements (newspaper, radio, internet, etc.)
- **Increased volume of calls/investigations:** Number of cannabis-related calls/investigations x estimated hours spent per call/investigation x average hourly wage + benefits
- **Equipment:** Cost of material goods and equipment
- **Other fire costs**

POLICING

Description:

The availability of more detailed information related to incremental costs may differ depending on whether policing is municipal or under contract (RCMP).

Costs may be associated with the following activities:

- Standard Field Sobriety Test (SFST) Training - Percentage of police force who require the Standard Field Sobriety Test training. This would include the per officer cost to undertake this training (time spent in class, course fees) plus any additional instructor fees.
- Drug Recognition Expert (DRE) Training - Drug Recognition Expert training is a more specialized diagnostic examination of a suspected drug-impaired driver undertaken after the initial SFST. Currently the majority of this training is undertaken in the United States meaning travel costs, exchange rates, extra time etc. need to be factored into the costing analysis for this expenditure.
- Facilities Enhancements - An increase in cannabis seizures was experienced in the US. Costs associated to additional evidence storage capacity.

- Bill C-45/46 General Training - Cost to develop and deliver a 1-day training program on the implications of Bills C-45 and C-46 to all officers, with specifics on the roles and responsibilities of the force within the local community.

- Roadside Screening Equipment and Supplies - Devices required by the police force to test for drug sobriety.

- Illegal Dispensary/Grow Op Initiatives - One of the primary federal objectives for the legalization of non-medical cannabis is to eliminate the illicit market. With expectations from the public, there will be pressure on local police forces to take action on this issue. Establishing and training specialized units to undertake this work and calculating the FTE required to undertake these disruption activities will help establish a cost estimate. Costs associated with initiatives to close dispensaries/grow operations (FTEs).

- Youth Education and Prevention in Schools & Community Engagement - Policing costs extend far beyond traditional enforcement duties as officers may be called upon to undertake important public education and prevention activities with the public. This includes both education on the changing rules and information on prevention of excessive or illicit cannabis consumption. These costs can include establishing public education resources, training and FTEs to deliver the appropriate cannabis specific messaging.

- Increase in Forensic Laboratory Capacity - The proposed legislation enables police to undertake blood draws for suspected drug impaired drivers. An increase in blood draws, testing equipment and forensic analysts is required.

- Additional Officers - Potential increases in illicit production activity, motor vehicle accidents, roadside testing, enforcement of public consumption rules etc. will place additional responsibilities on police services. Additional responsibilities will require additional officers to address issues safely and effectively. This category represents additional FTEs not captured in the other proposed categories.

Specific trackable items:
  - Drug seizures
  - RIDE spot checks

- Drug related criminal investigations
- Drug complaints
- Cannabis specific violations
- Motor vehicle collisions
- Cannabis related demands for service tracked through DFSS (proactive)
- DRE testing
- SFST testing

Cost Estimate Information/Examples:

- **Training:** (Number of officers trained x cost of training) + officer time for training

- **Conducting training activities:** Number of officers requiring recertification + (training of new recruits on an annual basis x cost of training) + officer time for conducting training activities

- **Cost of additional storage capacity**

- **Roadside screening devices:** Number of roadside screening devices required per 100 officers x cost of roadside screening device

- **Illegal activities:** FTE to establish and run illegal dispensary/grow op initiatives for the population served x average hourly wage of officer on a disruption team + benefits

- **Education:** FTE to develop community education content

- **Delivery of training:** FTE to deliver training course x hourly wage + benefits x number of schools in community and estimated number of relevant events

- **Youth program:** FTE needed for the development and delivery of a youth diversion program

- **Forensic costs:** Average cost to administer a blood draw x increased number of blood draws associated with cannabis legalization

- **Additional policing duties:** (Estimated number of FTEs required to fulfill additional duties x average hourly wage + benefits) + other indirect costs for officers to undertake tasks

- **Other Policing Costs**

Note: Ensure RCMP related costs recorded are limited to the local government's proportionate share.

SOLID WASTE

Description:

Waste Management - The development of municipal policies and procedures that address the proper disposal of refuse from cannabis cultivation.

Cost Estimate Information/Examples:

- **Employee time spent updating policies and procedures:** Estimated hours x average hourly wage + benefits, or annual salary + benefits

TRANSPORTATION AND TRANSIT

Transit

Description:

Increased contract costs related to driver and management training, security, and other identified costs that are eligible to be passed on to local governments.

Cost Estimate Information/Examples:

- **Assessment costs:** Staff time working with transit contractor and BC Transit in assessing impacts and actions required relative to cannabis usage

- **Contract costs:** Increased transit contract costs for driver training, security and other safety related costs related to cannabis usage

AIRPORT SERVICES

Description:

Costs may be associated with some of the following activities:

- Airport Administrative Costs - Additional costs for municipal employees related to training, signage, communications, bylaws and procedures.
- Contract Costs - Additional contract costs associated with security services, including additional training for personnel and additional service provision hours.
- Additional contract costs for policing.
- Other Airport Services Costs - Other recognized costs not included above; may include capital expenditures.

Cost Estimate Information/Examples:

- **Employee time on cannabis related work including tenant agreements, policies, security provisions, etc.:** Estimated hours x average hourly wage + benefits
- **Additional contract costs associated with training of security services personnel**
- **Additional contract costs associated with police training and increased on-site presence**
- **Other airport costs**

OTHERT SERVICES

Description:

Material staffing, contract and capital costs that may not be incurred consistently across local governments in different regions but will still likely require budgetary considerations.

Please provide a brief description of the service being captured in the 'Service Area' column on the spreadsheet by replacing *'Add Service Area Here'* under Other Services. There is space allocated for up to 4 additional service areas.

Cost Estimate Information/Examples:

- **Contract cost increases**
- **Employee time:** Estimated hours x average hourly wage + benefits
- **Fees for professional services**
- **Cost of material goods and equipment**

UBCM

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ubcm@ubcm.ca

City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	June 4, 2019
From:	Susan Walters Chief Librarian, Richmond Public Library	**File:**	
Re:	**UBCM Resolution regarding Restoring Provincial Support for Libraries**		

Staff Recommendation

1. That a letter of support for the City of Victoria's proposed Union of BC Municipalities (UBCM) resolution titled "Restoring Provincial Support for Libraries", as attached to the staff report titled "UBCM Resolution regarding Restoring Provincial Support for Libraries" dated June 4, 2019 from the Chief Librarian and Secretary to the Board, be submitted to UBCM for consideration at their annual general meeting; and

2. That a copy of the letter be sent to local Members of the Provincial Legislative Assembly.

S. Walters.

Susan Walters
Chief Librarian and Secretary to the Board
Richmond Public Library
(604-231-6466)

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Intergovernmental Relations & Protocol Unit Finance	☑ ☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:**	**APPROVED BY CAO**
	CJ	

Staff Report

Origin

This report requests support for a resolution to the Union of British Columbia Municipalities (UBCM) for increased provincial grant funding to British Columbia public libraries. This resolution was initiated by the Greater Victoria Public Library. It applies the principles of Council's Long Term Financial Management Strategy (LTFMS policy 3707), supporting policy #3: Alternative Revenues and Economic Development:

> *"Any increases in alternative revenues and economic development beyond all the financial strategy targets can be utilized for increased level of service or reduce the tax rate."*

Analysis

Background

Public Libraries and Library Federations established under the authority of the *Library Act* are eligible for provincial funding. The BC Government provides $14 million in grants to libraries annually. Libraries are the most equitable and accessible public amenities across BC, consisting of 71 library systems with 247 locations, and require ongoing reliable investment.

Richmond Public Library's 2019 annual budget is $10.4 million, with 93.4% of the funding provided by the City of Richmond. Based on grants in prior years and increase in population, RPL's 2019 budget identified the provincial contribution as $390,000 which represents 3.8% of the overall RPL budget.

Financial Implications of Provincial Funding

Of the $14 million in provincial grants, RPL received an average of $394,181 annually in the last five years (2015-2019).

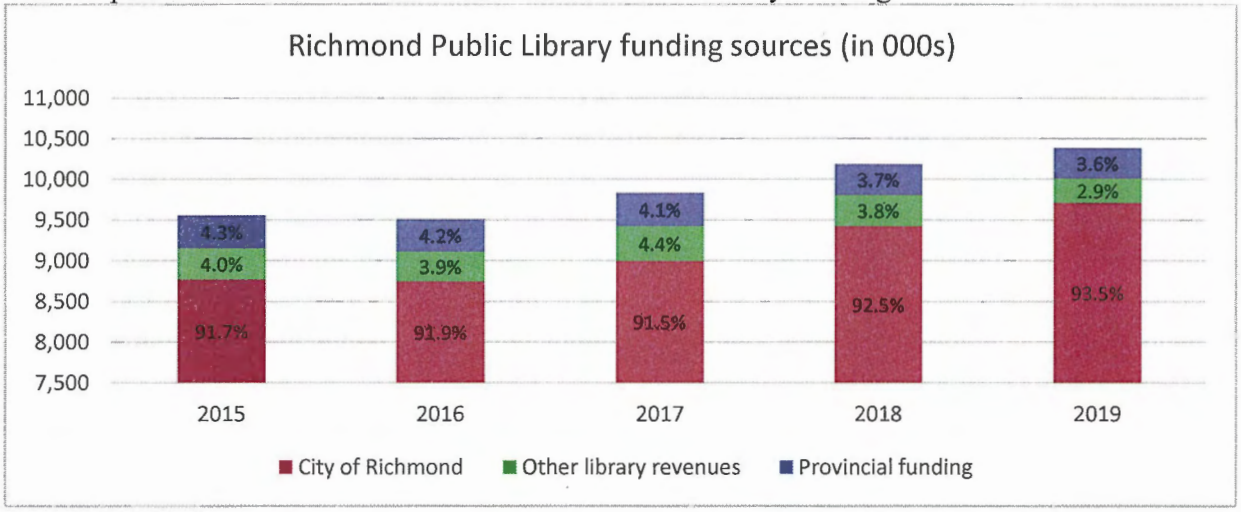
In 2019, the library received $376,528, a variance of $13,472 or 3.5% from the budgeted amount and a reduction of $3,546 or 0.9% from 2018. This reduction has occurred due to increased resource sharing in the province and reallocating the funding to other library associations, keeping the total disbursements within the BC Government's $14 million budget.

The operating grants are based on per capita calculations, which are now using the 2016 Census population rather than the higher annually updated provincial population estimate.

Table 1 provides the breakdown of the provincial funding to the Richmond Public Library for the last five years:

	2015	2016	2017	2018	2019
Per Capita Operating	358,319	358,319	369,836	352,990	352,990
One Card Grant	40,873	35,153	30,299	20,593	16,664
BC Equity Grant	4,500	4,500	4,500	4,500	4,500
Resource Sharing Grants	2,831	3,128	2,166	1,991	2,374
Provincial Grant Total	406,523	401,100	408,601	380,074	376,528

Table 2 provides the breakdown of Richmond Public Library funding sources:



As illustrated above, there is an upward trend of financial support from the City. This stems from declining revenue sources (fines and charges) as most libraries increase digital collections and the downward trend from the provincial funding. The BC Government has kept the total disbursement at $14 million for over a decade while the library is facing growing pressure from non-discretionary increases annually such as inflation increases and demand for new and expanded services.

This spring, the Library Partners Group, which consists of the Association of BC Public Library Directors, BC Libraries Association, BC Libraries Trustees Association and the BC Libraries Co-op, took a unified funding message to the provincial 2019 Budget Lock Up. At the request of the Minister of Education a project proposal for one-time funding of $2 million to support digital literacy for BC libraries was shared. To date, there has been no change in provincial funding to public libraries or an update on the digital literacy proposal. The Library Partners are supporting a new campaign **#20million2020** to seek increased provincial funding.

UBCM Resolutions

Provincial funding for libraries was reduced by 20% in 2009 from $17.6 million to $14 million and since 2010, public libraries have received $14 million in annual funding. Libraries appreciate the stability of this grant funding, however with no annual increase in funding support from the

province, there is increased pressure on the City of Richmond and RPL's limited revenue options, due to the *Library Act*, to address inflationary pressure and demand for new and expanded services. Additionally, the grant funding allocated to RPL continues to decrease annually and does not correlate to Richmond's growing population.

Libraries are falling behind in their ability to meet growing needs and are seeking provincial funding that, at a minimum, includes annual increases to account for inflation. It is recommended that a letter of support for the City of Victoria's resolution be forwarded to the Union of BC Municipalities, requesting the province to restore library funding to a minimum of $20 million. The resolution is included for reference (attachment 1).

Financial Impact

None

Conclusion

Libraries are the most equitable and accessible public amenities across BC, providing services to residents across 71 library systems with 247 locations. To meet residents' needs for new and expanded library services, BC libraries require ongoing reliable investment. This report recommends that a letter of support for the attached resolution be forwarded to the UBCM calling on the BC Government to restore library funding to a minimum of $20 million.

Susan Walters, Chief Librarian and Secretary to the Board
Richmond Public Library
(604-231-6466)

Att. 1: Proposed UBCM Resolution – Restoring Provincial Support for Libraries

June 4, 2019

Attachment 1

RESTORING PROVINCIAL SUPPORT FOR LIBRARIES **City of Victoria**

RESOLUTION

WHEREAS libraries are a social justice equalizer that provide universal access to information and learning materials irrespective of income levels;

WHEREAS libraries are now so much more than books, building community and a sense of inclusion;

WHEREAS restoring funding to libraries supports the BC Government's agenda to eliminate poverty, improve access to education, and address social justice in BC;

WHEREAS funding rates have been frozen since 2009 and inflationary costs have increasingly been put on municipal property tax payers which is a regressive approach to funding public libraries;

WHEREAS municipalities face downloading from upper levels of government and have few tools to raise funds,

THEREFORE, BE IT RESOLVED that Council request the Mayor to write to the Minister of Education, the Premier, and all local MLAs strongly advocating for the restoration of library funding to a level that reflects both inflationary cost increases since 2009 and the value of this system to the Province.

BE IT FURTHER RESOLVED that this resolution be forwarded to other municipalities in the Capital Regional District and across BC requesting their favorable consideration.

Richmond Public Library

MEMORANDUM

To:	General Purposes Committee	Date: June 14, 2019
Cc:	Robin Leung, Library Board Chair	
From:	Susan Walters, Chief Librarian	
Re:	Update – UBCM Resolution regarding Restoring Provincial Support for Libraries	

The purpose of this memorandum is to inform the General Purposes Committee that new information has been obtained since submitting the above titled report.

The Union of BC Municipalities has confirmed that they are in receipt of a resolution titled "Restoring Sustainable Provincial Library Funding Levels" from the Town of Sidney. The resolution is included for your reference (attachment 1). Council is requested to consider sending a letter of support from the Mayor that would reference the Town of Sidney's resolution rather than the City of Victoria's resolution that was referenced in the original report.

Also included for your reference (attachment 2) is a letter that the Richmond Public Library Board is submitting to the Select Standing Committee on Finance and Government Services, copied to Minister Rob Fleming, Richmond's four MLAs and the four organizations that make up the BC Library Partners. Library boards, municipal Councils and library supporters across the province have been encouraged to communicate the need for increased provincial funding to libraries and to request that this issue be identified as a priority during the 2020 BC Government Budget process. Council is requested to consider sending a letter of support from the Mayor in advance of the June 28, 2019 deadline for submissions.

S. Walters.

Susan Walters
Chief Librarian, Richmond Public Library

TOWN OF SIDNEY

2440 Sidney Avenue, Sidney, British Columbia V8L 1Y7
Phone: 250-656-1184 Fax: 250-655-4508
Email: admin@sidney.ca Website: www.sidney.ca

June 12, 2019

VIA EMAIL: jjustason@ubcm.ca

Jamee Justason
Information & Resolutions Coordinator
Union of British Columbia Municipalities
60 - 10551 Shellbridge Way
Richmond, BC V6X 2W9

Dear Jamee Justason:

Subject: Restoring Sustainable Provincial Library Funding Levels

Sidney Town Council, at a meeting held on June 10, 2019, considered a recommendation from the Vancouver Island Regional Library Board regarding provincial library funding and requesting a resolution be presented to UBCM for consideration.

Public libraries provide important services to the citizens in our community and Council encourages the Province to ensure they continue to receive sustainable funding. Enclosed is a resolution to be presented to UBCM.

Best Regards,

Sandi Nelson
Corporate Officer

Encl.

Resolution to UBCM:

RESTORING SUSTAINABLE PROVINCIAL LIBRARY FUNDING LEVELS

WHEREAS libraries in British Columbia are largely financed by levies paid by local governments, and where Provincial library funding has remained virtually stagnant for the past 30 years,

AND WHEREAS libraries in British Columbia provide open and equal public access to vital resources, including the internet, public computers, digital library tools and in-person service from expert staff to provide opportunities for all British Columbians to access knowledge and information and increase literacy in our communities and present informative programmes: including First Nations programmes and material which advance public understanding and reconciliation,

THEREFORE BE IT RESOLVED that UBCM strongly encourage the Government of British Columbia to give urgent attention to funding for BC public libraries by adding $20 million to the BC Provincial Budget for 2020 for allocation to public libraries throughout BC,

AND FURTHER THAT the Province be requested to ensure that BC Libraries will henceforth receive Provincial Government financial support at a sustainable level in subsequent years following the 2020 Budget.

Richmond
Public Library

100 - 7700 Minoru Gate
Richmond
British Columbia
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Tel: (604)231-6422
Fax: (604)273-0459

www.yourlibrary.ca

June 14, 2019

Attention: Select Standing Committee on Finance and Government Services

RE: 2020 BC Government Budget Priorities

Dear Committee Members:

This submission is on behalf of the Richmond Public Library Board of Trustees.

It is urgent that we bring to your immediate attention the importance of provincial support for public libraries. Public libraries are the only public institutions that are truly equitable in providing services for all community members so that they may participate in, and benefit from the social and economic development of their communities. Public libraries are also the only freely accessible public spaces for all British Columbians to connect with, learn about, and experience, the advantages of living in this province.

We know that public libraries significantly contribute to the government's goals for making life more affordable, improving services, and building a strong, sustainable and innovative economy for all British Columbians. This committee is aware of the important role of public libraries from the annual Union of British Columbia Municipalities (UBCM) resolutions regarding provincial public library funding and from the compelling stories and evidence annually submitted to this committee from public library trustees, staff, community members, and local government officials from across the province.

We appreciate the provincial government's recognition of the public library funding issue. In 2017 the provincial government, in response to the UBCM Resolution B60, acknowledged that the cost of delivering public library services has increased with changing technology and other demands. We are heartened that we all share the understanding of the need for adequate and reliable provincial funding for public libraries.

Richmond Public Library (RPL) is making a difference to community social and economic development and individual well-being through initiatives that open dialogue and advance the Truth and Reconciliation Council Calls to Action. Examples included:

- Initiated and implemented by RPL, the **Richmond Indigenous Collaborative Table** consists of stakeholders from the Richmond Public Library, the City of Richmond and local non-profit agencies. Its mandate, with the support and guidance of an Indigenous Advisor, is to seek out opportunities to build relationships with Indigenous communities for the purpose of integrating Indigenous arts, artists, and cultural and heritage practices into the activities of Richmond-based community amenities and programs.

- RPL's **Indigenous Services Plan** is a two-year foundation-building plan that maps out system-wide Indigenous services for our community. This includes programs and services for children, teens, caregivers and educators and outreach and collaborative initiatives that take place inside and outside the library. This plan has been submitted to the Musqueam Nation and will remain in draft form until reviewed by Chief and Council.

- In partnership with the City of Richmond's Public Art Program, RPL hosted a six-month series of engaging demonstrations and hands-on workshops led by four Musqueam artists. The **Musqueam Artists Workshops** provided our community with opportunities to personally interact with the artists, hear their unique stories and learn about Musqueam culture and heritage.

RPL is also supporting people in accessing the information and resources they need in areas such as personal enjoyment and life needs, new skill development, and connecting with government services. This is all with the help of expert library staff and connectivity to bridge the continued digital divide:

- Since 2013, RPL has actively participated in the **Library Champions** project through NewToBC. Hosting over 150 individual Library Champions and having reached over 9,300 newcomers, the library is actively helping newcomers find welcoming services and supporting their integration into the community.

- The **Young Entrepreneurs Program** began in 2017 and focuses on engaging youth in our community who are interested in becoming entrepreneurs. Designed for young adults and teens who have a passion for business, the goal of this series is to equip young entrepreneurs with the basic knowledge and tools required to be successful in their chosen industry.

- The **Launchpad** is an innovative learning space dedicated to enhancing and educating digital literacy. Focusing on community members of all ages and skill levels, this service provides collaborative learning opportunities in 3D printing, virtual reality, robotics, coding and more.

Public libraries are welcoming spaces which remove barriers to access and offer program opportunities that support life long learning and development for community members of all ages and backgrounds:

- RPL's **Inspire Curiosity** library card campaign is a three-year project that will ensure all Richmond students in grades 1, 4, and 8 have library cards.

- Our **Summer Reading with Your Library** focuses on summer reading for all ages and includes for 2019, in partnership with the City of Richmond's Sister Cities Advisory Committee, the *One Book, Three Cities* reading program for adults living in Richmond, Xiamen and Qingdao. This program will provide rich literacy experiences in person and online for all participants reading *Life of Pi* and RPL is proud to host the award-winning author, Yann Martel, in August.

- Richmond has one of the fastest growing senior populations across Canada, with many seniors experiencing social isolation. RPL is working to reduce isolation through its **Home Services** program, which delivers library materials to vulnerable seniors and library users with mobility challenges and/or print disabilities. Our **Home Delivery Drivers** program provides meaningful opportunities for adult volunteers to help isolated residents stay engaged and connected to library materials and services.

The Richmond Public Library Board of Trustees urge the Select Standing Committee on Finance and Government Services to act on our shared understanding that provincial government financial support is critical to the successful continuance of public libraries and their positive impact on BC communities.

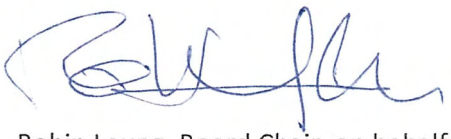
While libraries appreciate the stability of grant funding that the government has provided since 2010 (approximately $14 million per year), the lack of regular increases means that each year libraries receive less support, due to inflationary pressures. After many years of this, libraries are falling behind in their ability to meet growing needs.

Since 2009 the public library community has asked that the provincial government provide funding for public libraries that at a minimum includes annual increases to account for inflation. Despite these repeated requests, for the past decade public libraries have received no increase to funding.

This year we are asking the provincial government for $20 million for public libraries in 2020 as this will help address the chronic under-funding, lack of increases for inflation, and past government cuts.

Your attention to this urgent issue is greatly appreciated.

Sincerely;



Robin Leung, Board Chair, on behalf of the Richmond Public Library Board of Trustees

cc: Rob Fleming, Minister of Education
Jas Johal, MLA, Richmond, Queensborough
Linda Reid, MLA, Richmond East
Teresa Wat, MLA, Richmond North Centre
John Yap, MLA, Richmond-Steveston

The BC Public Library Partners:
Scott Hargrove, Chair, Association of BC Public Library Directors
Babs Kelly, Executive Director, BC Library Trustees Association
Annette DeFaveri, Executive Director, BC Library Association
Kevin Millsip, Executive Director, BC Libraries Cooperative

City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	June 12, 2019
From:	Tom Stewart, AScT. Director, Public Works Operations	**File:**	10-6370-01/2019-Vol 01
Re:	**UBCM Resolutions – Provincial Single-Use Item Strategy and Compostable Single-Use Items**		

Staff Recommendation

That the proposed UBCM resolutions titled "Comprehensive Provincial Single-Use Item Reduction Strategy" and "Compostable Single-Use Items" be submitted to the Union of BC Municipalities as outlined in the staff report titled "UBCM Resolutions – Provincial Single-Use Item Strategy and Compostable Single-Use Items", dated June 12, 2019, from the Director of Public Works Operations.

Tom Stewart, AScT.
Director, Public Works Operations
(604-233-3301)

Att. 2

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Law	☑	
City Clerk	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** CJ	**APPROVED BY CAO**

Staff Report

Origin

This report responds to a referral made at the May 21, 2019 Special Council Meeting where the staff report, "Single-Use Plastic Items – City of Vancouver Proposals", was considered. The referral is as follows:

(1) That:

a. staff be directed to bring forward appropriate bylaw amendments to the Business Regulation Bylaw No. 7360 to ban the commercial use or commercial distribution of foam cups, foam plates and foam take-out containers effective January 1, 2020, with exceptions provided for charitable organizations and hospital/care facilities;

b. staff be directed to bring forward appropriate bylaw amendments to the Municipal Ticket Information Bylaw No. 7321 to incorporate a ticketing provision for those businesses who violate Business Regulation Bylaw 7360 as amended per item (a) above, effective January 1, 2020; and

c. staff be directed to bring forward appropriate bylaw amendments to the Notice of Bylaw Violation Dispute Adjudication Bylaw No. 8122 to incorporate a fine of $250 for each instance where a business violates Business Regulation Bylaw No. 7360 as amended per item (a) above, effective January 1, 2020;

(2) That the implementation plan, as outlined in Attachment 2, with funding in the amount of $300,000, from the Sanitation and Recycling provision, to support implementation of a foam cups, foam plates and foam take-out containers ban, be approved;

(3) That funding for ongoing support, education and bylaw enforcement, for item (a) above, be included for Council's consideration in the 2020 and future Sanitation and Recycling utility budget and rates;

(4) That staff bring forward two resolutions for the 2019 Union of British Columbia Municipalities convention requesting the provincial government's support to address single-use items by:

a. adopting a comprehensive provincial single-use item reduction strategy; and

b. developing provincial standards for compostable single-use items ensuring they are designed to fully biodegrade if littered in the natural environment, that any standards and certifications for compostability are aligned with provincial composting infrastructure, and that compostable single-use items are collected and managed through an extended producer responsibility program that covers the residential and commercial sectors as well as materials from the public realm;

(5) That the Mayor write the Chair of the Greater Vancouver Sewerage and Drainage District Board and the Ministry of Environment and Climate Change Strategy to develop a provincial single-use item reduction strategy;

(6) That staff be directed to bring forward appropriate bylaw amendments to ban straws, similar to the City of Vancouver's approach, together with an implementation plan and budget effective January 1, 2020, and also report back on the City of Vancouver's research being undertaken regarding the ban on straws;

(7) That staff be directed to examine the issue of single-use food utensils, and report back;

(8) That staff be directed to bring forward appropriate bylaw amendments to prohibit the commercial use or commercial distribution of plastic checkout bags and regulate paper and reusable bags with incremental fees, effective January 1, 2020, with appropriate exemptions listed in Table 2, in the staff report titled "Single-Use Plastic Items – City of Vancouver Proposals", dated May 12, 2019 from the Director, Public Works, with a six-month grace period to permit the use of existing plastic bag stock that was purchased by a business prior to the first reading of the bylaw; and

(9) That staff be directed to bring forward an implementation plan and budget to prohibit plastic checkout bags, for item (8) above.

This report responds to resolutions (4)(a) and (4)(b) as stated above.

Staff are working to bring forward a report responding to the remaining referrals to the July 15, 2019 General Purposes Committee.

Analysis

The process to submit resolutions to the Union of BC Municipalities (UBCM) requires formal consideration and endorsement by Council. The deadline for submissions is June 30th. To comply with the deadline requirements, this report presents the resolutions for Council endorsement. The remaining referral items will be fully addressed in an upcoming report to General Purposes Committee.

Staff note that the Government of Canada, on June 10, 2019, announced two steps to reduce Canada's plastic waste by:

- banning harmful single-use plastics as early as 2021; and
- working with provinces and territories to introduce extended producer responsibility programs across the country.

The announcement indicated that these measures will be grounded in scientific evidence and will align with actions being taken in the European Union and other countries. Canada will also support the Canadian Council of Ministers of the Environment's development of an action plan to implement the Canada-wide strategy on Zero Plastic Waste.

Full details of the intended measurers have not yet been made public. These federal actions lack clear and defined actions from which to properly assess impacts and implementation timelines as it relates to the proposed UBCM resolutions.

Proposed UBCM Resolutions

It is recommended that two resolutions be forwarded to the Union of BC Municipalities calling for the province to develop a comprehensive single-use item reduction strategy (Attachment 1), and to standardize compostable packaging, ensuring its alignment with composting infrastructure and collection and management through extended producer responsibility (EPR) programs (Attachment 2). This action supports Council's recent direction for staff to take action to ban unnecessary single-use items such as plastic bags, plastic straws and foam food service ware beginning January 1, 2020.

Financial Impact

None.

Conclusion

Council has directed staff to undertake actions designed to effect meaningful change in reducing unnecessary waste through banning certain single-use items. Creating alignment across municipal, regional, provincial and federal platforms is a necessary aspect of eliminating single-use items as well as enhancing circular economy objectives.

This report presents two resolutions for submission to the UBCM calling for the province to adopt a provincial single-use item reduction strategy, and to develop provincial standards for compostable single-use items so that they may align with commercial composting infrastructure and be collected and managed effectively through EPR programs in the residential, commercial and public sectors.

Suzanne Bycraft
Manager, Fleet and Environmental Programs
(604-233-3338)

SJB:kn

Att. 1: Proposed UBCM Resolution – Comprehensive Provincial Single-Use Item Reduction Strategy
2: Proposed UBCM Resolution – Compostable Single-Use Items

Attachment 1

Comprehensive Provincial Single-Use Item Reduction Strategy

WHEREAS the British Columbia extended producer responsibility program for packaging and printed paper currently provides recycling collection for single-use items generated by the residential sector, but does not yet focus on reduction or reuse, or cover single-use items that are compostable or disposed of at businesses or in the public realm;

AND WHEREAS inter-municipal differences in policy for reduction of single-use items make it challenging for businesses to comply with multiple regulations, and the business community has expressed a strong desire for harmonization and consistent regulation for single-use items on the broadest possible scale;

THEREFORE BE IT RESOLVED that the Provincial Government adopt a provincial single-use item reduction strategy for single-use items that emphasizes reduction and reuse, covers single-use items generated by all sectors and made of all material types, and would include but not necessarily be limited to plastic and paper shopping bags, disposable drink cups, take-out containers, straws and utensils, but would exclude all single-use items needed for medical use or accessibility needs.

Attachment 2

Compostable Single-Use Items

WHEREAS businesses are beginning to switch to compostable single-use items for to-go meals and beverages, yet this material is not designed to biodegrade if littered, and is not guaranteed to biodegrade in industrial compost facilities because standards and certifications are not aligned with existing infrastructure that is designed to compost food scraps and yard waste;

AND WHEREAS local governments are facing increasing pressure to collect and manage this material, yet it is beyond local government's ability to control compostable packaging design or finance the specialized collection and processing infrastructure required for compostable packaging;

THEREFORE BE IT RESOLVED that the Provincial Government ensure that compostable packaging (including single-use take-out foodware) distributed in Canada is designed to fully biodegrade if littered in the natural environment, that standards and certifications for compostable packaging are aligned with composting infrastructure, and that compostable single-use items are collected and managed through an extended producer responsibility program that covers the residential and commercial sectors as well as the public realm.

City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	June 12, 2019
From:	Kim Somerville Senior Manager, Community Social Development	**File:**	07-3000-01/2019-Vol 01
Re:	**Pride Week 2019 Activities and Proposed Permanent Rainbow Crosswalk**		

Staff Recommendations

1. That the report titled "Pride Week 2019 Activities and Proposed Permanent Rainbow Crosswalk," dated June 12, 2019, from the Senior Manager, Community Social Development be received for information; and

2. That a permanent rainbow crosswalk on Minoru Boulevard adjacent to the Richmond Library/Cultural Centre and the City Hall Annex, installed prior to July 29, 2019 to recognize Pride Week and the ongoing support of our LGBTQ2S communities, be approved.

Kim Somerville
Senior Manager, Community Social Development
(604-247-4671)

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Corporate Communications and Marketing	☑	
Finance Department	☑	
Public Works	☑	
Recreation and Sport Services	☑	
Transportation	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** OJ	**APPROVED BY CAO**

Staff Report

Origin

On September 9, 2013, Council adopted the Building Our Social Future – A Social Development Strategy (2013–2022) as a guiding strategy for the City on social development matters.

This report provides an update on Pride Week 2019 activities and brings forward for consideration a proposal for a permanent rainbow crosswalk to be installed on Minoru Boulevard adjacent to the Richmond Library/Cultural Centre in the spirit of Pride Week.

This report supports the 2013–2022 Social Development Strategy's Direction:

> *#9: Facilitate Strong and Safe Neighbourhoods*

This report also supports the 2018–2023 Community Wellness Strategy's Focus Areas:

> *#2: Enhance physical and social connectedness within and among neighbourhoods and communities.*
>
> *#4: Facilitate supportive, safe and healthy natural and built environments.*

Analysis

Background

Pride Week is a celebration of our Lesbian, Gay, Bisexual, Transgender, Queer and Two-Spirit (LGBTQ2S) communities. It is about valuing and respecting diversity, and recognizing the importance of a safe and inclusive community for everyone. Since 2017, the City and its Community Partners have collaborated in celebrating Pride Week with a number of programs and events throughout the designated week with unique displays at various civic facilities. In addition to recognizing Pride Week, the City and its Community Partners offer a welcoming environment with a variety of supportive programs, services and amenities that enhance social connections and the overall well-being of residents throughout the year.

Recognizing Pride Week is a step towards ensuring that City services and programs reflect the needs, interest and safety concerns of Richmond LGBTQ2S persons. The City values diversity in the community as one of its fundamental strengths and understands that the work of creating a fully inclusive society is ongoing and there is a need to expand people's ideas about gender and sexual expression.

In 2019, the City of Richmond in partnership with Community Associations and Societies will be celebrating Pride Week from Monday, July 29, 2019 through Sunday, August 4, 2019 with a variety of events and activities at various City facilities. Celebration highlights include:

- *Queer Networking Social:* Build connections and enjoy a special guest presentation at this gathering targeted to LGBTQ2S-identified adults. For ages 18+ years.
  Thursday, July 25 | 6:00–8:00 p.m. | City Centre Community Centre

- *Painting of the Rainbow Staircase*: Join the Richmond Youth Media Program (RYMP) as the youth take up their brushes and paint the steps of the Cultural Centre.
  Saturday, July 27 | 1:00–3:00 p.m. | Richmond Library/Cultural Centre
- *Pride Drag Showcase*: Celebrate the LGBTQ2S community at this family-friendly show featuring local drag performers and dancers.
  Saturday, July 27 | 6:30–8:00 p.m. | City Centre Community Centre
- *Pride Week Hangout:* Celebrate Pride at Cambie's outdoor Pride Week Hangout. Join us for free activities.
  Tuesday, July 30 | 5:00–7:00 p.m. | Cambie Community Centre
- *Pride Week Coffee Group*: Enjoy some refreshments and treats for this informal social in our community living room.
  Wednesday, July 31 | 10:00 a.m.–12:00 p.m. | Hamilton Community Centre
- *Paint Your Rainbow:* Drop-in and create rainbow art and enjoy refreshments to celebrate Pride Week.
  Wednesday, July 31 | 11:30 a.m.–1:30 p.m. | City Centre Community Centre
- *Pride Pop-Up Party:* Celebrate Pride with an outdoor celebration featuring refreshments, activities, giveaways and more!
  Wednesday, July 31 | 4:00–5:30 p.m. | South Arm Community Centre
- *Summer Fun in the Park:* Celebrate Pride through art, dance and music. Free activities include an all-ages dance fitness class, a concert featuring the gender inclusive After Work Social cover band, and an art project with Paige Gratland, Branscombe House Artist-in-Residence.
  Thursday, August 1 | 6:00–8:00 p.m. | Thompson Community Centre
- *Pride Week Toonie Skate:* Lace up your skates and glide around the ice to celebrate Pride Week. Admission and rentals for $2.00.
  Saturday, August 3 | 1:00–5:00 p.m. | Richmond Ice Centre

The events offered during Pride Week provide citizens opportunities to connect, learn about and engage with the LGTBQ2S community, therefore, promoting a shared sense of community.

To promote Pride Week activities and to increase awareness about the City's commitment to valuing diversity and ensuring that the community is safe and inclusive for everyone, a news release will be issued to the local media; promotional materials will highlight the week in community facilities; and the City will proclaim July 29 to August 4 as Pride Week in Richmond.

Recognizing Pride Week in the Built Environment

In addition to programs and events offered for Pride Week, the City and its Community Partners have created opportunities for visual recognition in the built environment.

In 2016 at the Richmond Ice Centre and in 2017 at Minoru Arenas, the City in partnership with the Richmond Arenas Community Association (RACA), painted rainbow colours on the ice sheets in support of the LGTBQ2S community (four out of the six ice sheets at Richmond Ice Centre year-round and all ice sheets at Minoru Arenas).

To recognize Pride Week 2019, the East Richmond Community Association (ERCA) at Cambie Community Centre has funded $750 to cover the cost to paint the outdoor basketball court three–point line in rainbow colors for Pride Week. The rainbow design will be in place from July 31, 2019 for the duration of the paint's lifecycle (approximately 3–4 years).

Proposed Location

The recommended location for a permanent rainbow crosswalk is on Minoru Boulevard replacing the existing crosswalk between the Richmond City Hall Annex and the Richmond Library/Cultural Centre, a high pedestrian traffic location in the City Centre.

This site is in close proximity to the Richmond City Hall, Richmond School District Office, Richmond Caring Place, Richmond Public Library and the Richmond Centre Mall. A physical visual recognition of Richmond's LGTBQ2S community in this location is anticipated to complement the painting of the stairs at the Richmond Library/Cultural Centre.

As of June 2018, there are 43 cities across BC who have incorporated rainbow crosswalks or other visual representations in the built environment for the LGTBQ2S communities.

Next Steps

Should Council approve the funding for a permanent rainbow crosswalk at Minoru Boulevard, staff will work to coordinate the design and on-site installation to be completed prior to July 29, 2019 to recognize Pride Week and the ongoing support of our LGBTQ2S communities.

A Traffic Management Plan will be developed to ensure pedestrian safety while the crosswalk is installed. City staff will assist painters in minimizing barriers and prioritizing safety as part of a risk-management review process in consultation with Public Works.

Financial Impact

The approximate cost of $15,000 for the installation of the permanent rainbow crosswalk will be funded between Community Services' and Public Works' respective operating budget.

Conclusion

A permanent rainbow crosswalk on Minoru Boulevard supports the city's commitment to be an inclusive, engaged and caring community – one that considers the needs of the present and future generations, values and builds on its diversity, nurtures its social capital and treats its citizens with fairness and respect. A permanent rainbow crosswalk complements the City's promotion of Pride Week and highlights the City's support and acceptance of the LGTBQ2S community.

Heather Muter
Program Manager, Community Social Development
(604-204-8599)

City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	May 28, 2019
From:	Jason Kita Director, Corporate Programs Management Group	**File:**	01-0105-07-01/2019-Vol 01
Re:	**Council Term Goals 2018-2022**		

Staff Recommendation

That Council adopt a set of 2018-2022 Council Term Goals by endorsing the goals and priorities as outlined in the report titled "Council Term Goals 2018-2022" from the Director, Corporate Programs Management Group, dated May 28, 2019, or that Council identify and adopt any modifications, deletions or additions to this information as their 2018-2022 Council Term Goals.

Jason Kita
Director, Corporate Programs Management Group
(604-276-4091)

Att. 2

REPORT CONCURRENCE		
REVIEWED BY SMT	INITIALS:	APPROVED BY CAO

Staff Report

Origin

At the start of each new term of office, Council may establish a set of Council Term Goals (Term Goals) to determine their collective focus and priorities. Council's decisions influence the City's physical and social landscape, the relative safety of residents and businesses, the quality of life and lifestyle choices available to members of the community, as well as the role the City plays within the region. Term Goals help to ensure City work plans are appropriately aligned to achieve a focused and productive term of office that aligns with the most effective use of public resources. The purpose of this report is to facilitate discussion amongst members of Council in order to determine Council's collective and shared priorities in the form of the 2018-2022 Council Term Goals.

Analysis

Setting Council Term Goals

Council Term Goals are most effective when they are focused on broad overarching themes that Council would like to establish as priorities for the term. A clear set of shared goals allows the City to accomplish a visionary agenda set by Council, while also being flexible and responsive to new opportunities, issues, and circumstances that may emerge during the term. The information presented in this report summarizes the goal themes and priorities that emerged from input provided by Council members for consideration in determining a set of shared 2018-2022 Council Term Goals. A total of eight broad goal themes have been identified, each with a set of priorities that provide a direction and help to capture Council's interests relating to the themes.

Broad Goal Themes

Council may adopt as many or as few goals as they desire, as overarching goals presented can be organized in any number of ways. The eight goal areas presented herein represent broad aspects of municipal governance through which Council's priorities and direction for the term can be articulated. The information below has been presented as "goal themes" rather than as set goals so as to not appear presumptuous before Council has had the opportunity to discuss and debate them. Council may choose to adopt the eight goal themes along with the related priorities as their Term Goals, or may modify, add to, or delete any part of them as desired to ensure they reflect common goals.

Council recognizes that all areas of municipal government are important and need consideration and attention; yet, in order to be most effective, a focus is needed. The goal themes proposed for the 2018-2022 Council Term Goals reflect a collective desire for proactive and forward-thinking leadership that remains rooted in Richmond's unique history and identity. Richmond has a long history as a meeting place of diverse cultures, of being home to thriving arts and cultural communities, and offering exceptional sport, recreation, and wellness opportunities; there is a desire to build on these strengths into the future. Richmond's unique island ecology, agricultural and fishing sectors, and focus on the environment will continue, ensuring sustainability is viewed not only as a goal but as a way of doing all business within the City. Of importance to Council is to enhance communication, collaboration and connection, ensuring residents and businesses

within Richmond are well-informed and engaged in decisions that shape the community's way forward.

Each goal theme listed below is considered to be of equal importance and is not presented in any priority sequence.

The broad goal themes are:

1. A Safe and Resilient City
2. A Sustainable and Environmentally Conscious City
3. One Community Together
4. An Active and Thriving Richmond
5. Sound Financial Management
6. Strategic and Well-Planned Growth
7. A Supported Economic Sector
8. An Engaged and Informed Community

Goal Theme 1: A Safe and Resilient City *- Enhance and protect the safety and well-being of Richmond.*

Richmond is a safe community and ensuring that it remains safe is a top priority. The safety of the city relies on a strong and dedicated team of community safety personnel that responds quickly and effectively to community needs. This term, a focus will be placed on enhancing these services and the partnerships that support them. Council is committed to future-proofing its infrastructure to respond to climate change and emerging technologies as well as maintaining effective infrastructure networks essential to a safe community. These measures will support preparation and ensure Richmond is ready in the event of a disaster or emergency of any kind. Coming together as a community to plan for emergencies is a priority and will help to ensure Richmond remains resilient.

Priorities that emerged under *Theme 1: A Safe and Resilient City* include:

1.1 Enhance safety services and strategies to meet community needs.
1.2 Future-proof and maintain city infrastructure to keep the community safe.
1.3 Ensure Richmond is prepared for emergencies, both human-made and natural disasters.
1.4 Foster a safe, caring and resilient environment.

Additional potential indicators of success and examples of outcomes related to *Theme 1: A Safe and Resilient City* are outlined in Attachment 1.

Goal Theme 2: A Sustainable and Environmentally Conscious City - *Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City's unique biodiversity and island ecology.*

Council views continued leadership in sustainability as a high priority. To be effective in this goal, Council intends to apply new, forward-thinking, and innovative approaches to the way the City conducts business. This includes prioritizing "green" initiatives and circular economic principles where appropriate, and prioritizing sustainability in a holistic sense, including but not

limited to environmental concerns. Council's goals for a sustainable and environmentally conscious city also extend to the community, with a focus on ensuring citizens have access to nature and to resources necessary to make sustainable choices.

Priorities that emerged under *Theme 2: Sustainable and Environmentally Conscious City* include:

2.1 Continued leadership in addressing climate change and promoting circular economic principles.
2.2 Policies and practices support Richmond's sustainability goals.
2.3 Increase emphasis on local food systems, urban agriculture and organic farming.
2.4 Increase opportunities that encourage daily access to nature and open spaces and that allow the community to make more sustainable choices.

Additional potential indicators of success and examples of outcomes related to *Theme 2: A Sustainable and Environmentally Conscious City* are outlined in Attachment 1.

Goal Theme 3: One Community Together *– Vibrant and diverse arts and cultural activities and opportunities for community engagement and connection.*

Council recognizes that as a community we are stronger when we come together. To this end, Council's goal for *One Community Together* seeks opportunities for the community to meet and connect, particularly through arts, cultural and heritage programs and activities that help to sustain Richmond's vibrancy. Forming a unified Richmond also involves working with community partners and taking an intercultural and interagency approach where possible to best meet the wide-ranging needs and interests of the community.

Priorities that emerged under *Theme 3: One Community Together* include:

3.1 Foster community resiliency, neighbourhood identity, sense of belonging, and intercultural harmony.
3.2 Enhance arts and cultural programs and activities.
3.3 Utilize an interagency and intercultural approach to service provision.
3.4 Celebrate Richmond's unique and diverse history and heritage.

Additional potential indicators of success and examples of outcomes related to *Theme 3: One Community Together* are outlined in Attachment 1.

Goal Theme 4: An Active and Thriving Richmond *– An active and thriving community characterized by diverse social and wellness programs, services and spaces that foster health and well-being for all.*

The focus for *An Active and Thriving Richmond* includes ensuring there are opportunities and access to programs and services that support overall health and well-being. This includes support for active living, sport and recreation participation, access to parks spaces and to social services and support networks for individuals and families. Council is committed to planning for community facilities and infrastructure that represents best practices and meet the needs of citizens today and into the future. Equitable access to programs and services is a high priority

and Council seeks to work with partners and other agencies to reduce barriers and increase access for those in need.

Priorities that emerged under *Theme 4: An Active and Thriving Richmond* include:

4.1 Robust, affordable, and accessible sport, recreation, wellness and social programs for people of all ages and abilities.
4.2 Ensure infrastructure meets changing community needs, current trends and best practices.
4.3 Encourage wellness and connection to nature through a network of open spaces.

Additional potential indicators of success and examples of outcomes related to *Theme 4: An Active and Thriving Richmond* are outlined in Attachment 1.

Goal Theme 5: Sound Financial Management *- Accountable, transparent, and responsible financial management that supports the needs of the community into the future.*

Council is keenly aware of the sensitivity and responsibility of effective management of tax-payers' dollars and is committed to ongoing diligence and transparency in decision-making. Balancing current needs with those of the future is a delicate and dynamic process through which rigorous planning and processes will continue to be applied. Council intends to take a proactive approach to advocating for Richmond's interests through applying for grants, working with other levels of government, and optimizing strategic opportunities as they arise.

Priorities that emerged under *Theme 5: Sound Financial Management* include:

5.1 Maintain a strong and robust financial position.
5.2 Clear accountability through transparent budgeting practices and effective public communication.
5.3 Decision-making focuses on sustainability and considers circular economic principles.
5.4 Work cooperatively and respectfully with all levels of government and stakeholders while advocating for the best interests of Richmond.

Additional potential indicators of success and examples of outcomes related to *Theme 5: Sound Financial Management* are outlined in Attachment 1.

Goal Theme 6: Strategic and Well-Planned Growth *- Leadership in effective and sustainable growth that supports Richmond's physical and social needs.*

Richmond continues to grow, in-line with the rest of Metro Vancouver and according to plans outlined in the Official Community Plan (OCP). A significant priority for Council this term is to ensure that growth-related decisions are made holistically and sustainably with the needs and best interests of the community in mind. Planning for growth and development will take into account "green" and environmental practices, maximizing opportunities to connect nature to the urban environment. The continued development of mobility networks and active transportation options is a priority. The preservation and celebration of the city's history and heritage remains an essential part of Richmond's evolution. Ensuring the people that live and work in Richmond have access to affordable and diverse housing options is also at the forefront of Council's

attention and opportunities that involve collaboration and partnership to best meet the community's needs will be explored.

Priorities that emerged under *Theme 6: Strategic and Well-Planned Growth* include:

6.1 Ensure an effective OCP and ensure development aligns with it.
6.2 "Green" and circular economic growth and practices are emphasized.
6.3 Build on transportation and active mobility networks.
6.4 Recognize Richmond's history and heritage through preservation, protection and interpretation.
6.5 Ensure diverse housing options are available and accessible across the housing continuum.
6.6 Growth includes supports and/or services for Richmond's vulnerable populations, including youth, seniors, individuals with health concerns, and residents experiencing homelessness.

Additional potential indicators of success and examples of outcomes related to *Theme 6: Strategic and Well-Planned Growth* are outlined in Attachment 1.

Goal Theme 7: A Supported Economic Sector – *Facilitate diversified economic growth through innovative and sustainable policies, practices and partnerships.*

Economic development plays an important role in the well-being and financial sustainability of a city. Council's focus for the economic sector this term is on encouraging a diversified economic base with emphasis on clean sectors and strategic collaborations. Richmond is committed to being a business-friendly city, ensuring goals around growth align with economic goals and that workers' needs for transportation, housing, and training are all supported.

Priorities that emerged under *Theme 7: A Supported Economic Sector* include:

7.1 Demonstrate leadership through strategic partnerships, collaborations and exploring innovative and emerging economic practices and technical advancements.
7.2 Encourage a strong, diversified economic base while preserving agricultural land and maximizing the use of industrial land.
7.3 Attract businesses to locate in Richmond and support employment and training opportunities in Richmond as we grow.
7.4 Inspire the farming and fishing cultures of tomorrow.

Additional potential indicators of success and examples of outcomes related to *Theme 7: A Supported Economic Sector* are outlined in Attachment 1.

Goal Theme 8: An Engaged and Informed Community – *Ensure that the citizenry of Richmond is well-informed and engaged about City business and decision-making.*

Council views communication and engagement as a high priority that extends across all areas. With a multitude of communication tools available through advancements in technology, Council is keenly aware of the importance of access to accurate, timely and complete information in order for the community to understand and contribute most effectively to discussions and decisions that impact them.

Priorities that emerged under *Theme 8: An Engaged and Informed Community* include:

8.1 Increased opportunities for public engagement.

8.2 Ensure citizens are well-informed with timely, accurate and easily accessible communication using a variety of methods and tools.

Additional potential indicators of success and examples of outcomes related to *Theme 8: An Engaged and Informed Community* are outlined in Attachment 1.

The above information summarizes the goal themes and priorities that emerged from input provided by Council members for consideration in determining a set of shared 2018-2022 Council Term Goals. Attachment 2 presents this same information in a table format for easy reference to each of the goal themes and priorities. Council may endorse the goal themes and priorities as described above as their 2018-2022 Term Goals or may provide direction to staff in regard to making any revisions, additions, or deletions necessary to adopt a set of Term Goals.

Next Steps

Once Council has discussed and adopted a set of 2018-2022 Council Term Goals, these goals will guide City work programs during this four-year term of office. The Council Term Goals will also be published on the City of Richmond website and communicated to the public. Council Term Goals will be monitored and reviewed on an ongoing basis to track progress. It is intended that the Council Term Goals be reviewed by Council at least annually to ensure they remain relevant in light of changing community and organizational needs, and are amended as required to ensure priority areas of focus are appropriately addressed.

Financial Impact

None.

Conclusion

Term Goals are an important element of Council's governance role. They guide and influence the decisions and directions of the City over the course of Council's four-year term and ensure public resources and operational work programs are aligned appropriately while achieving Council's shared goals and priorities. This report seeks Council's direction for the adoption of a set of Term Goals either by adopting the goal themes and priorities as outlined in this report as Council's Term Goals or by amending, adding to or deleting from any of the above to establish Council's Term Goals.

Claire Adamson
Manager, Corporate Strategic Initiatives
(604-247-4482)

CA:ca

Att. 1: Examples of outcomes and indicators of success related to each goal theme and priority
Att. 2: Draft 2018-2022 Council Term Goal Themes and Priorities

Examples of outcomes and indicators of success related to each goal theme and priority

Council Term Goals are necessarily broad and encompassing of a wide range of services and programs the City offers. They establish at a high-level what the City should focus on, while staff work programs, established through reports to Council, prepare recommendations on how to approach each priority area. The following information presents examples of potential actions, outcomes, and/or approaches to achieving each goal and priority. These examples were garnered from Council input to provide a sense of the goal's intended focus and are not necessarily reflective of, or endorsed by, all of Council.

Goal Theme 1: A Safe and Resilient City

Enhance and protect the safety and well-being of Richmond.

1.1 Enhance safety services and strategies to meet community needs.
- Effectively address personnel needs of first responders.
- Ensure that the delivery of efficient public safety services addresses the evolving needs of a growing community.
- Increase the coverage of community police stations, to be included near community centres.
- Work with the Province regarding emergency procedures and required personnel.

1.2 Future-proof and maintain city infrastructure to keep the community safe.
- Continue to maintain dikes, roads, pump stations, and other infrastructure that keeps residents safe.
- Paint more walkways with high visibility paint and enhance lighting and signalling.
- Ensure that the City's physical infrastructure is planned, funded and maintained to provide for current and future community needs.

1.3 Ensure Richmond is prepared for emergencies, both human-made and natural disasters.
- Maintain emphasis on Emergency Preparedness programs.
- Set up water monitoring stations in our waterways (sloughs and drainage canals).
- Work with all businesses and shoreline landowners to audit our impacts on water quality.

1.4 Foster a safe, caring and resilient environment.
- Continue with Resilient Communities Program.
- Build community resilience to natural disasters and climate change.
- Take steps to ensure Richmond is a Clean Air Community and a Clean Water Community.
- Ensure community accessibility to those with disabilities.

Goal Theme 2: A Sustainable and Environmentally Conscious City

Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City's unique biodiversity and island ecology.

2.1 Continued leadership in addressing climate change and promoting circular economic principles.
- Innovative projects and initiatives to advance sustainability.
- Consider strategies for circular cities.
- Build capacities for effective and responsible leadership while participating in the development of cooperation and peer-to-peer learning with other local governments.
- Target zero carbon (green buildings and green transportation), zero waste and healthy ecosystems (access to nature, clean water, local food, and clean air).
- Achieve a Lighter City Footprint and enable citizens to reduce Personal Ecological Footprints.

2.2 Policies and practices support Richmond's sustainability goals.
- Continue to make sustainability a factor in all decisions.
- Continued implementation of the leading sustainability initiatives.
- Establish action plans to mirror success of other cities with green goals.

2.3 Increase emphasis on local food systems, urban agriculture and organic farming.
- Encourage more of our local farms to grow with organic methods.
- Provide incentives for private land use that grows food for our community.
- Make our landscape edible (by humans and nature) with guidance from local farmers, agricultural school programs, and peat-land biologists.

2.4 Increase opportunities that encourage daily access to nature and open spaces and that allow the community to make more sustainable choices.
- Preserve, protect and enhance our parks and green spaces to ensure everyone can access them.
- Be strategic with green and open spaces to maximize the amount in each area.
- Continue to protect and grow passive parks. Emphasis on supporting passive uses with paths, washrooms, etc.
- Work with youths to empower their families, friends and coworkers to take action.
- Expand and enhance green space to build upon Richmond's Garden City heritage.

Goal Theme 3: One Community Together

Vibrant and diverse arts and cultural activities and opportunities for community engagement and connection.

3.1 Foster community resiliency, neighbourhood identity, sense of belonging, and intercultural harmony.
- Demonstrate that Richmond is a caring community.
- Enhance neighbourhood identity, intercultural harmony, and sense of belonging.
- Create a wider network for gatherings and the meeting of one's neighbours.

- Richmond values and celebrates its historical and cultural identity.

3.2 Enhance arts and cultural programs and activities.
- Encourage robust program offerings in a variety of places, including at the community centres.
- Support a vibrant and expanding arts scene including supporting Richmond artists.
- Integrate arts and culture into all aspects of civic life.
- Cultivate a city where all cultural traditions and expressions are respected, promoted, and equitably resourced.
- Focus public art on themes and artists that represent the community.
- Opportunities to engage with arts and culture are accessible to all.

3.3 Utilize an interagency and intercultural approach to service provision.
- Share spaces with multiple partners where appropriate.
- Work with stakeholders to explore opportunities that will bring the community together and meet diverse and changing needs.

3.4 Celebrate Richmond's unique and diverse history and heritage.
- Focus on Richmond's historical past.
- Display and celebrate art from diverse cultures that make up Richmond's heritage.
- Collaborate with indigenous communities to share their history and heritage.
- Support the work of heritage groups to bring the story of Richmond alive.

Goal Theme 4: An Active and Thriving Richmond

An active and thriving community characterized by diverse social and wellness programs, services and spaces that foster health and well-being for all.

4.1 Robust, affordable, and accessible sport, recreation, wellness and social programs for people of all ages and abilities.
- Encourage and promote lifelong participation in sport and recreation.
- Increase arts and recreation program offerings.
- Affordable programs for families with financial need.
- Continue subsidies for programs involving people and families in need.
- Encourage healthy eating habits.
- Work with all levels of government and community partners to provide access to appropriate resources for our most vulnerable citizens.

4.2 Ensure infrastructure meets changing community needs, current trends and best practices.
- Seek opportunities to co-locate with non-profits.
- Encourage robust social programs, including at the community centres.
- Continue to offer a wide range of programs at well-maintained facilities.
- Provide recreational opportunities that meet the needs of growth and changing demographics.

4.3 Encourage wellness and connection to nature through a network of open spaces.
- Preserve open spaces as spaces for families.
- Ensure open spaces are created in a way that promotes use as a valuable community resource for everyone to enjoy.
- Provide an open space system which links parks, schools and natural spaces for the enjoyment of Richmond citizens.
- Ensure we have a decentralized spread of playgrounds and dog parks.
- Explore opportunities for the riverfront to be better utilized for recreation.
- Create a walkable city with a bike-friendly network.

Goal Theme 5: Sound Financial Management
Accountable, transparent, and responsible financial management that supports the needs of the community into the future.

5.1 Maintain a strong and robust financial position.
- Utilize best-value solutions for projects.
- Keep taxes reasonable —balance between businesses and residences.

5.2 Clear accountability through transparent budgeting practices and effective public communication.
- Transparent financial decisions that are appropriately communicated to the public.
- Effective and best practices are used in budget processes.
- Engaging and communicating with the public during the financial decision-making process.

5.3 Decision-making focuses on sustainability and considers circular economic principles.
- Reduce overproduction, overuse, and waste of natural and synthetic resources.
- Review and update sustainable purchasing practices.
- Invest in projects that best serve the community and sustainable choices: community centres, recreation facilities, infrastructure that solves congestion.
- Ensure that the City's physical infrastructure is planned, funded and maintained to provide for current and future community needs.

5.4 Work cooperatively and respectfully with all levels of government and stakeholders while advocating for the best interests of Richmond.
- Seek alternate funding sources, particularly through grants from other levels of government.
- Expand projects and partnerships that make sense for our community.
- Build stronger relations with other levels of government.

Goal Theme 6: Strategic and Well-Planned Growth

Leadership in effective and sustainable growth that supports Richmond's physical and social needs.

6.1 Ensure an effective OCP and ensure development aligns with it.
- Ensure roads, parks and schools are keeping pace with growth.
- Richmond will be a leader in planning for growth and technological advancement.
- Focus density on City Centre and arterials while preserving single-family neighbourhoods.

6.2 "Green" and circular economic growth and practices are emphasized.
- Provide public amenities to support growth
- Identify clean industries to be included in Richmond.

6.3 Build on transportation and active mobility networks.
- Growth must include adequate road ways for traffic.
- Encourage and support the use of public transportation.
- Encourage active and "green" transportation.
- Create a walkable and bike-friendly network.

6.4 Recognize Richmond's history and heritage through preservation, protection and interpretation.
- Celebrate the preservation of our heritage buildings, on public and private lands.
- Promote awareness of the community's cultural and historic qualities and resources.
- Create an accurate inventory of all heritage buildings that remain in Richmond and identify an action plan to save and restore these remaining visual sources of our history.

6.5 Ensure diverse housing options are available and accessible across the housing continuum.
- Maintain a percentage of low rental units.
- Work with community groups to connect with developers who are building affordable housing units to ensure that the builds are best suited to the needs of the Service Providers.
- Ensure growth includes more rentals and affordable housing options.
- Continue to implement the Affordable Housing Strategy.

6.6 Growth includes supports and/or services for Richmond's vulnerable populations, including youth, seniors, individuals with health concerns, and residents experiencing homelessness.
- Focus on establishing more dedicated seniors' homes in Richmond.
- Progress work on supportive housing projects and the homeless shelter.
- Work with all levels of government and community partners to ensure access to appropriate resources for our most vulnerable citizens.

Goal Theme 7: A Supported Economic Sector

Facilitate diversified economic growth through innovative and sustainable policies, practices and partnerships.

7.1 Demonstrate leadership through strategic partnerships, collaborations and exploring innovative and emerging economic practices and technical advancements.
- Become a leader in Green Jobs.
- Engage stakeholders to grow our tech hub to increase the number of high-quality jobs in Richmond.
- Focus on tourism and other sustainable industries.
- Support a Self-Sufficient Energy Economy and other emerging economies.
- Support ideation, mentoring, and networking at our post-secondary institutions to promote local leadership and entrepreneurship.

7.2 Encourage a strong, diversified economic base while preserving agricultural land and maximizing the use of industrial land.
- Emphasize the need for a robust and balanced business sector.
- Maximize the use of industrial land.
- Preserve the use of agricultural land.

7.3 Attract businesses to locate in Richmond and support employment and training opportunities in Richmond as we grow.
- Continue to support Richmond businesses through the Economic Development office.
- Promote local training programs, manufacturing of goods, safe installation, and maintenance of green infrastructure on City and private lands.
- Take the lead in promoting business of all sizes to locate in Richmond.

7.4 Inspire the farming and fishing cultures of tomorrow.
- Promote local self-sufficiency in Agriculture and complete Garden City Lands and incubator farms.
- Support the fishing industry to shift to a versatile fleet that is community-supported.
- Promote agricultural opportunities within the urban environment (rooftop parks, etc.).
- Ensure the City's agricultural and fisheries sectors are supported, remain viable, and continue to be an important part of the City's character, livability, and economic development vision.

Goal Theme 8: An Engaged and Informed Community

Ensure that the citizenry of Richmond is well-informed and engaged about City business and decision-making.

8.1 Increased opportunities for public engagement.
- Increase citizen involvement.
- Increase communication and engagement with the public.

- Consider a Youth Commission that provides influence and a reminder of our public service.

8.2 Ensure citizens are well-informed with timely, accurate and easily accessible communication using a variety of methods and tools.

- Ensure accurate and timely information is available to the public.
- Effective communication tools are utilized to reach a wide audience.

Draft 2018-2022 Council Term Goal Themes and Priorities	
Goal Theme	**Draft Priorities**
Goal Theme 1: A Safe and Resilient City *Enhance and protect the safety and well-being of Richmond.*	**1.1** Enhance safety services and strategies to meet community needs. **1.2** Future-proof and maintain city infrastructure to keep the community safe. **1.3** Ensure Richmond is prepared for emergencies, both human-made and natural disasters. **1.4** Foster a safe, caring and resilient environment.
Goal Theme 2: A Sustainable and Environmentally Conscious City *Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City's unique biodiversity and island ecology.*	**2.1** Continued leadership in addressing climate change and promoting circular economic principles. **2.2** Policies and practices support Richmond's sustainability goals. **2.3** Increase emphasis on local food systems, urban agriculture and organic farming. **2.4** Increase opportunities that encourage daily access to nature and open spaces and that allow the community to make more sustainable choices.
Goal Theme 3: One Community Together *Vibrant and diverse arts and cultural activities and opportunities for community engagement and connection.*	**3.1** Foster community resiliency, neighbourhood identity, sense of belonging, and intercultural harmony. **3.2** Enhance arts and cultural programs and activities. **3.3** Utilize an interagency and intercultural approach to service provision. **3.4** Celebrate Richmond's unique and diverse history and heritage.
Goal Theme 4: An Active and Thriving Richmond *An active and thriving community characterized by diverse social and wellness programs, services and spaces that foster health and well-being for all.*	**4.1** Robust, affordable, and accessible sport, recreation, wellness and social programs for people of all ages and abilities. **4.2** Ensure infrastructure meets changing community needs, current trends and best practices. **4.3** Encourage wellness and connection to nature through a network of open spaces.
Goal Theme 5: Sound Financial Management *Accountable, transparent, and responsible financial management that supports the needs of the community into the future.*	**5.1** Maintain a strong and robust financial position. **5.2** Clear accountability through transparent budgeting practices and effective public communication. **5.3** Decision-making focuses on sustainability and considers circular economic principles. **5.4** Work cooperatively and respectfully with all levels of government and stakeholders while advocating for the best interests of Richmond.

Draft 2018-2022 Council Term Goal Themes and Priorities	
Goal Theme	**Draft Priorities**
Goal Theme 6: Strategic and Well-Planned Growth *Leadership in effective and sustainable growth that supports Richmond's physical and social needs*	**6.1** Ensure an effective OCP and ensure development aligns with it. **6.2** "Green" and circular economic growth and practices are emphasized. **6.3** Build on transportation and active mobility networks. **6.4** Recognize Richmond's history and heritage through preservation, protection and interpretation. **6.5** Ensure diverse housing options are available and accessible across the housing continuum. **6.6** Growth includes supports and/or services for Richmond's vulnerable populations, including youth, seniors, individuals with health concerns, and residents experiencing homelessness.
Goal Theme 7: A Supported Economic Sector *Facilitate diversified economic growth through innovative and sustainable policies, practices and partnerships.*	**7.1** Demonstrate leadership through strategic partnerships, collaborations and exploring innovative and emerging economic practices and technical advancements. **7.2** Encourage a strong, diversified economic base while preserving agricultural land and maximizing the use of industrial land. **7.3** Attract businesses to locate in Richmond and support employment and training opportunities in Richmond as we grow. **7.4** Inspire the farming and fishing cultures of tomorrow.
Goal Theme 8: An Engaged and Informed Community *Ensure that the citizenry of Richmond is well-informed and engaged about City business and decision-making.*	**8.1** Increased opportunities for public engagement. **8.2** Ensure citizens are well-informed with timely, accurate and easily accessible communication using a variety of methods and tools.

City of Richmond

Report to Committee

To:	Planning Committee	**Date:**	May 23, 2019
From:	Kim Somerville Manager, Community Social Development	**File:**	07-3300-01/2019-Vol 01
Re:	**Draft Cultural Harmony Plan 2019–2029**		

Staff Recommendations

1. That the Draft Cultural Harmony Plan 2019–2029, as outlined in the staff report titled "Draft Cultural Harmony Plan 2019–2029", dated May 23, 2019, for the purpose of seeking public feedback on the Draft Plan be approved; and

2. That staff report back with the final Cultural Harmony Plan, including a summary of public feedback.

Kim Somerville
Manager, Community Social Development
(604-247-4671)

Att. 1

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Arts, Culture & Heritage	☑	
Parks Services	☑	
Recreation Services	☑	
Corporate Communications and Marketing	☑	
Human Resources	☑	
Intergovernmental Relations and Protocol	☑	
Fire & Rescue	☑	
Emergency Programs	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:**	**APPROVED BY CAO**

Staff Report

Origin

On December 5, 2016, City Council approved the development of the Cultural Harmony Plan as a response to Richmond's changing demographics and its implications for the city's social cohesion. The Cultural Harmony Plan is intended to further enhance and build on the City's social inclusion practices as they relate to cross-cultural awareness, newcomer integration, and intercultural understanding; it is also intended to support the implementation of recommended actions identified in the Council-adopted Social Development Strategy 2013–2022.

The development of the Plan is divided into three phases:

- Phase One: Research Cultural Harmony Best Practices;
- Phase Two: Analyze the City's Existing Service Levels and Programs; and
- Phase Three: Recommended actions for a Cultural Harmony Plan.

The purpose of this report is to present the Draft Cultural Harmony Plan 2019–2029 and to request that the recommended approach and proposed actions be approved for the purpose of seeking public feedback.

This report supports the following actions defined in the Social Development Strategy 2013–2022:

> *Action 16 - Improve the City's cultural competence through monitoring the intercultural sensitivity and inclusiveness of corporate policies and practices.*
>
> *Action 17 - Improve employment opportunities for immigrants with foreign training and credentials.*
>
> *Action 19 - Create opportunities to showcase Richmond's cultural diversity and facilitate intercultural dialogue.*

Analysis

On January 15, 2018, a set of Guiding Principles was adopted by Council to inform the strategic directions and actions of the Draft Cultural Harmony Plan. The Plan's recommended actions strive to enhance existing and future City practices in facilitating and fostering cultural harmony among Richmond's diverse population, which includes long-time residents, immigrants, newcomers, and Indigenous peoples.

Guiding Principles

1. Ensure City policies and practices intentionally promote excellence in equity, respect and intercultural harmony.
2. Align with and complement existing City strategies, plans, processes and practices that seek to address cultural harmony.

3. Provide measurable outcomes related to how the City's diverse communities interact with each other and the City.
4. Facilitate ongoing community engagement as a means to implementing the recommended actions of the Cultural Harmony Plan and ensure that there are opportunities for feedback.
5. Develop actions that support the Richmond Intercultural Advisory Committee's intercultural vision "for Richmond to be the most welcoming, inclusive and harmonious community in Canada".
6. Develop actions that promote and facilitate cultural inclusion and that are realistic and achievable in the context of available resources, are resilient over time and are flexible enough to be revised.

Alignment with Other City Strategies

Guided by the Official Community Plan and the Social Development Strategy, the City is committed to building on its cultural diversity and promoting an inclusive community. The Draft Cultural Harmony Plan 2019–2029 is a commitment by the City to work with its Community Partners, key stakeholders and citizens to facilitate intercultural understanding among Richmond's diverse communities, reduce barriers faced by different segments of the city's population, and develop programs and services that are inclusive and relevant so that all Richmond residents can participate in various aspects of community life (Attachment 1).

Demographic Trends

Richmond has experienced a significant change in its population over the past three decades. Immigration has been a key driver of population growth in the city. It is now one of the most diverse cities in Canada and holds the distinction of having the largest proportion (60.2 per cent) of residents born outside Canada of any municipality in the country.

Based on Statistics Canada's Census data, the key demographic trends in Richmond include the following:

- There were over 150 different ethnic origins and 100 languages spoken in Richmond in 2016. The most commonly reported ethnic origin was Chinese with 54 per cent of the population.
- In 2016, over three-quarters (76.3 per cent) of Richmond's population identified as visible minority. Richmond has the highest proportion of visible minorities of any municipality in BC and the second highest (after Markham, Ontario) in Canada.
- The proportion of Richmond residents whose mother tongue was English has been declining since 2001 from 44.4 per cent to 33.1 per cent in 2016. The 2016 Census indicates that 44.8 per cent of Richmond residents indicated Chinese as their mother tongue, 33.1 per cent indicated English, 3.9 per cent indicated Tagalog and 2.7 per cent indicated Punjabi.

- In 2016, half (50.6 per cent) of Richmond's recent immigrants had a bachelor's degree or higher, compared to 43.2 per cent of total immigrants and 35.5 per cent of Canadian-born residents.
- Despite the higher level of education attained by recent immigrants in Richmond, almost 10 per cent of recent immigrants were unemployed in 2015, which is higher than Richmond's total immigrant (6 per cent) and Canadian-born (5.6 per cent) labour force.

Steering Committee and Key Stakeholders

A Steering Committee, consisting of City staff from Community Social Development, Community Services Administration, Recreation Services, Richmond Fire and Rescue, and Community Safety and Human Resources, was formed to provide input into the development of the Draft Cultural Harmony Plan. In addition, key stakeholders comprised of representatives from the following organizations were also consulted:

- Richmond Intercultural Advisory Committee;
- Community Associations and Societies;
- Richmond Public Library;
- Avia Employment Services;
- Richmond Family Place;
- Richmond Multicultural Community Services;
- Connections Community Services Society;
- Multicultural Helping House Society;
- Richmond Chinese Community Society;
- Steveston Buddhist Temple;
- Highway to Heaven Association;
- RCMP;
- Richmond School District No. 38;
- Vancouver Coastal Health;
- Chimo Community Services;
- Member of an Indigenous Community; and
- Community member organizer of Richmond Black History Month.

These key stakeholders will be further consulted during the public engagement process of the Draft Cultural Harmony Plan.

Project Process

The Draft Cultural Harmony Plan 2019–2029 was developed based on:

- Analysis of statistics related to demographic information in Richmond;
- Research regarding best practices and promising approaches for enhancing cultural harmony; and

- Stakeholder engagement comprised of meetings with the Steering Committee and Richmond Intercultural Advisory Committee, and interviews with key stakeholders.

The next step in this process is to seek public feedback on the Draft Cultural Harmony Plan.

Engagement and Research Themes

Based on input from the Steering Committee and key stakeholders, statistical research, and a review of best practices, the following common themes emerged in developing the Draft Plan:

- *Enhancing Intercultural Interaction* – Many stakeholders mentioned the importance of facilitating interaction between people of different ethnocultural, racial, religious and other backgrounds. The Plan introduces several actions to encourage positive interaction and direct engagement between diverse communities, including supporting community-based dialogues that facilitate positive intercultural exchange and understanding.
- *Reducing Barriers to Participation* – Targeted approaches that address the unique challenges experienced by immigrants and refugees are often utilized by other municipalities to reduce barriers to participation. These include addressing barriers such as cultural and language differences, as well as economic barriers due to the lack of recognition of foreign training and experience. Many stakeholders emphasized the need for programs and services to be reflective of the needs and priorities of Richmond's diverse population in order for all residents to participate in various aspects of community life.
- *Promoting Awareness and Education* – Many stakeholders have identified the need to promote the benefits of an inclusive community that is welcoming of people from all backgrounds, ethnicities and cultures. Celebrating the ethnic and cultural diversity of its citizens, providing cultural competency training to its staff and volunteers, and developing an awareness campaign about the positive benefits of diversity to the community were suggested as effective tools toward achieving this end.
- *Pursuing Partnership and Collaborative Approaches* – Many stakeholders have identified the need for strong partnerships and continued collaborative actions to foster cultural harmony among Richmond's residents. Joint planning and networking with community service organizations are needed in order to share information and identify gaps in program and service delivery.

Draft Cultural Harmony Plan

The Draft Cultural Harmony Plan 2019–2029 is an action-oriented framework intended to guide City and stakeholder involvement in initiatives fostering cultural harmony in Richmond over the next ten years. The Strategy synthesizes information on best practices, local trends and ideas from other municipalities and local stakeholders to identify a set of specific initiatives that seek to foster and enhance cultural harmony among Richmond's diverse population. To guide the collaborative work of all stakeholders, the Plan defines the following vision statement:

That residents of Richmond recognize and respect the presence of diverse groups in the community, acknowledge and celebrate differences, and value and enable each and every group's continued contribution and participation in all aspects of community life.

To assist stakeholders in achieving this vision, the Plan emphasizes five strategic directions:

1. Intercultural connections;
2. Collaboration and partnerships;
3. Targeted training and professional development;
4. Communication and community engagement; and
5. Programs and services.

Under the strategic directions, 27 recommended actions are defined and will be implemented between 2019 and 2029. A portion of these actions are highlighted as ongoing, short term (0–3 years), medium term (4–6 years) or long term (7–10 years). While all 27 actions are important to fostering cultural harmony among Richmond residents, the following actions have been identified as high priority because of the immediate impact they will have in promoting increased intercultural understanding and respect among Richmond residents:

- Celebrate Richmond's diverse cultures and unique heritage through intercultural celebrations and events;
- Support community-based dialogues that facilitate positive intercultural exchange and understanding;
- Pursue opportunities to participate in joint planning and networking with community service organizations and key stakeholders;
- Develop and implement a diversity and inclusion training program for City and Community Partner staff and volunteers; and
- Develop and implement programs and services that promote positive social and intercultural connections within and among diverse cultural, ethnic, and religious populations.

For a comprehensive list of the 27 recommended actions, see Attachment 1.

Public Engagement Process

Staff propose conducting various public engagement activities in Fall 2019, including a survey on Let's Talk Richmond, public open houses and meetings with specific organizations to seek feedback on the draft strategic framework. The input received through these activities will be used to inform the Final Cultural Harmony Plan. The proposed engagement activities are listed in Table 1.

Table 1: Proposed Public Engagement Activities

Activity	Timing	Stakeholders	Location	Format
Eight Stakeholder Meetings	September 4–30, 2019	Key stakeholders, including organizations from the non-profit and private sectors	City Hall and/or other City facilities	Small focus groups with key stakeholders
Let's Talk Richmond website	September 3–30, 2019	People who live, work, and/or participate in the community in Richmond	Online	LetsTalkRichmond.ca
Three Open House Meetings	September 7–27, 2019; Dates and times are being finalized	General Public	Brighouse Library; South Arm Community Centre; and Cambie Community Centre	Open house format with poster boards and comment cards. Staff will be present to answer any questions.

Following the engagement activities, staff will compile the data received from stakeholders and refine the Draft Cultural Harmony Plan. The Final Cultural Harmony Plan 2019–2029, including results of the public engagement process, will be presented to City Council in Fall 2019.

Financial Impact

None.

Conclusion

The Cultural Harmony Plan 2019–2029 is intended to guide the City in addressing cultural harmony priorities, and clearly map out objectives, strategic directions and recommended actions which will act as the framework for implementation. The successful implementation of the Cultural Harmony Plan 2019–2029 will require the commitment of the City's partners, stakeholders and citizens in order to realize the Plan's vision of "*recognizing and respecting the presence of diverse groups in the community, acknowledging and celebrating differences, and valuing and enabling each and every group's continued contribution and participation in all aspects of community life.*"

Dorothy Chua Jo

Dorothy Jo
Inclusion Coordinator
(604-276-4391)

Att. 1: Draft Cultural Harmony Plan 2019–2029

DRAFT

CITY OF RICHMOND
CULTURAL HARMONY PLAN
2019–2029

Richmond

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1.0 EXECUTIVE SUMMARY

The City of Richmond, in collaboration with its key stakeholders and Community Partners[1], has developed the *Cultural Harmony Plan 2019–2029* for Richmond. The purpose of this ten-year plan is to identify innovative and collaborative approaches to strengthen intercultural connections among Richmond residents, provide City programs and services that address the needs of the city's diverse population, and remove barriers to participation for Richmond residents, particularly newcomers and immigrants. This Plan demonstrates the City's leadership in building on its social inclusion practices as they relate to policy development, program and service delivery, community engagement and customer service. It also signifies the City's role in responding to the evolving needs of Richmond's increasingly diverse population, which includes long-time residents, immigrants, newcomers, and Indigenous peoples.

Richmond is one of the most diverse cities in Canada with over 60 per cent of its population born outside the country, the highest proportion of any municipality nationwide. The diversity of Richmond's population presents both opportunities and challenges for the community. Richmond's diversity contributes significantly to community vibrancy and enrichment, however it also presents some challenges in terms of communication, intercultural understanding and potential marginalization of segments of the population.

The City of Richmond has a strong tradition of addressing social issues in its planning practices and service delivery. The City's Community Services Division works collaboratively with key stakeholders and Community Partners in developing programs and services to address the needs of vulnerable populations, facilitating intercultural understanding and supporting community capacity. Building on the priorities and actions identified in the Council-adopted *Social Development Strategy 2013–2022*, the Cultural Harmony Plan defines a new vision statement, five strategic directions and a set of recommended actions that support cultural harmony in Richmond. The vision for the *Cultural Harmony Plan 2019–2029* is:

"That Richmond residents recognize and respect the presence of diverse groups in the community, acknowledge and celebrate differences, and value and enable each and every group's continued contribution and participation in all aspects of community life."

To achieve this vision, the Plan provides five strategic directions:

1. Intercultural Connections;
2. Collaboration and Partnerships;
3. Targeted Training and Professional Development;
4. Communication and Community Engagement; and
5. Programs and Services.

[1] Community Partners are Community Associations and Societies with which the City operates community facilities.

The *Cultural Harmony Plan 2019–2029* is a commitment by the City of Richmond to work with its Community Partners, key stakeholders and citizens to facilitate intercultural understanding among Richmond's diverse communities, reduce barriers faced by different segments of the city's population, and develop programs and services that are inclusive and relevant so that Richmond residents can participate in all aspects of community life.

2.0 INTRODUCTION

The *Cultural Harmony Plan 2019–2029* is an action-oriented framework intended to guide City and stakeholder involvement in cultural harmony initiatives over the next ten years. Cultural harmony is defined in the plan as the result of achieving "unity in diversity" based on shared values and a common identity. It is achieved when we respect and value diversity, foster and promote a welcoming and inclusive community, and ensure equitable outcomes for all regardless of race, culture, ethnicity and length of time in Canada.

The Draft Plan was developed based on:

- Analysis of statistics related to demographic information in Richmond;
- Research regarding best practices and promising approaches for enhancing cultural harmony; and
- Stakeholder engagement including meetings with the Steering Committee, City of Richmond Intercultural Advisory Committee and consultations with key stakeholders.

Richmond is one of the most culturally and ethnically diverse cities in Canada. The 2016 Census reported that there were over 150 ethnic origins and over 100 languages spoken in Richmond with six out of ten residents born outside of Canada. Visible minorities account for more than three-quarters of the total population, the highest proportion of any municipality in British Columbia and the second highest in Canada. Richmond's changing demographics have implications for the city's social cohesion as its diverse communities may have differing expectations and experiences in relation to civic and community life. In 2016, City Council approved the development of the Cultural Harmony Plan to further enhance and build on the City's social inclusion practices as they relate to policy development, program and service delivery, community engagement and customer service.

The development of the Cultural Harmony Plan is intended to support the implementation of recommended actions identified in the Council-adopted *Social Development Strategy 2013–2022*. The Social Development Strategy guides the City's community social development work and envisions Richmond as an inclusive, engaged and caring community, one that values and builds on its diversity and treats its citizens with fairness and respect.

2.1 The Need for a Cultural Harmony Plan

The Cultural Harmony Plan aims to inform the City's response, within its authority, to fostering and enhancing cultural harmony among Richmond's diverse population through a vision, strategic directions and a comprehensive list of actions. As Richmond's population continues to evolve and the overall proportion of immigrant residents increases, it is important that the City's social fabric be maintained and enhanced. For Richmond to be a culturally harmonious community, it is essential that the unique characteristics, interests and needs of various segments of the population are recognized and addressed. City policies, programs and practices must therefore reflect the needs and priorities of Richmond's diverse communities so that all residents can participate in various aspects of community life.

Fostering cultural harmony among Richmond's residents requires the commitment and collaboration of many stakeholders, including all levels of government, Community Partners, community service organizations and the private sector. The City cannot do it alone. The ongoing involvement of all stakeholders is essential to enhancing cultural harmony among Richmond's residents.

2.2 Steering Committee

A Steering Committee was formed to provide input into the development of the Cultural Harmony Plan. In addition to the Steering Committee, key stakeholders were also consulted. The Steering Committee and key stakeholders comprised of representatives from the following organizations:

- City of Richmond
- City of Richmond Intercultural Advisory Committee
- Community Associations and Societies
- Richmond Public Library
- Avia Employment Services
- Richmond Family Place
- Richmond Multicultural Community Services
- Connections Community Services Society
- Multicultural Helping House Society
- Richmond Chinese Community Society
- Steveston Buddhist Temple
- Highway to Heaven Association
- RCMP
- Richmond School District
- Vancouver Coastal Health
- Chimo Community Services
- Member of an Indigenous Community
- Community member organizer of Richmond Black History Month

2.3 Guiding Principles

The following principles, developed in partnership with the Steering Committee, provided a decision-making framework for the development of the Cultural Harmony Plan. It is expected that these principles will continue to provide a framework to guide the Plan's implementation:

- Ensure City policies and practices intentionally promote excellence in equity, respect and intercultural harmony;
- Align with and complement existing City strategies, plans, processes and practices that seek to address cultural harmony;
- Provide measurable outcomes related to how the City's diverse communities interact with each other and the City;

- Facilitate ongoing community engagement as a means to implementing the recommended actions of the Cultural Harmony Plan and ensure that there are opportunities for feedback;
- Develop actions that support the Richmond Intercultural Advisory Committee's intercultural vision *"for Richmond to be the most welcoming, inclusive and harmonious community in Canada"*; and
- Develop actions that promote and facilitate cultural inclusion and that are realistic and achievable in the context of available resources, are resilient over time and are flexible enough to be revised.

2.4 Alignment with Other City Strategies

The City of Richmond has undertaken the development of several plans and strategies that include actions related to the cultural harmony of Richmond residents and the community as a whole. Examples of plans and strategies that provide relevant context and support the Cultural Harmony Plan are outlined below.

Richmond 2041 Official Community Plan

The City of Richmond's Official Community Plan cites the City's commitment to social equity and inclusion, engaging our citizens, and building on social assets and community capacity through the following actions:

- Facilitate the establishment of an equitable and inclusive community, whereby City plans, policies, services and practices respect the diverse needs of all segments of the population;
- Encourage and facilitate the active engagement of all segments of the Richmond population in community affairs; and
- Develop and nurture strong, sustainable and collaborative relationships with senior governments and community service organizations.

Richmond Social Development Strategy 2013–2022

The Social Development Strategy cites the City's commitment to build on Richmond's cultural diversity through the following actions:

- Facilitate the development and coordination of intercultural events and community-based dialogues that provide opportunities for intercultural interaction and awareness;
- Encourage collaborative approaches to ensure that Richmond remains a welcoming and integrated community;
- Establish targeted measures to prevent and respond to incidents of racism in Richmond;
- Establish clear guidelines for providing translation and interpretation services to conduct City business;
- Devise and implement a comprehensive cultural diversity training program for City and Community Partner staff;
- Recognize and reduce barriers faced by new immigrants in accessing City services; and
- Explore opportunities to develop a pilot "apprenticeship" type program targeted at recent immigrants.

Richmond Community Wellness Strategy 2018–2023

The City is committed to prioritizing community wellness in Richmond through the Wellness Strategy. The Strategy identifies innovative and collaborative approaches to impact wellness outcomes for Richmond residents and promote the benefits of active community engagement and healthy lifestyles for all residents. The Strategy strives to be inclusive, equitable and respectful, and celebrate diversity. Through this Strategy, the City commits to:

- Enhance physical and social connectedness within and among neighbourhoods and communities; and
- Enhance equitable access to amenities, services and programs within and among neighbourhoods.

Richmond Volunteer Management Strategy 2018–2021

The City and its partners rely heavily on volunteers to support the delivery of many events, services, and programs to the community. The City recognizes the important contributions volunteers make in generating community connectedness and vibrancy. The Strategy focuses on supporting volunteers by prioritizing capacity building and providing meaningful opportunities for volunteers to contribute and connect to their community. Volunteerism is a vital starting point for newcomers to gain experience, connections, and social networks in mainstream society.

Richmond Intercultural Advisory Committee Intercultural Strategic Plan 2017–2022

The Intercultural Strategic Plan was developed by the City of Richmond's Intercultural Advisory Committee (RIAC), a Council-appointed committee, to pursue its mandate of enhancing intercultural harmony and strengthening intercultural cooperation in Richmond. To achieve RIAC's intercultural vision *"for Richmond to be the most welcoming, inclusive and harmonious community in Canada,"* the Intercultural Strategic Plan has identified the following four strategic directions:

- Address language, information and cultural barriers;
- Address the perception and reality of racism;
- Explore potential areas of alignment between RIAC intercultural vision and governmental and stakeholder systems; and
- Support the development and integration of Richmond's immigrants.

The City of Richmond has always been proactive in developing and implementing actions related to fostering cultural harmony among its residents. The Cultural Harmony Plan builds on the actions identified in these plans and strategies, and offers new actions to foster and enhance cultural harmony among Richmond's diverse population.

3.0 BACKGROUND

3.1 Stakeholder Roles

Fostering cultural harmony requires collective action from many stakeholders as well as dedicated and sustained funding from the provincial and federal governments. Various governmental and non-governmental parties have a role in strengthening intercultural connections and fostering an inclusive community among Richmond's residents. This section identifies a number of key stakeholders and their roles in building a culturally harmonious society.

Government of Canada

The Government of Canada is responsible for social areas such as heritage, immigration and Indigenous matters. It provides funding for projects and social programs, including funding that is accessible to municipalities, community agencies and other groups. Local Immigration Partnerships (LIPs) are one mechanism through which Immigration, Refugees and Citizenship Canada supports the development of community-based partnerships and locally-driven strategic planning processes in building welcoming and inclusive communities.

The federal government has recognized the diversity of Canadians in regards to race, ethnic origin, colour and religion through the adoption of the 1971 Multiculturalism Policy of Canada and the 1988 Canadian Multiculturalism Act. These policies sought to enhance the multicultural heritage of all Canadians while working to address race relations and eliminate systemic inequalities.

The Multiculturalism Program is one means by which the federal government implements the Canadian Multiculturalism Act and advances its priorities in the area of multiculturalism. Its objectives are to:

- Build an integrated and socially cohesive society;
- Improve the responsiveness of institutions to the needs of a diverse population; and
- Actively engage in discussions on multiculturalism and diversity at the international level.

The Program also collaborates with provinces and territories on mutual priorities through the Federal-Provincial-Territorial Officials Responsible for Multiculturalism Issues (FPTORMI) network.

Province of British Columbia

The provincial government is responsible for health, education and social services. It pursues its mandate through the provision of direct services and through Health Authorities or Crown agencies, as well as contractual arrangements and grant funding with service providers.

In 1993, the Province of British Columbia passed the Multiculturalism Act to recognize the diversity of British Columbians in regards to race, ethnicity, cultural heritage, religion, ancestry and place of origin. The Act sought to promote racial

harmony, cross-cultural understanding and respect, and to foster a society in which there are no barriers to full participation of all British Columbians in the economic, social, cultural and political life of the province.

The Multiculturalism Branch falls under the Ministry of Tourism, Arts and Culture and is responsible for advancing and strengthening multiculturalism in the province. The Multicultural Advisory Council was established to provide advice to the Minister on issues related to multiculturalism and anti-racism. The BC Multiculturalism Grants program helps organizations work to improve cross-cultural and intercultural interaction, and reduce systemic and institutional barriers for under-represented and racialized groups. Other initiatives include the Organizing Against Racism and Hate Program, BC Hate Crimes Team, and Multicultural and Anti-Racism Awards. The WelcomeBC website is where new residents to British Columbia can find information, tools and resources on getting settled, finding employment, and contributing and participating in their community. The BC Newcomer's Guide is also available in different languages.

Local Government

Local governments are generally responsible for areas directly related to local communities, such as the management of policing and firefighting services, roads and transportation, municipal zoning and economic development, library and educational facilities, and parks, recreations and culture. They also play a role in promoting the health and well-being of their residents.

On March 25, 1991, Richmond City Council adopted a Multiculturalism Policy that states that the City:

- Values both cultural diversity and a multicultural community as a source of enrichment and strength;
- Supports the right of all persons to freedom from cultural/racial discrimination;
- Supports the right of all persons to equal opportunity and participation in community affairs;
- Is committed to ensuring that City bylaws, policies and programs, service delivery and employment practices address these principles;
- Is committed to implementing this policy and directs City staff, boards, commissions and committees to meet these principles in carrying out their duties; and
- Encourages all community groups to adopt similar policies for their organizations.

The following are some of the roles the City plays in promoting cultural harmony:

- **Advocate:** The City works with community organizations to advocate to senior levels of government for funding and programs that improve intercultural awareness and understanding, reduce barriers and create a more inclusive society;
- **Planner:** The City monitors local data and best practice research regarding cultural harmony to update its policies and implement actions that build on its social inclusion practices;

- **Communicator:** The City educates and promotes the benefits of an inclusive community that is welcoming of people from all cultures, ethnicities and places of origin;
- **Facilitator:** The City strengthens the capacity of community organizations representing the interests of diverse communities by facilitating collaboration; and
- **Partner:** The City partners with senior levels of government and community groups to address the needs and concerns of its citizens.

Community Partners

The City partners with Community Associations and Societies (Community Partners) to provide recreation, sport, and arts, culture and heritage opportunities to all Richmond residents. The City provides the facilities and core staffing, and the Associations and Societies plan and fund most programs and events through their respective facilities. The City's Community Partners help foster cultural harmony by strengthening community connections through programs, services and events that are reflective of the needs of Richmond's diverse population, foster a sense of belonging, and promote intercultural connections among the city's residents.

Community Service Organizations

Community service organizations are non-profit social service agencies that provide valuable social services to immigrants and refugees in Richmond. They are well positioned to identify needs and barriers, participate in joint planning and advocate on issues affecting newcomer communities in Richmond. These organizations deliver culturally and linguistically appropriate services, which include:

- English language learning;
- Information on housing and education;
- Referrals to government programs and services;
- Career mentoring;
- Labour market and employment;
- Networking;
- Support groups;
- Income Tax clinics; and
- Community events.

In addition to these important services, community service organizations continue to advocate on behalf of newcomer communities for additional resources.

Ethno-cultural and Faith-based Community Groups

Ethno-cultural and faith-based organizations play an important role in helping immigrants and refugees settle and integrate into Canadian society. These organizations often serve as first points of contact for many new arrivals and help diversify and strengthen their social networks. Some of the ethno-cultural and faith-based community groups also provide settlement services, such as information on jobs and housing, English language training and networking

opportunities. It is important to recognize the role ethno-cultural and faith-based organizations can play in immigrants' economic and social integration, and participation in community life particularly through activities that focus on building bridges with the broader community.

Richmond School District No. 38

Schools are important partners in strengthening intercultural connections as they serve families from all socio-economic and ethno-cultural backgrounds. The Settlement Workers in Schools (SWIS) program helps new immigrants and refugees get settled and connected with services and resources in the community. SWIS workers provide information workshops on the school system, English Language Learners (ELL) support, housing and accommodation, transportation, and health, financial and legal services. They also provide settlement counselling and referrals to community resources.

Business Community

The private sector has an important role to play in integrating immigrants and refugees into Canadian society. Many members of the business community are both employers and Richmond residents. Their decisions and actions have a direct impact on employment levels, income and overall quality of life in the community. Businesses can offer mentoring opportunities and assist with sponsorship of programs and events to foster the full participation of all Richmond residents in the social, cultural, economic and political life of the city.

3.2 Richmond's Population

Richmond has experienced a significant change in its population over the last three decades. It is now one of the most diverse cities in Canada and holds the distinction of having the largest proportion (60.2%) of residents born outside Canada of any municipality in the country. This section identifies current and emerging trends based on an analysis of available data and statistics from various data sources[2].

Richmond's current population is estimated at 227,406[3]. Immigration has been a key driver of population growth in the city. Richmond received the fourth-largest number of recent immigrants between 2011 and 2016, trailing Vancouver, Surrey and Burnaby. Since 2001, there has been a 34 per cent increase in Richmond's immigrant population. Figure 1 highlights the population and immigration trends for Richmond and Metro Vancouver from 2001 to 2016.

Figure 1: Population and Immigration Trends for Richmond and Metro Vancouver (2001–2016)

Year	Richmond			Metro Vancouver		
	Total Population	Immigrant Population	% of Immigrants[4]	Total Population	Immigrant Population	% of Immigrants[5]
2016	198,309	118,305	60.2%	2,463,431	989,540	40.8%
2011	190,473	112,875	59.6%	2,313,328	913,310	40.0%
2006	174,461	99,660	57.1%	2,116,581	831,265	39.6%
2001	164,345	88,300	53.7%	1,986,965	738,550	37.5%

[2] Data sources include Statistics Canada, 2001, 2006, 2011 and 2016 Census, 2011 National Household Survey, and NewToBC Immigrant Demographics Richmond, BC 2018 report.

[3] City of Richmond projections (with Urban Futures Inc.) as of January 2019.

[4] The percentages in this column are based on a population figure that does not include people living in collective dwellings. A collective dwelling is defined by Statistics Canada as "a dwelling of a commercial, institutional or communal nature... included are lodging or rooming houses, hotels, motels, tourist establishments, nursing homes, hospitals, staff residences, military bases, work camps, jails, group homes, and so on."

[5] ibid.

Between January 1, 2011 and May 10, 2016, there were 15,245 immigrants who arrived in Richmond from countries all over the world. China remains the top country of origin for recent immigrants with close to 59 per cent, while the Philippines have replaced Hong Kong as the second country, with 14 per cent of the recent immigrant population. For comparison's sake, immigrants refer to those who were born outside Canada and have been a landed immigrant or permanent resident; recent immigrants refer to those who arrived in Canada within the past five years. Figure 2 highlights the countries of origin for recent immigrants to Richmond and Metro Vancouver.

Figure 2: Top Places of Birth for Richmond and Metro Vancouver (2016)

Richmond						Metro Vancouver		
Total Immigrants		Percentage	Recent Immigrants		Percentage	Recent Immigrants		Percentage
China	42,755	36.1%	China	8,940	58.6%	China	35,895	25.2%
Hong Kong	23,185	19.6%	Philippines	2,135	14.0%	India	21,380	15.0%
Philippines	12,985	11.0%	India	565	3.7%	Philippines	20,205	14.2%
Taiwan	7,525	6.4%	Hong Kong	485	3.2%	Iran	8,315	5.8%
India	5,080	4.3%	Taiwan	470	3.1%	Korea, South	6,640	4.7%
United Kingdom	2,760	2.3%	Pakistan	270	1.8%	United States	4,065	2.9%
United States	1,480	1.3%	Japan	190	1.2%	United Kingdom	3,855	2.7%
Japan	1,340	1.1%	United States	185	1.2%	Taiwan	2,325	1.6%
Vietnam	1,050	0.9%	Korea, South	170	1.1%	Mexico	2,295	1.6%
Pakistan	1,035	0.9%	Russian Federation	150	1.0%	Iraq	1,850	1.3%
Other Places	19,110	16.2%	Other Places	1,685	11.1%	Other places	35,705	25.1%
Immigrant Population	118,305	100.0%	Recent Immigrant Population	15,245	100.0%	Recent Immigrant Population	142,530	100.0%

Ethnicity

There were over 150 different ethnic origins[6] and 100 languages spoken in Richmond in 2016. The most commonly reported ethnic origin was Chinese with 54 per cent of the population. This proportion has grown from 34 per cent in 1996, 45 per cent in 2006 and 54 per cent in 2016. The ten most common ethnic origins are highlighted below in Figure 3.

Figure 3: Top Ethnic Origins for Richmond and Metro Vancouver (2016)

Richmond		Metro Vancouver	
Chinese	107,080	**Chinese**	499,175
English	18,015	**English**	470,340
Filipino	15,480	**Scottish**	341,075
Canadian	13,540	**Canadian**	331,205
Scottish	12,990	**Irish**	275,355
East Indian	12,335	**East Indian**	243,135
Irish	9,960	**German**	222,025
German	8,525	**French**	147,715
French	5,445	**Filipino**	133,925
Japanese	4,925	**Ukrainian**	94,400
Total Population	**196,660**	**Total Population**	**2,426,235**

[6] Statistics Canada defines ethnic origin as the "ethnic or cultural origins of the person's ancestors." A person's ancestors are usually more distant than grandparents. A person can have more than one ethnic origin.

In 2016, over three-quarters (76.3%) of Richmond's population identifed as a visible minority[7]. Richmond has the highest proportion of visible minorities of any municipality in British Columbia and the second highest (after Markham, Ontario) in Canada. The predominant visible minority group in Richmond was Chinese, at 53 per cent of the total population. Figure 4 highlights the ten most common visible minority groups in Richmond.

Figure 4: Top Visible Minority Groups for Richmond and Metro Vancouver (2016)

Richmond		Metro Vancouver	
Chinese	104,185	**Chinese**	474,655
South Asian	14,360	**South Asian**	291,005
Filipino	13,575	**Filipino**	123,170
Japanese	3,940	**Korean**	52,980
Southeast Asian	1,955	**West Asian**	46,010
Latin American	1,585	**Southeast Asian**	44,905
Arab	1,485	**Latin American**	34,805
Korean	1,290	**Japanese**	30,110
Black	1,270	**Black**	29,830
West Asian	1,230	**Arab**	16,430
Total visible minority population	150,015	**Total visible minority population**	1,185,680
Total population	**196,660**	**Total population**	**2,426,235**

Aboriginal Population

In Richmond, a total of 1,600 people reported Aboriginal identity in the 2016 Census, which accounted for 0.8 per cent of the total population. Of this total, 58 per cent identified as First Nations, 38 per cent as Metis and 2 per cent as Inuit. Compared to Metro Vancouver, a total of 61,455 people reported Aboriginal identity, which accounted for 2.5 per cent of the total population; 58 per cent identified as First Nations, 38 per cent Metis and less than 1 per cent as Inuit.

[7] A visible minority is defined by Statistics Canada as "persons, other than Aboriginal persons, who are non-Caucasian in race or non-white in colour."

Language

In 2016, close to three-quarters of Richmond's recent immigrants spoke another language other than English or French most often at home. In contrast, two-thirds of Richmond's total immigrant population spoke neither English nor French most often at home. While Cantonese is still the top Chinese language spoken at home in general, Mandarin has been steadily catching up with 44.3 per cent of recent immigrants speaking it at home compared to 10.4 per cent who speak Cantonese. The top five non-official home languages spoken in Richmond and Metro Vancouver are highlighted in Figure 5.

Figure 5: Top Non-Official Home Languages Spoken for Richmond and Metro Vancouver (2016)

Richmond						Metro Vancouver		
Total Immigrants		Percentage	Recent Immigrants		Percentage	Recent Immigrants		Percentage
Cantonese	30,860	26.1%	**Mandarin**	6,760	44.3%	**Mandarin**	26,905	18.9%
Mandarin	26,655	22.5%	**Cantonese**	1,585	10.4%	**Punjabi**	12,940	9.1%
Tagalog	3,755	3.2%	**Tagalog**	845	5.5%	**Tagalog**	7,790	5.5%
Punjabi	2,240	1.9%	**Arabic**	300	2.0%	**Persian**	7,055	4.9%
Russian	1,315	1.1%	**Russian**	240	1.6%	**Cantonese**	6,095	4.3%
Other Non-Official Languages	9,795	8.3%	**Other Non-Official Languages**	1,520	10.0%	**Other Non-Official Languages**	27,785	19.4%
Total Immigrants	**118,305**	**100%**	**Recent Immigrants**	15,245	100%	**Recent Immigrants**	142,535	100%

Source: NewToBC Immigrant Demographics Richmond, BC 2018.

In Richmond, the proportion of residents whose mother tongue[8] was English has been declining since 2001 from 44.4 per cent to 33.1 per cent in 2016. The 2016 Census indicates that 43.7 per cent of Richmond residents indicated either Mandarin or Cantonese as their mother tongue, 33.1 per cent indicated English, 3.9 per cent indicated Tagalog and 2.7 per cent indicated Punjabi. Figure 6 highlights the trends by percentage of population with English as their mother tongue for Richmond and Metro Vancouver.

Figure 6: Language Trends with English Only as a Mother Tongue for Richmond and Vancouver (2016)

Year	Richmond	Metro Vancouver
	Percentage	Percentage
2016	33.1%	54.0%
2011	36.6%	56.0%
2006	38.6%	56.7%
2001	44.4%	60.2%

In 2016, more than half of Richmond's immigrants spoke either English or French most often at work. Almost a third (30.4%) of recent immigrants and 18.5 per cent of total immigrants spoke neither English nor French at work, compared to 28.7 per cent of recent immigrants and 17 per cent of total immigrants in 2011. Chinese (Cantonese and Mandarin combined) was the non-official language most often spoken at work by both recent immigrants and total immigrants (see Figure 7).

Figure 7: Top Non-Official Languages Spoken Most Often at Work in Richmond (2016)

Richmond				Metro Vancouver	
Total Immigrants		Recent Immigrants		Recent Immigrants	
Cantonese	9.0%	Mandarin	22.1%	Mandarin	6.9%
Mandarin	8.2%	Cantonese	5.4%	Punjabi	4.5%
Punjabi	0.3%	Japanese	0.6%	Cantonese	2.4%
Non-Official Languages	18.5%	Non-Official Languages	30.4%	Non-Official Languages	17.8%

Source: NewToBC Immigrant Demographics Richmond, BC 2018.

[8] Mother tongue is defined by Statistics Canada as "the first language learned at home in childhood and still understood by the person at the time the data was collected."

Education

In 2016, half (50.6%) of Richmond's recent immigrants had a bachelor's degree or higher, compared to 43.2 per cent of total immigrants and 35.5 per cent of Canadian-born residents (see Figure 8). These figures are similar to Metro Vancouver, with 53.2 per cent of recent immigrants and 41.7 per cent of total immigrants having a bachelor's degree or higher, compared to 33.6 per cent of their Canadian born counterparts.

Figure 8: Highest Level of Education for Recent Immigrants, Total Immigrants and Canadian Born in Richmond (2016)

	Richmond			Metro Vancouver		
	Canadian Born	Total Immigrants	Recent Immigrants	Canadian Born	Total Immigrants	Recent Immigrants
University Certificate, diploma or degree at bachelor level or above	35.5%	43.2%	50.6%	33.6%	41.7%	53.2%
College, CEGEP or other non-university certificate or diploma	21.3%	15.0%	13.0%	22.4%	15.7%	11.2%
Apprenticeship or trades certificate or diploma	7.0%	3.6%	2.2%	8.3%	5.0%	3.4%
Secondary (high) school diploma or equivalency certificate	27.4%	24.2%	19.8%	25.8%	22.8%	17.4%

Source: NewToBC Immigrant Demographics Richmond, BC 2018.

Labour Market Participation

Despite the higher level of education attained by recent immigrants in Richmond, almost 10 per cent of recent immigrants were unemployed[9] in 2015, which is higher than Richmond's total immigrant (6%) and Canadian-born (5.6%) labour force. Figure 9 shows the employment and unemployment rates for the population aged 15 years and over.

Figure 9: Labour Market Participation Rates in Richmond (2015)

	Richmond			Metro Vancouver		
	Canadian Born	Total Immigrants	Recent Immigrants	Canadian Born	Total Immigrants	Recent Immigrants
Population aged 15 years and over	55,530	113,915	12,970	1,112,275	952,340	122,620
In the labour force	35,565	67,160	7,390	769,910	585,610	80,025
Participation rate	64.1%	59.0%	57.0%	69.2%	61.5%	65.3%
Employment rate	60.4%	55.4%	51.3%	65.3%	57.8%	59.2%
Unemployment rate	5.6%	6.0%	9.9%	5.7%	5.9%	9.3%

Source: NewToBC Immigrant Demographics Richmond, BC 2018.

[9] Statistics Canada defines unemployed persons as those who "were available for work and were either on temporary layoff, had looked for work in the past four weeks or had a job to start within the next four weeks."

More significantly, the median income of Richmond's recent immigrant population was $15,834, notably less than the median income of $23,102 for the immigrant population and $25,842 for the total population. In 2015, 40.7 per cent of Richmond's recent immigrant population were in the low-income bracket, compared with 26.1 per cent of the total immigrant population and 22.4 per cent of the total population (see Figure 10).

Figure 10: Total Income for Richmond and Metro Vancouver (2015)

	Richmond			Metro Vancouver		
	Total Population	Total Immigrants	Recent Immigrants	Total Population	Total Immigrants	Recent Immigrants
Population aged 15 years and over	169,445	113,915	12,970	2,064,585	952,340	122,620
Average income	$38,039	$34,720	$22,487	$46,821	$40,437	$28,845
Median income	$25,842	$23,102	$15,834	$32,612	$27,642	$19,625
Prevalence of low income in 2015[10]	22.4%	26.1%	40.7%	16.5%	20.5%	33.5%

Source: NewToBC Immigrant Demographics Richmond, BC 2018.

[10] Based on the Low-income measure, after tax (LIM-AT).

When compared with those who worked full-time for a full year, Richmond's recent immigrant population also earned 27.7 per cent less than the total immigrant population and 37.5 per cent less than Richmond's total population. Figure 11 shows the employment income of individuals aged 15 years and over.

Figure 11: Employment Income for Richmond and Metro Vancouver (2015)

	Richmond			Metro Vancouver		
	Total Population	Total Immigrants	Recent Immigrants	Total Population	Total Immigrants	Recent Immigrants
Population aged 15 years and over	169,445	113,915	12,970	2,064,585	952,340	122,620
Population who worked full year, full time in 2015	46,015	29,285	2,015	637,390	258,940	25,630
Average income	$61,759	$57,616	$43,975	$67,916	$61,567	$53,737
Median income	$51,059	$47,420	$37,128	$54,955	$49,407	$41,559

Source: NewToBC Immigrant Demographics Richmond, BC 2018.

4.0 NEEDS ANALYSIS

The diversity of Richmond's population presents plenty of opportunities for community vibrancy and enrichment, however, it also presents some challenges, particularly in terms of communication, cross-cultural understanding, integration and the potential marginalization of some segments of the population. Richmond already has a strong network of dedicated social service agencies, community organizations, advocates and government partners that are committed to fostering and promoting intercultural harmony in the community. A key aspect of the Cultural Harmony Plan is to build on the City's social inclusion practices as well as the existing strengths and capacities of its partners and key stakeholders. The following needs analysis helps to identify strengths, gaps and opportunities based on an analysis of available data and qualitative information provided by local stakeholders.

Community Capacity-Building

Strengths: Richmond's strength lies in the strong network of dedicated social service agencies and community organizations that help settle and integrate newcomers into the community and work towards cultural harmony. The City collaborates with various organizations through joint planning tables to share information and identify gaps in service delivery. In addition, the City has been providing the annual City Grant Program to build community and organizational capacity to provide programs for residents and promote partnerships with other funders and organizations.

Gaps: Despite the many strong collaborative partnerships in Richmond, gaps still exist. Many community organizations are facing significant challenges, such as limited funding and competition for contracts and short-term project grants. Most social service agencies do not have the resources to introduce programs that meet locally identified needs or plan for the long-term integration of immigrants because most of their funding is tied to the delivery of specific services.

Opportunities: While municipalities have the authority to plan for social issues, they have limited responsibility and funding for the delivery of social services. An opportunity in this area would be for the City to work with senior levels of government to advocate for long-term funding opportunities to community organizations that represent the interests of diverse communities.

Public Education and Awareness

A welcoming population is the foundation of culturally harmonious communities. The attitudes of residents towards immigrants have a strong impact on immigrants' sense of belonging and reported satisfaction with life in Canada.

Strengths: The City has a full-time Inclusion Coordinator who is responsible for developing culturally-appropriate strategies and initiatives that promote cross-cultural awareness and community inclusion. The City also holds an annual Diversity Symposium which provides cultural competency training opportunities to City, Community Partner, non-profit and social service agency

staff, and volunteers so they can better understand how to work with the diverse communities in Richmond, and deliver programs and services that are welcoming and inclusive of everyone.

Gaps: It is important to foster residents' positive attitudes toward cultural diversity and the presence of newcomers in the community because positive attitudes are closely related to other indicators such as social engagement and lack of discrimination in the workplace. There is a need to make residents more aware of the social and economic contributions of newcomers to the community, as well as the barriers faced by newcomers, in terms of language and culture, among others. Newcomers also need support in adjusting to the social norms of the host community and accessing information that would enhance their participation in the social, cultural, economic and political life of the community.

Opportunities: There is an opportunity for the City to promote the benefits of an inclusive community that is welcoming of people from all backgrounds, ethnicities, and cultures. There are also other opportunities to enhance awareness and education, such as promoting the value of immigration to the public, informing residents about the diversity existing within the community, teaching residents how to communicate with limited English speakers, and how to interact with diverse groups. In addition, the City can work with its key stakeholders and the media to highlight the contributions of immigrants to Richmond. The private sector can also be made aware of the benefits of cross-cultural sensitivity training for their businesses.

An Interculturalism Model

Over the past decade, there has been a shift from multiculturalism towards interculturalism. Multiculturalism recognizes the diversity of all citizens in regards to race, ethnicity, culture, religion, ancestry and place of origin. Interculturalism builds on the principles of multiculturalism by not only recognizing diversity but also focusing on the mutual exchange of ideas and cultural norms between and among diverse populations. The emphasis is on building relationships with people across all cultures and breaking down barriers in the community.

Strengths: The City has a Council-appointed advisory body, the Richmond Intercultural Advisory Committee, acts as a resource to City Council regarding intercultural issues in Richmond and provides an intercultural lens on City strategies and initiatives. In addition, the City in partnership with its Community Partners, community service organizations and key stakeholders, organize events that bring people of all backgrounds together through festivals and programs, such as Doors Open and Richmond World Festival. Richmond's various community service organizations also do a significant amount of work in celebrating diversity and promoting intercultural understanding through their many programs and services.

Gaps: There is still some work to be done in linking immigrants with mainstream organizations and institutions. There is a need for programs and activities that encourage positive interaction between cultural, religious and ethnic communities, and especially between newcomers and long-time residents.

Opportunities: Many programs and services already exist in the community that bring people of all backgrounds together. However, there is an opportunity to incorporate intercultural elements into programs that allow participants to get to know each other and create something new together. These activities can help facilitate relationship building and increase intercultural understanding. Training on interculturalism can be offered to City and Community Partner staff and volunteers so they are equipped to deliver programs and services that facilitate intercultural relationship building. An intercultural lens can be applied by the City, with the help of the Richmond Intercultural Advisory Committee, in the development and implementation of policies, programs and practices. The City can also encourage community service organizations to incorporate intercultural elements into their programs and events through the City Grant Program.

Reduce Barriers to Participation

A culturally harmonious society is characterized by active participation and broad equality of opportunities among all Richmond's residents. Immigrants who face language, cultural, religious and ethnic barriers are less likely to participate fully in the social, economic, cultural and political life of society.

Strengths: In partnerships with Community Associations and Societies, the City strives to provide programs and events that reflect the needs of Richmond's diverse population so residents can participate in community life. The City also translates some documents into other languages so residents can access information that affects their lives. Richmond's immigrant-serving agencies provide a variety of support services for immigrants and refugees to help them get settled, find careers and make new connections through support groups, English classes and employment programs.

Gaps: One of the main challenges faced by skilled immigrants in Richmond is finding jobs that are equivalent to their training and experience. Despite a higher level of education and considerable job experience attained by recent immigrants, data shows that they lag behind Richmond's total immigrant and Canadian-born labour force in terms of employment rates and total income (see Figures 9 and 10 on pages 16 and 17). Newcomers are turned down due to lack of Canadian experience or accredited Canadian academic credentials. In addition, the 2016 Census shows that 11 per cent of Richmond's population neither speaks English nor French. A key challenge is to find ways to engage with this population so they can participate in the socio-economic life of the city.

Opportunities: Volunteer and internship opportunities are often crucial starting points for newcomers to gain meaningful experience, connections and social networks in the community. In order to improve employment opportunities for immigrants with foreign training and credentials, internship programs targeted at recent immigrants can be explored by the City and its key stakeholders, including the business sector. Developing translation and interpretation guidelines, and using different communication methods and tools, to engage with multilingual communities are ways to reduce the barriers to participation for some segments of Richmond's population. There is an opportunity for the City to work with immigrant-serving organizations to identify barriers immigrants face that hinder them from participating in programs and services at City facilities.

5.0 BEST PRACTICES REVIEW

To inform the development of the Cultural Harmony Plan, the City undertook a review of best practices from other municipalities in Canada. Ten similarly diverse municipalities were chosen based on the following criteria:

- Cities of similar size as Richmond, considering growth potential for the next 10 years;
- Cities with a significant newcomer and immigrant population as a percentage of the total population;
- Cities with comparable socioeconomic characteristics to Richmond; and
- Cities that have a track record for proactively addressing cultural harmony issues and a demonstrated commitment to cultural harmony practices.

The ten municipalities chosen for a review of best practices include:

1. Brampton, Ontario;
2. Burnaby, British Columbia;
3. Calgary, Alberta;
4. Coquitlam, British Columbia;
5. Edmonton, Alberta;
6. Hamilton, Ontario;
7. Mississauga, Ontario;
8. Surrey, British Columbia;
9. Vancouver, British Columbia; and
10. Winnipeg, Manitoba.

Evaluation criteria were developed to assess the best practices in terms of accountability, community engagement, customer service, partnerships, staff capacity building and training, programming and volunteer practices. The intent was to identify opportunities for enhancing cultural harmony in Richmond while recognizing that any practice or initiative must be appropriate and feasible to the local context.

The ten comparator cities each have initiatives that are unique to their community and location. Many municipalities have practices similar to those already in place in Richmond. Common practices include the use of Google Translator which offers multiple languages for City-produced web content and City dashboards that provide updates on cultural harmony-related projects. A few cities offer newcomer services at their facilities and many host an annual Newcomer Day. Workforce training in diversity is also common among the municipalities reviewed.

This section focuses on the key learnings from the best practices review that helped inform the development of the strategic directions and recommended actions in the Draft Cultural Harmony Plan.

Reducing Barriers to Economic Opportunities, Services and Programs

Targeted approaches that address the unique challenges experienced by immigrants and refugees are often utilized by the municipalities reviewed. These include addressing barriers such as cultural and language differences, and the lack of recognition of foreign training and experience, among others. Some municipalities have partnered with institutions and organizations in the community to increase employment opportunities for diverse groups and to break down biases and barriers within their respective organizations.

For example, the City of Vancouver, in partnership with the Immigration Employment Council of British Columbia and service providers such as ISSofBC, MOSAIC, and SUCCESS, offers a mentorship program for new immigrant professionals. By providing an opportunity for City staff to share their knowledge, expertise, and professional networks with the newly arrived immigrant professionals, the City helps to build a more culturally competent staff team to better serve diverse communities. The City of Surrey has partnered with immigrant-serving agencies to offer settlement services at their facilities, covering topics such as employment, schools, health care and other newcomer orientation services. Surrey's Settlement Services in Recreation Centres program is available to newcomers in a number of different languages.

A review of best practices suggests that using a variety of communication methods to reach different target audiences helps enhance understanding and participation. Some municipalities, like Mississauga for instance, use Google Translator to translate all City-produced content in multiple languages and the 311 phone service to provide direct access to non-emergency municipal government information in more than 150 languages. Other municipalities, such as Burnaby and Coquitlam, maintain a volunteer language bank of City employees who speak languages other than English. When available, these staff members provide interpretation services for residents seeking information on City services.

Many municipalities provide settlement-related resources that are available to newcomers in their respective communities. Some municipalities, including Richmond, publish a Newcomers Guide that lists various settlement-related information, such as service providers and language classes. Other municipalities, such as Calgary and Hamilton, have a City webpage that provides newcomer settlement information. The City of Coquitlam hosts an annual Welcome to Coquitlam event so newcomers can learn about City programs and services. Different City departments are on hand to talk about a broad range of topics, including recycling and garbage services, and parks and recreation activities. Community agencies offering essential services for new residents are also at the event to provide information that would help new arrivals adjust to the community. The City of Winnipeg's annual Newcomer Family Fair is designed to welcome new arrivals to the city and connect them with services.

Enhancing Intercultural Interaction

Many municipalities recognize the importance of facilitating intercultural understanding and interaction between people of different ethno-cultural, racial, religious and other backgrounds. The goal is to encourage positive interaction and direct engagement between diverse communities in order to help break down misconceptions about each other.

One of the priority actions identified in the City of Calgary's Cultural Plan for Calgary is building interactions and exchange between ethno-cultural communities, Indigenous communities and Calgary's cultural organizations to develop new programming, funding and exchange opportunities. The City of Vancouver has implemented the Dialogues Projects to increase understanding and strengthen relations between Indigenous and immigrant/non-Indigenous communities. Key initiatives include Dialogue Circles, community research, cultural exchange visits, youth and elders program, and legacy projects. The City of Hamilton's Public Engagement Charter directs the City to create opportunities for residents from different backgrounds to work together through the use of appropriate engagement methods and tools.

Promoting Awareness and Education

Awareness and education are some of the major themes identified in addressing cultural harmony. Celebrating the ethnic and cultural diversity of its citizens through official celebrations and observances is one way municipalities promote awareness and education. The City of Burnaby Storytelling Project is a public awareness campaign that sought to inform and educate Burnaby residents about the value that immigrants and refugees bring to the community. The project trained 22 storytellers who shared their experiences at community events throughout the city and brought awareness to the issues experienced by immigrants and refugees in Burnaby.

Many municipalities offer diversity awareness training to their staff. For example, the City of Edmonton offers mandatory diversity training to all staff and the City of Calgary has committed resources to staff training in order to support and enable effective communication with Calgary's diverse communities. The City of Hamilton delivers a system-wide Anti-Racism training program and the City of Surrey provides training for front-line staff on settlement services.

The Burnaby Inter-Faith Network, comprised of the City of Burnaby, and local faith and community leaders, organizes a series of events that build knowledge and understanding of Burnaby's diverse faith communities. It envisions Burnaby to be a place where people of different faiths respect each other and live together in harmony.

Pursuing Partnership and Collaborative Approaches

Many municipalities have identified the need for strong partnerships and continued collaborative actions to foster cultural harmony. Often work happens outside of the organization with communities, grassroots organizations, non-profits and other stakeholders. Many municipalities, including Richmond,

participate in Local Immigration Partnerships which support the integration of immigrants and refugees in their respective communities. Some municipalities, such as Burnaby, Vancouver, Calgary and Edmonton, are members of the Canadian Coalition of Municipalities Against Racism and Discrimination. This network brings together municipalities to undertake initiatives that improve their policies against racism, discrimination, exclusion and intolerance.

The City of Brampton has partnered with faith communities to respond to emergencies through the Lighthouse Project. Brampton recognizes that faith-based organizations are already serving vulnerable populations and their sites can be used as meeting points for people needing guidance and support during emergencies. This is an example of an innovative project that taps into an already existing network to serve diverse populations in the community.

6.0 STRATEGIC FRAMEWORK

The *Draft Cultural Harmony Plan 2019–2029* sets out five strategic directions and 27 recommended actions to be completed over a ten-year period. The recommended actions build upon ongoing initiatives and work that has been accomplished to date, consider current and emerging needs, and seek to foster collaboration and cooperation among stakeholders.

6.1 Definition, Vision, and Guiding Principles

Definition of Cultural Harmony

Cultural Harmony is the result of achieving "unity in diversity" based on shared values and a common identity. It is achieved when we respect and value diversity, foster and promote a welcoming and inclusive community, and ensure equitable outcomes for all regardless of race, culture, ethnicity, and length of time in Canada.

The vision for the Cultural Harmony Plan 2019–2029 is:

"That residents of Richmond recognize and respect the presence of diverse groups in the community, acknowledge and celebrate differences, and value and enable each and every group's continued contribution and participation in all aspects of community life."

The *Draft Cultural Harmony Plan 2019–2029* includes five strategic directions that have been identified from and are supported by data and best practice research. The five strategic directions are:

1. Intercultural connections;
2. Collaboration and partnerships;
3. Targeted training and professional development;
4. Communication and community engagement; and
5. Programs and services.

6.2 Actions for Implementation

The 27 recommended actions have been developed to foster cultural harmony in Richmond. Many of the actions build on the priorities identified in the Social Development Strategy. Each strategic direction includes items for action that are intended to meet the objectives and intended outcomes of each strategic direction. Each action includes an associated timeline for completion, which is characterized as short term (0–3 years), medium term (4–6 years), long term (7–10 years), or ongoing. It is important to acknowledge that while the strategic framework covers a ten-year period, some actions may require adaptation to respond to community needs or opportunities as they arise.

Strategic Direction 1:
Intercultural Connections

Showcasing Richmond's diversity allows residents to have a better understanding and respect for different cultures. Cultural celebrations can be learning opportunities for the host community and allow them to become engaged with the lives of newcomers. These celebrations can also be a way of bringing newcomers into direct engagement with local residents.

One of the ways to foster harmonious relations between cultures is through mutual exchanges that do not seek to eliminate differences but instead facilitate meaningful contact between diverse communities. The City believes that fostering cultural harmony needs to go beyond recognizing and celebrating diversity; it is equally important to encourage opportunities for Richmond residents of diverse backgrounds to interact with and learn from each other. This can lead to increased intercultural understanding and respect, and also increases a sense of inclusion and shared identity for both immigrants and long-term residents.

	Recommended Actions	Timeline
1.	Continue to recognize and celebrate Richmond's diverse cultures and unique heritage through intercultural celebrations and events.	Ongoing
2.	Support and pursue opportunities for community-based dialogues that facilitate positive intercultural exchange and understanding.	Short term
3.	Review the calls to action from the Truth and Reconciliation Commission's (TRC) report and explore opportunities for Richmond to respond.	Short term
4.	Identify and recognize community champions who improve awareness, acceptance and positive relations among people of different cultural and ethnic backgrounds, and between long-time residents and recent immigrants.	Medium term
5.	Incorporate criteria into the City Grant program that supports programs and events that facilitate intercultural interaction and promote intercultural understanding.	Medium term

Strategic Direction 2:
Collaboration and Partnerships

Richmond has a strong network of Community Partners, community service organizations, and ethno-cultural and faith-based community groups that deliver various services in the community. The City has established collaborative partnerships with many of these organizations to identify and meet the needs of Richmond's diverse population. The City values working together to share information, identify gaps in services, and respond to challenges and opportunities in the community.

The City recognizes that an essential part of fostering a culturally harmonious society is building the capacity of Richmond's community service organizations and ethno-cultural community groups. Central to the process of capacity building is access to resources that allows these organizations and groups to serve the unique needs of the diverse communities in Richmond.

	Recommended Actions	Timeline
1.	Continue to work with Richmond Intercultural Advisory Committee (RIAC) members to implement the RIAC Intercultural Strategic Plan and Work Program.	Ongoing
2.	Continue to support the capacity building of community service organizations that serve the needs of Richmond's diverse population.	Ongoing
3.	Pursue opportunities to participate in joint planning and networking with community service organizations in order to share information and identify gaps in program and service delivery.	Short term
4.	Participate in community initiatives that seek to develop mechanisms for responsive action against incidents of racism.	Short term
5.	Pursue programs and funding opportunities provided by senior levels of government regarding cultural harmony initiatives.	Short term
6.	Explore participation in networks that work towards building inclusive societies.	Medium term

Strategic Direction 3:
Targeted Training and Professional Development

Building a culturally harmonious society requires being responsive to the needs and challenges of Richmond's residents. A workforce that understands the diverse populations they serve is essential towards achieving this goal. Equipping staff and volunteers with the knowledge and skills they need to be culturally competent, to understand the value and dimensions of diversity that exist in society, and to develop ideas for fostering inclusion in City facilities will contribute to the development of a culturally harmonious society.

A culturally harmonious society recognizes diversity and places value on that recognition and participation. The understanding and appreciation of the knowledge, skills and experience that newcomers bring into the labour market allow them to obtain employment that is commensurate to their education and work experience and fully contribute to society and economy.

	Recommended Actions	Timeline
1.	Continue to learn and share best practices in diversity and inclusion with staff and volunteers from the City, Community Partners and community service organizations, through the City of Richmond Diversity Symposium and other training opportunities.	Ongoing
2.	Develop and implement a diversity and inclusion training program for City and Community Partner staff and volunteers to better serve Richmond's diverse population.	Short term
3.	Work with immigrant-serving agencies to identify and reduce barriers faced by immigrants in accessing volunteer and employment opportunities with the City of Richmond.	Short term
4.	Explore and implement mentorship and internship opportunities targeted to recent immigrants within the City.	Medium term
5.	Recruit and retain City and Community Partner staff and volunteers that reflect Richmond's diversity.	Long term

Strategic Direction 4:
Communication and Community Engagement

With 60 per cent of Richmond residents born outside of Canada, the City recognizes that responding to the needs and interests of newcomers is an increasingly important part of its mandate. Removing barriers to participation and access to information are important in fostering a culturally harmonious community.

Citizen engagement is a crucial part of the process of promoting a culturally harmonious society because it allows Richmond residents to have a say on issues of public concern. Community engagement strategies that takes into account the unique characteristics, interests and needs of various segments of the population make residents feel valued and respected. City-related information that takes into account the communication skills and channels of different cultural communities allow residents, regardless of cultural backgrounds and language ability, to access key information and provide input on issues affecting them and the community at large.

	Recommended Actions	Timeline
1.	Review and pursue viable options of providing City-related information for newcomers, immigrants and refugees that would assist them in accessing services in the community (i.e. City website).	Ongoing
2.	Develop City-wide translation and interpretation guidelines to expand the engagement of multilingual communities.	Short term
3.	Explore and implement the use of different communication methods, such as multilingual translation services on the City website and interpretive tools for frontline customer service staff, to engage different cultural segments of the population.	Short term
4.	Explore the creation of a corporate community engagement policy with input from under-represented and hard-to-reach communities.	Long term
5.	Promote and increase awareness of the benefits of an inclusive community that is welcoming of people from all backgrounds, ethnicity and cultures.	Long term

Strategic Direction 5:
Programs and Services

The City believes that a culturally harmonious society is a welcoming and inclusive society. It is characterized by a widely shared social experience and the active participation of its residents. Promoting cultural competence at the staff level through training and professional development contributes to cultural competence at the level of program design and implementation.

City programs and services that reflect the needs and priorities of Richmond's diverse population facilitate a sense of belonging and well-being. Offering culturally sensitive activities and services is one way of reducing barriers and promoting social interaction within Richmond's diverse communities.

	Recommended Actions	Timeline
1.	Undertake a comprehensive review of City and Community Partner programs and services from a diversity and inclusion perspective, identifying gaps and improvements.	Ongoing
2.	Review and update the New Canadian Tour program to reflect the needs of the newcomer communities in Richmond.	Short term
3.	Develop and implement City and Community Partner programs and services that promote positive social and intercultural connections within and among diverse cultural, ethnic and religious populations.	Short term
4.	Strengthen relationships with various cultural and ethnic communities in order to integrate their arts, cultural and heritage practices into the City's programs and events.	Short term
5.	Work with immigrant serving agencies and Community Partners to reduce barriers for new immigrants to participate in programs and services at City facilities.	Short term
6.	Consult and seek opportunities for collaboration with the diverse cultural, ethnic and faith organizations in Richmond to gain a better understanding of the needs of Richmond's population and ensure there are a variety of services available in the community.	Medium term

7.0 MONITORING AND EVALUATION

The key actions and outcomes are outlined in Table 1 below and are intended to guide the ongoing monitoring and evaluation of the *Cultural Harmony Plan 2019–2029*. The key outcomes will be used to monitor the effectiveness of the Plan as a whole, as well as the impact of specific projects and programs.

Table 1: City of Richmond Cultural Harmony Plan 2019–2029 Monitoring and Evaluation Framework

Strategic Direction	Actions	Key Outcomes
Intercultural Connections	▪ Continue to recognize and celebrate Richmond's diverse cultures and unique heritage through intercultural celebrations and events. ▪ Support and pursue opportunities for community-based dialogues that facilitate positive intercultural exchange and understanding. ▪ Review the calls to action from the Truth and Reconciliation Commission's (TRC) report and explore opportunities for Richmond to respond. ▪ Identify and recognize community champions who improve awareness, acceptance and positive relations among people of different cultural and ethnic backgrounds, and between long-time residents and recent immigrants. ▪ Incorporate criteria into the City Grant program that supports programs and events that facilitate intercultural interaction and promote intercultural understanding.	▪ Increased awareness and understanding about Richmond's diverse communities. ▪ Increased opportunities for residents to interact and build relationships with each other. ▪ Greater recognition of community champions for the work that they do. ▪ Increased awareness of the history of Indigenous peoples, including the history and legacy of the residential school system.
Collaboration and Partnerships	▪ Continue to work with Richmond Intercultural Advisory Committee (RIAC) members to implement the RIAC Intercultural Strategic Plan and Work Program. ▪ Continue to support the capacity building of community service organizations that serve the needs of Richmond's diverse population. ▪ Pursue opportunities to participate in joint planning and networking with community service organizations in order to share information and identify gaps in program and service delivery. ▪ Participate in community initiatives that seek to develop mechanisms for responsive action against incidents of racism. ▪ Pursue programs and funding opportunities provided by senior levels of government regarding cultural harmony initiatives. ▪ Explore participation in networks that work towards building inclusive societies.	▪ Increased opportunities for collaboration and information sharing among the City, community service organizations and key stakeholders. ▪ Increased City involvement in initiatives that address racism and discrimination. ▪ Increased community capacity to deliver programs that meet local needs.

Strategic Direction	Actions	Key Outcomes
Targeted Training and Professional Development	▪ Continue to learn and share best practices in diversity and inclusion with staff and volunteers from the City, Community Partners and community service organizations, through the City of Richmond Diversity Symposium and other training opportunities. ▪ Develop and implement a diversity and inclusion training program for City and Community Partner staff and volunteers to better serve Richmond's diverse population. ▪ Work with immigrant-serving agencies to identify and reduce barriers faced by immigrants in accessing volunteer and employment opportunities with the City of Richmond. ▪ Explore and implement mentorship and internship opportunities targeted to recent immigrants within the City. ▪ Recruit and retain City and Community Partner staff and volunteers that reflect Richmond's diversity.	▪ Increased awareness about the challenges and barriers faced by diverse communities in Richmond. ▪ Increased opportunities for City and Community Partner staff and volunteers to gain knowledge and skills to respond to the needs of Richmond's diverse population. ▪ Improved volunteer and employment opportunities for immigrants.
Communication and Community Engagement	▪ Review and pursue viable options of providing City-related information for newcomers, immigrants and refugees that would assist them in accessing services in the community (i.e. City website). ▪ Develop City-wide translation and interpretation guidelines to expand the engagement of multilingual communities. ▪ Explore and implement the use of different communication methods, such as multilingual translation services on the City website and interpretive tools for frontline customer service staff, to engage different cultural segments of the population. ▪ Explore the creation of a corporate community engagement policy with input from under-represented and hard-to-reach communities. ▪ Promote and increase awareness of the benefits of an inclusive community that is welcoming of people from all backgrounds, ethnicity and cultures.	▪ Increased access for Richmond residents to key City information. ▪ Increased opportunities for immigrants to participate in various aspects of community life. ▪ Increased opportunities to promote awareness of the social and economic contributions of immigrants to the community.

Strategic Direction	Actions	Key Outcomes
Programs and Services	▪ Undertake a comprehensive review of City and Community Partner programs and services from a diversity and inclusion perspective, identifying gaps and improvements. ▪ Review and update the New Canadian Tour program to reflect the needs of the newcomer communities in Richmond. ▪ Develop and implement City and Community Partner programs and services that promote positive social and intercultural connections within and among diverse cultural, ethnic and religious populations. ▪ Strengthen relationships with various cultural and ethnic communities in order to integrate their arts, cultural and heritage practices into the City's programs and events. ▪ Work with immigrant serving agencies and Community Partners to reduce barriers for new immigrants to participate in programs and services at City facilities. ▪ Consult and seek opportunities for collaboration with the diverse cultural, ethnic and faith organizations in Richmond to gain a better understanding of the needs of Richmond's population and ensure there are a variety of services available in the community.	▪ Enhanced representation of Richmond's diverse communities in programs and events. ▪ Increased opportunities for residents to participate in various aspects of community life. ▪ City demonstrates an increased responsiveness to the needs of a diverse population.

8.0 NEXT STEPS

Moving forward, the City will work with community stakeholders to undertake the recommended actions outlined within the *Cultural Harmony Plan 2019–2029*. An immediate priority is developing and implementing a diversity and inclusion training program for City and Community Partner staff and volunteers. Other short-term actions include promoting the Plan and its actions with senior levels of governments and other stakeholders. The City will monitor the progress of the *Cultural Harmony Plan 2019–2029* and report out to City Council and the community on a biennial basis.

9.0 CONCLUSION

As Richmond's population continues to become increasingly diverse, it is important that the city's social fabric be maintained and enhanced with the full and valued participation of all its residents. Richmond's multicultural communities have so much to offer in terms of community vibrancy and enrichment. The challenge, and opportunity, is to meet the evolving needs of Richmond's diverse population.

The *Cultural Harmony Plan 2019–2029* demonstrates the City of Richmond's leadership in building on its social inclusion practices as they relate to policy development, program and service delivery, community engagement and customer service. It is intended to provide long-term direction to the City in addressing cultural harmony priorities, and clearly map out objectives, strategic directions and recommended actions which will act as the framework for implementation. The *Cultural Harmony Plan 2019–2029* identifies what needs to be accomplished over the next ten years to realize the Plan's vision of *"recognizing and respecting the presence of diverse groups in the community, acknowledging and celebrating differences, and valuing and enabling each and every group's continued contribution and participation in all aspects of community life."*

The successful implementation of the *Cultural Harmony Plan 2019–2029* will require the commitment of City, Community Partners, stakeholders and citizens. The City cannot do it alone. The City will continue to build partnerships and work collaboratively with key stakeholders and other levels of government. This Plan sets the stage for guiding future efforts by the City towards meeting the needs of Richmond's diverse population and ensuring the active participation of all residents in various aspects of community life.

City of Richmond

Report to Committee

To:	Planning Committee	**Date:**	May 30, 2019
From:	Wayne Craig Director, Development	**File:**	RZ 17-766714

Re: **Application by Fougere Architecture Inc. to Amend Schedule 2.14 of Official Community Bylaw 9000 (Hamilton Area Plan), Create the "Town Housing - Hamilton (ZT86)" Zone, and Rezone the Site at 23400, 23440, 23460 and 23500 Gates Avenue and a Portion of Gates Avenue from "Single Detached (RS1/F)" to "Town Housing (ZT86) – Hamilton" and "School & Institutional Use (SI)"**

Staff Recommendations

1. That Official Community Plan Amendment Bylaw 10011, to amend Schedule 2.14 of Official Community Plan Bylaw 9000 (Hamilton Area Plan) to amend the "Circulation Map" and the "Parks, Public Realm and Open Space Map" for the area between Gates Avenue and Gilley Road, be introduced and given First Reading.

2. That Bylaw 10011, having been considered in conjunction with:

   - the City's Financial Plan and Capital Program; and
   - the Greater Vancouver Regional District Solid Waste and Liquid Waste Management Plans.

   is hereby found to be consistent with said program and plans, in accordance with Section 477(3)(a) of the *Local Government Act*.

3. That Bylaw 10011, having been considered in accordance with OCP Bylaw Preparation Consultation Policy 5043, is hereby found not to require further consultation.

4. That Richmond Zoning Bylaw 8500, Amendment Bylaw 9932 to create the "Town Housing (ZT86) - Hamilton" zone, and to rezone 23400, 23440, 23460 and 23500 Gates Avenue and a portion of Gates Avenue from "Single Detached (RS1/F)" to "Town Housing (ZT86) – Hamilton" and "School & Institutional Use (SI)", be introduced and given first reading.

Wayne Craig
Director, Development

WC:mm
Att. 8

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REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Real Estate Services	☑	
Parks Services	☑	
Engineering	☑	
Policy Planning	☑	
Transportation	☑	

Staff Report

Origin

Fougere Architecture Inc. has applied to the City of Richmond to create the new "Town Housing - Hamilton (ZT86)" zone, and to rezone a 8,248 m^2 (2.04 acre) site including 23400, 23440, 23460 and 23500 and a portion of Gates Avenue from "Single Detached (RS1/F)" to "Town Housing - Hamilton (ZT86)" and "School & Institutional Use (SI)". The proposed rezoning would permit the development of 60 three-storey townhouse units with a floor area of 7,047 m^2 (75,853 ft^2) on a 7,327.6 m^2 (1.81 acre) development lot and a proposed 920.6 m^2 (0.23 acre) City park lot.

In addition to Zoning Amendment Bylaw 9932, Official Community Plan (OCP) Amendment Bylaw 10011 proposes to amend the Hamilton Area Plan "Circulation Map" and the "Parks, Public Realm and Open Space Map" in the area between Gates Avenue and Gilley Road to make changes to the "Strollways" and "Shared Streets", and designate the proposed City park lot as a "Conservation Area". Details on the proposed changes to the OCP are provided in the OCP/Hamilton Area Plan subsection of this report.

Findings of Fact

A Development Application Data Sheet providing details about the development proposal is attached (Attachment 2).

Subject Site Existing Housing Profile

The applicant has indicated there are currently three single family dwellings and a non-conforming duplex located on the existing four lots. Four of the five dwelling units are currently rented and one is vacant. The applicant provided information confirming that the tenants are aware of the development plans for the existing properties. None of the buildings contain secondary suites.

Surrounding Development

- To the North: Gates Avenue and single family properties zoned "Single Detached (RS1/F)" and designated "Neighbourhood Residential (Stacked Townhouse 1.0 FAR)" within the Hamilton Area Plan.

- To the South: Single family properties zoned "Single Detached (RS1/F)" and designated "Neighbourhood Residential (Stacked Townhouse 1.0 FAR)" within the Hamilton Area Plan.

- To the East: Ministry of Transportation road allowance that includes a large grassed area with blackberries and several small trees, a pathway, a highway sound barrier and Highway 91A.

- To the West: Single family properties zoned "Single Detached (RS1/F)" and designated "Neighbourhood Residential (Stacked Townhouse 1.0 FAR)" within the Hamilton Area Plan.

Related Policies & Studies

Official Community Plan/Hamilton Area Plan

The proposed development is consistent the Official Community Plan (OCP) "NRES – Neighbourhood Residential" land-use designation.

The OCP also designates the southern portion of the site as being subject to an "Environmentally Sensitive Area" (ESA) Development Permit Area (discussed below under the ESA subsection).

The proposed development is consistent with the "Neighbourhood Residential (Stacked Townhouse 1.0 FAR)" designation within the Hamilton Area Plan (Area Plan) which permits construction of stacked townhouses with one level of parking and up to three habitable floors above (Attachment 3).

Hamilton Area Plan Strollways and Shared Street Network

The Hamilton Area Plan include includes of "Strollways" (urban pedestrian pathways) and "Shared Streets" (small-scale pedestrian-oriented streets) that are designed to provide a finer grain network of pedestrian and vehicle routes than provided by the larger public roads in the area. The Strollways and Shared Streets are to be incrementally constructed with developments with public access secured through registration of Statutory Right of Ways (SRWs) at the time of rezoning.

The exact locations of these routes are to be determined during the review of the rezoning application and there are sufficient changes to these routes to warrant an OCP amendment with the current proposal. To facilitate the proposed development and improve the pedestrian connectivity in the block between Gates Avenue and Gilley Road, OCP Amendment Bylaw 10011 would amend the "Circulation Map" and the "Parks, Public Realm and Open Space Map" as shown on Attachment 3. In particularly, Bylaw 10011 would:

- Change the "Shared Street" running along the west side of the development site to a pedestrian "Strollway" and shift it approximately 18 m (60 ft.) it to the west.

- Change the "Shared Street" to the west of the development site to a pedestrian "Strollway" which would continue along the southern side of the development.

The subject development will secure a minimum of a 3.0 m (9.8 ft.) wide SRW for these Strollways with future adjacent developments providing a further 3.0 m (9.8 ft.) wide SRW for total ultimate Strollway SRW width of 6.0 m (19.6 ft.) with total pathway widths of 2.0 m (6.6 ft.) to 2.5 m (8.2 ft.) depending on tree preservation and landscaping being accommodated within Strollway corridors. While Strollways are primarily intended for pedestrians, they will also allow for low-speed cycling and scooter use.

The above amendments support the phased development of the block bounded by Gates Avenue, Smith Crescent and Gilley Road in a logical manner that supports pedestrian connectivity throughout the area.

Hamilton Area Plan Parks, Public Realm and Open Space Network

Bylaw 10011 also proposes to designate the proposed City park lot with the ESA habitat enhancement and compensations areas (described below) as a "Conservation Area" within the "Parks, Public Realm and Open Space Map".

Environmentally Sensitive Area

The OCP designates 966.2 m^2 (10,400 ft^2) of the south-east corner of the subject site as an ESA Development Permit Area. As part of the Development Permit Area guidelines, the City requires that a developer engage a Qualified Environmental Professional (QEP) to undertake an assessment to ground truth the generalized ESA mapping and classifications in the OCP. In the QEP assessment for the project, the QEP and surveyor have confirmed that there is actually 887 m^2 (9,543 ft^2) of on-site ESA located within the larger mapped ESA area in the southeast corner of the site (Attachment 5). The QEP has assessed the value of the vegetation within the ESA and along with information from the arborist as discussed in the Tree Retention section of the report and summarized below.

Key finding of the QEP include:

- Himalayan blackberry dominates all other vegetation, with native plants essentially being absent in the designated ESA.
- There is little to no natural large woody debris which would provide, if present, important habitat, for small mammals and amphibians.
- Of the 11 trees identified by the project arborist located within the existing mapped ESA, nine trees in poor condition are recommended to be removed. One tree in good condition and one tree in poor condition near the eastern edge of the site are proposed to be preserved as recommended by the project arborist.

On this basis of this work and discussions with City staff, the QEP proposes a re-shaped ESA enhancement and compensation area of 905.7 m^2 (9,749 ft^2) along the eastern side of the site. This ESA area will be included within the proposed 920. 6 m^2 (0.23 acre) City park as shown on Attachment 5.

Key elements of the proposed ESA enhancement landscape plans and QEP reports (collectively called the Stage 1 QEP report) include:

- The proposed ESA compensation and enhancement area will provide improved habitat value compared to the existing mapped ESA and contribute to the City's Ecological Network.
- Rehabilitation of the area by clearing all plants and shrubs which are dominated by Himalayan blackberry.
- There will be preservation of a total of the 17 existing trees that include 15 Spruce trees, a two Mountain Ash and an Oak. Of these trees, 15 trees in good condition are located outside of the existing mapped ESA and within the proposed new ESA compensation area located to the north in the proposed park. The remaining two trees to be preserved include the above-noted trees within the existing mapped ESA.

- Planting of a further native 17 deciduous trees, 16 coniferous trees and native 797 shrubs / ground covers/ grasses.
- Placement of large woody debris (from removal of the trees within the development site) to create additional habitat.

There will also be the requirement for a three year monitoring and maintenance plan after the habitat enhancement and compensation work is completed as recommended by the QEP.

The proposed ESA compensation and enhancement plan has been accepted on the above basis and given that:

- The area is larger in than the existing surveyed 887m^2 (9,543 ft^2) ESA area.
- It creates a multi-structured, species-rich link that will provide year-round foraging opportunities for a wide variety of bird species, small mammals and amphibians.
- Allows for enhanced long-term stewardship of the area with City ownership as a park.
- There is an opportunity for the extension of this enhanced ESA corridor onto adjacent ESA area on the property to the south at such time that it may be developed for townhouses.

A final ESA landscape plan and a Stage 2 QEP Report and are to be prepared and included within the Servicing Agreement to the satisfaction of the Director, Parks Services and the Director of Development. The Stage 2 QEP Report will include the detailed monitoring and maintenance plan, reference to the final landscape plans, and will be included within the Servicing Agreement submission to the satisfaction of the City prior to Final adoption of Zoning Amendment Bylaw 9932 and issuance of a Development Permit for the project.

Proposed Park

As discussed above, the applicant has agreed to transfer a 920. 6 m^2 (0.23 acre) lot for a City park, and which includes the proposed 905.7 m^2 (9,749 ft^2) ESA enhancement and compensation areas and the East-West Strollway running along the southern edge of the site. While this provision of park land is not a requirement under the Area Plan or OCP, the applicant and City staff agreed that the ESA could be well managed by the City and would augment the semi-natural adjacent area within the Highway 91A road allowance which collectively form part of the City's Ecological Network. There will be no Development Cost Charge (DCC) credits available to the developer for the transfer of the park lot or its improvement.

Contribution for Off-Site Habitat Enhancement

The applicant has also agreed to make a contribution of $61,000 to the City to undertake a Capital Project for habitat enhancement on City lands forming part of the Ecological Network within the Hamilton Area. Potential sites include the Queen Canal Corridor and Hamilton Highway Park on the east side of Highway 91A.

Closure of a Portion of Gates Avenue

The development also includes the proposed closure of a portion of Gates Avenue to be included within the development site and the City park lot. This is consistent with the Area Plan that

provides for future construction of a Strollway on the middle of the eastern portion of Gates Avenue (Attachment 3).

The applicant is required to enter into a purchase and sale agreement with the City for the purchase of 150.5 m^2 (1,620 ft^2) of the 188 m^2 (2,032 ft^2) Gates Avenue road allowance to be closed, with the remaining 30.3 m^2 (326 ft^2) area of closed road allowance being included within the proposed City park. The primary business terms of the purchase and sales agreement, and road closure bylaw will be brought forward to Council in a separate report from the Senior Manager, Real Estate Services.

At such time that redevelopment of the properties on the north side of Gates Avenue occurs, such development would include closure of the northern portion of Gates Avenue with the remaining centre portion of the Gates Avenue road allowance being converted into a Strollway.

Floodplain Management Implementation Strategy

The proposed redevelopment must meet the requirements of the Richmond Flood Plain Designation and Protection Bylaw 8204 with a Flood Construction Level (FCL) of 3.5 m applicable to this site. Registration of a flood indemnity covenant on Title is required prior to final adoption of the rezoning bylaw. Given that the existing grade in the area ranges from 1.0 m to 1.3 m geodectic, the City's 3.5 m geodectic FCL requires that only garages and staircase foyers occupy the ground floor of townhouses, with no other habitable space being permitted below 3.5 m geodectic.

Acoustical Report for Highway Noise

There is a sound barrier and large grassed area located within the Highway 91A road allowance adjacent to the proposed development. Nevertheless, the applicant will be required to register a legal agreement on title identifying that the proposed development must be designed and constructed in a manner that mitigates potential noise from Highway 91A to the proposed dwelling units with acoustical and mechanical reports being provided to the City prior to Development Permit issuance that ensure that the development meets the CMHC guidelines for interior noise levels and the ASHRAE 55-2004 standard for "Thermal Environmental Conditions for Human Occupancy" standard for interior living spaces.

Public Consultation

A rezoning sign has been installed on the subject property. In response to the placement of the rezoning sign on the property, staff have received an inquiry from one property owner about the proposed height of the townhouses, his satellite dish reception and City policies regarding future townhouse development in the surrounding area, including his property.

As requested by City staff, the applicant has consulted with residents living on the properties fronting Gates Avenue to determine if there are concerns regarding the proposed vehicle access to the development and road works on Gates Avenue. This consultation included door-to-door visits by the applicant who provided a brief description and several plans of the proposed 60-unit townhouse development. In this regard, residents of homes on each of these lots, including those

on the development site, signed the applicant's consultation form stating they were aware of and supported the proposed development (Attachment 4).

Should the Planning Committee endorse this application and Council grant 1st reading to the rezoning bylaw, the bylaw will be forwarded to a Public Hearing, where any area resident or interested party will have an opportunity to comment.

Staff have reviewed the proposed OCP and zoning amendments, with respect to the *Local Government Act* and the City's OCP Consultation Policy No. 5043 requirements, and recommend that this report does not require referral to external stakeholders. Public notification for the Public Hearing will be provided as per the *Local Government Act*.

The table below clarifies this recommendation as it relates to the proposed OCP.

OCP Consultation Summary

Stakeholder	Referral Comment (No Referral necessary)
BC Land Reserve Co.	No referral necessary, as the proposed amendment is not located within or adjacent to the Agricultural Land Reserve.
Richmond School Board	No referral necessary, as the proposed amendment does not change the land-use or density in the OCP and the application includes less than 295 units.
The Board of Metro Vancouver	No referral necessary, as the proposed amendment is consistent with the City-wide OCP previously referred to Metro Vancouver.
The Councils of adjacent Municipalities	No referral necessary, as adjacent municipalities are not affected.
First Nations (e.g., Sto:lo, Tsawwassen, Musqueam)	No referral necessary, as First Nations' interests are not affected by this amendment.
TransLink	No referral necessary; no major transportation changes are proposed.
Port Authorities (Vancouver Port Authority and Steveston Harbour Authority)	No referral necessary, as port facilities are not affected by the amendment.
Vancouver International Airport Authority (VIAA) (Federal Government Agency)	No referral necessary, as the proposed amendment is consistent not affected by YVR's Airport Height Zoning and City's OCP Aircraft Noise Policy.
Richmond Coastal Health Authority	No referral necessary, as the proposed amendment is consistent with the City-wide OCP previously referred to Metro Vancouver.
Stakeholder	**Referral Comment (No Referral necessary)**
Community Groups and Neighbours	No referral necessary as the applicant consulted with the residents of neighboring properties on Gates Ave. and the community will be consulted through Public Hearing notices that would be sent property owners and occupiers of lots within 50m of the subject site.
All relevant Federal and Provincial Government Agencies	No referral necessary, as the proposed amendment does not affect other agencies. Note, that the associated Zoning Amendment Bylaw 9932 was referred to the Ministry of Transportation and Infrastructure which provided preliminary approval to the bylaw.

Richmond Official Community Plan Bylaw 9000, Amendment Bylaw 10011, having been considered in accordance with OCP Bylaw Preparation Consultation Policy 5043, is hereby found to not require further consultation.

The public will have an opportunity to comment further on all of the proposed amendments at the Public Hearing.

School District

This application was not referred to School District No. 38 (Richmond) because it does not have the potential to generate 50 or more school aged children. According to OCP Bylaw Preparation Consultation Policy 5043, which was adopted by Council and agreed to by the School District, residential developments which generate less than 50 school aged children do not need to be referred to the School District (e.g., typically around 295 multiple family housing units). This application only involves 60 multiple family housing units.

Ministry of Transportation and Infrastructure

The Ministry of Transportation and Infrastructure (MOTI) has provided preliminary approval of Zoning Amendment Bylaw 9932 as the site is located within 800 metres of Highway 99. MOTI final approval of Bylaw 9932 and of the proposed subdivision will be required prior Council consideration of Final adoption of the bylaw.

Analysis

Built Form and Architectural Character

The proposed development includes 60 townhouse units with an overall density of 0.962 FAR with a range of unit types as envisioned under the Hamilton Area Plan (Attachment 6). The proposed development includes a variety of unit types within the six buildings as follows:

- Four buildings include a total of 48 stacked townhouse units with garages occupying the ground floor.
- The 48 stacked units include 16 two-bedroom units located on the second floor of the buildings interspersed with 32 three-bedroom units with living space on the second and third floors of the buildings.
- There are two buildings with a total of 12 three-storey standard townhouse units with their garages occupying most of the ground floor and living space on the second and third floors that face onto the north-south Strollway.

The built form is characterized by:

- Modern-style buildings designed and shaped to provide architectural variation while providing a cohesive overall development character.
- Typical building heights of three (3) storeys for the two buildings with standard units along the west side of the site, with the remaining four stacked-unit buildings having three storeys and roof decks with stairway rooms/penthouses.

- Access is provided from Gates Avenue through the main north-south driveway and two driveways running east from the main driveway.
- Two "The proposed building setback to Gates Avenue is 4.0 m (13.1 ft.) and will be larger to the future Strollway to be constructed on the eastern portion of Gates Avenue when development occurs to the north.
- Strollways" along the south and west sides of the site are provided as set out the proposed amendment to the Hamilton Area Plan with these Strollways providing additional public pedestrian access to future developments to the west and south and the surrounding public streets. The Strollway along the west side of the development site is included within a 3.0 m (9.8 ft.) wide SRW. The Strollway along the south side of the site is included within a 3.5 m (11.5 ft.) wide SRW to allow for additional landscaping being accommodated within the Strollway corridor and for tree preservation on the adjacent lot to the south.
- The proposed project has minimum 4.5 m (14.8 ft.) setbacks to the Strollway SRWs along the west and south sides of the site. When these SRW widths are taken into account, the buildings will have a total 7.5 m (24.6 ft.) setback to the west property line and setbacks from 6.0 m (19.7 ft.) to 8.0 m (26.2 ft.) to the south property line.
- The east side yard setback to the proposed City park will be 2.2 m (7.2 ft.).
- There will be a central mews of 10.5 m (34.5 ft.) in width that includes the common outdoor amenity area with outdoor seating and play equipment located between the two central stacked townhouse buildings.
- The 12 standard three-storey units include side-by-side double garages, 32 stacked units have tandem double garages, eight (8) stacked units have single car garages and four (4) stacked units have a single car garage and an additional outdoor parking space.

Transportation and Site Access

Vehicle and Pedestrian Access

The vehicle and the main pedestrian access for the proposed development is to be provided by the project driveway leading from a new cul-de-sac on Gates as shown on the plans in Attachments 6 and 8. To the east of the cul-de-sac, the current paved road surface will be maintained in the interim to provide access to the existing three residential lots on the north side of Gates Avenue. At such time these lots are redeveloped for stacked townhouses, this eastern section of Gates Avenue will be converted to a Strollway that connects to the existing north-south pathway within the Highway 91A road allowance to the east.

There will also be a north-south Strollway within a 3.0 m (9.8 ft.) wide SRW to be registered on Title of the development site that will provide public pedestrian access along the western side of the site and that ultimately will provide a connection between Gates Avenue and Gilley Road when the properties to the south are developed. There also will be an east-west "Strollway" along the southern edge of the site within a 3.5 m (11.5 ft.) wide SRW to be registered on Title that will ultimately provide a connection between the existing north-south pathway within the Highway 91A road allowance and Smith Crescent. These SRWs provide for public pedestrian

access as part of the Strollway network within the Hamilton Area Plan, will be widened when townhouse developments are constructed to the west and south, and will be maintained by the subject developments.

Parking

There will be a total of 108 resident and 11 visitor parking spaces within the proposed development. The proposed number of parking spaces is consistent with the Zoning Bylaw 8500 requirements subject to the provision of Transportation Demand Measures (TDM) to the satisfaction of the City. The applicant will be required to provide TDM measures to widen the existing asphalt walkway within the Highway 91A road allowance to a min. 3.0 m (9.8 ft.) width along the eastern side of the site north to the Highway 91A pedestrian overpass and install pedestrian lighting along this pathway.

The proposed new ZT86 zone includes a site-specific provision to allow two-thirds (67%) of the parking spaces for the 48 units, with two spaces each, to be in a tandem arrangement. Given that the entire ground floor of the units are under the 3.5 m Flood Construction Level and average site elevation of approximately 1.0 m geodectic in the area, the City has permitted in excess of 50% tandem parking spaces within several developments in the Hamilton area.

Furthermore, tandem spaces allow for a more compact footprint for the proposed 1.0 FAR stacked townhouse form without the need for an additional building footprint for wider townhouse units or more surface parking spaces. As a rezoning consideration, there will be registration of a legal agreement on title prohibiting the conversion of the tandem parking area into habitable space.

As noted above, the residents on Gates Avenue were consulted and supported the proposed development plans which indicated that two-thirds of the parking spaces are proposed to be in a tandem arrangement.

Based on the size of the development, no on-site designated loading space is required under Zoning Bylaw 8500 with loading being permitted within the on-site driveways.

Tree Retention and Replacement

The applicant has submitted a Certified Arborist's Report which identifies on-site and off-site tree species, assesses tree structure and condition, and provides recommendations on tree retention and removal relative to the proposed development. The Report assesses 43 bylaw-sized trees on the subject property, and 10 trees on neighbouring properties to the south and west. (Attachment 7).

The City's Tree Preservation Coordinator has reviewed the Arborist's Report and supports the Arborist's findings, with the following comments below:

- 17 trees located within the proposed park / ESA area will be retained due to their good condition and being located within a large contiguous park / ESA area that supports tree preservation.
- The applicant intends to remove 26 on-site trees, of which:

  - 19 trees are in poor condition due to their tree structure and leaning angle, and thus are required to be removed.
  - Six trees are in good condition and one tree is in moderate condition, but need to removed due to the nature of the peat soils in the area and required filling of the site. These soil conditions require that the development site be filled to prevent driveways, services and yard areas from settling with the proposed or any other configuration of the townhouse buildings on the site.

- 10 trees located on adjacent neighbouring properties, with six trees located on the property to the south which are to be maintained. Four trees are identified for removal on the property to the west, of which one is dead, two are in poor condition and leaning, one is very old with poor structure. The applicant will be requesting acceptance from the property owner for issuance of a tree removal permit and the planting of eight replacement trees.

Trees Retention on Park

The 17 trees proposed to be retained are located within the proposed City park and will be augmented with additional ESA enhancement planting (discussed within the ESA section below). These trees include 14 Spruce trees, with two Mountain Ash trees and an English Oak. A Tree Survival Security of $90,000.00 for these 17 trees will be provided and retained by the City for a period of three years after occupancy of the project.

Tree Replacement

In compensation for the 26 trees proposed to be removed, the OCP 2:1 replacement ratio would require a total of 52 replacement trees within the final Development Permit landscape plans. The replacement trees are to be of the sizes required under Tree Protection Bylaw No. 8057. The preliminary landscape plans provided for rezoning include 96 trees.

Accessible Adaptable Units

The applicant will construct 10 of the standard three-storey units as "Convertible Housing" with construction specifications to be provided within the project's Development Permit plans based on the guidelines within the City's OCP and the applicant's plans (see Attachment 6).

Affordable Housing Strategy

The applicant will voluntarily contribute $659,502.00 to the City's affordable housing fund as provided in the City's Affordable Housing Strategy.

Hamilton Area Plan Amenity Contribution

This Hamilton Area Plan requires amenity contributions of $70.50 per square meter ($6.55 per square foot) for townhouse developments. Based on the proposed development design, the developer will provide approximately $508,178.00 to be contributed to the City's Hamilton Area Plan Amenity Reserve Fund (the final amount to be based on the Development Permit plans).

Leadership in Energy and Environmental Design (LEED) and Townhouse Energy Efficiency

As a Development Permit application (DP 18-829228) for the project was received prior to the City's adoption of the Energy Step Code on July 16, 2018, the subject project is not subject to the BC Energy Step Code. In order to continue to be grandfathered from the BC Energy Step Code Level 3, the applicant must also submit a Building Permit application prior to December 31, 2019.

Therefore, in accordance with the Hamilton Area Plan, the development is required to be confirmed to be LEED Silver equivalent prior to consideration of the Development Permit by the

The applicant will also register a legal agreement on title identifying that the proposed development must be designed and constructed to meet or exceed EnerGuide 82 criteria for energy efficiency and that all dwellings are pre-ducted for solar hot water heating.

Public Art Contribution

As a rezoning consideration, the applicant will be making a voluntarily contribution of approximately $67,500.00 (final amount to be confirmed with the Development Permit plans) to the City's Public Art Fund.

Amenity Space

The applicant has opted not to construct an indoor amenity space and has voluntarily agreed to make a $215,797.00 contribution in-lieu of on-site indoor amenity space as provided under the OCP Development Permit Area Guidelines. This cash in-lieu contribution is supported due to the development's close proximity of approximately 200 m to the Hamilton Community Centre and other proposed amenities (e.g. further community recreation space and a library) being funded by the Hamilton Area Plan amenity contributions being provided by this and other developments in the area.

Frontage and Servicing Improvements

The applicant will be required to enter into a Servicing Agreement that includes the design and construction of the following works:

Frontage Improvements

- Along the eastern portion of the Gates Avenue frontage, there will be a 2.0 m (6.6 ft.) wide concrete sidewalk, 1.5 m (4.9 ft.) wide treed and grassed boulevard with street lighting, and pavement widening to provide a min. 6.0 m (19.6 ft.) wide driving surface and tie to the existing northern edge of the roadway.
- At the western end of the site's frontage, construction of a cul-de-sac, with a 2.0 m (6.6 ft.) wide concrete sidewalk, new curb/gutter and a minimum 7.5 m (24.6 ft.) wide driving surface.
- East of the cul-de-sac, construction of a new 2.0 m (6.6 ft.) wide concrete sidewalk and sufficient road widening to maintain two-way traffic to the eastern end of Gates Avenue.

- Repaving and widening of the existing pedestrian pathway to 3.0m (9.8 ft.) within the Highway 91A road allowance adjacent to the site and extending to the Highway 91A pedestrian overpass, and providing lighting will be required as a TDM measure (discussed above). The Ministry of Transportation and Infrastructure has confirmed that it would accept an application from the City to do the work itself under the Servicing Agreement with the developer.

Servicing Works

- Installation of approximately 178 m (584 ft.) of sanitary sewer main from the proposed cul-de-sac on Gates Avenue to the intersection of Willett Avenue and Smith Crescent. Should development proceed prior to the completion of the City Capital Project for the VLA Park sanitary pump station, or should this Capital Project not proceed, the developer will be required to construct the sanitary pump station.
- Installation of approximately 80 m (262 ft.) of 600mm storm sewer along Gates Avenue from the proposed cul-de-sac to Smith Crescent.
- Removal and replacement of approximately 85 m (279 ft.) of the existing 150mm watermain at Gates Avenue with a 300mm diameter main (complete with fire hydrants as per City standards) from the intersection of Gates Avenue and Smith Crescent to the proposed cul-de-sac on Gates Avenue.
- Placement of the existing private utility overhead lines (e.g. BC Hydro, Telus and Shaw) underground from Smith Crescent to the eastern side of the development site.

Development Permit Review

At the forthcoming Development Permit stage, design elements to be further addressed include:

- Adding further small-scale articulation and architectural detailing to the townhouse buildings, particularly those facing onto the public realm.
- Consideration of a broader colour and material palette for the buildings.
- Adding way-finding signage and bollard lighting to the Strollways.
- Providing additional landscaping and outdoor amenity details and specifications.

Financial Impact or Economic Impact

The rezoning application results in an Operational Budget Impact (OBI) of $5,000 for off-site City infrastructure (such as roadworks, waterworks, storm s ewers, sanitary sewers, street lights and street trees).

To facilitate the proposed development, the applicant proposes to purchase a portion of the Gates Avenue road allowance for inclusion in the applicants' development site and proposed City park lot. The total approximate area of City lands proposed to be sold and included in the development site is 150.5 m^2 (1,620 ft^2). As identified in the attached Rezoning Considerations (Attachment 8), the applicant is required to enter into a purchase and sales agreement with the City for the purchase of the lands, which is to be based on the business terms approved by Council.

Conclusion

The proposed 60-unit townhouse development is the first stacked townhouse rezoning application to be considered under the Hamilton Area Plan, offering a mixture of standard three-bedroom units, and stacked two- and three-bedroom units.

The development will provide the first legs of the public Strollway network within the block bounded by Gates Avenue, Smith Crescent and Gilley Road.

This development will also provide a 920.6 m^2 (0.23 acre) park to the City comprised of existing enhanced ESA area and ESA compensation, contributing to the City's Ecological Network.

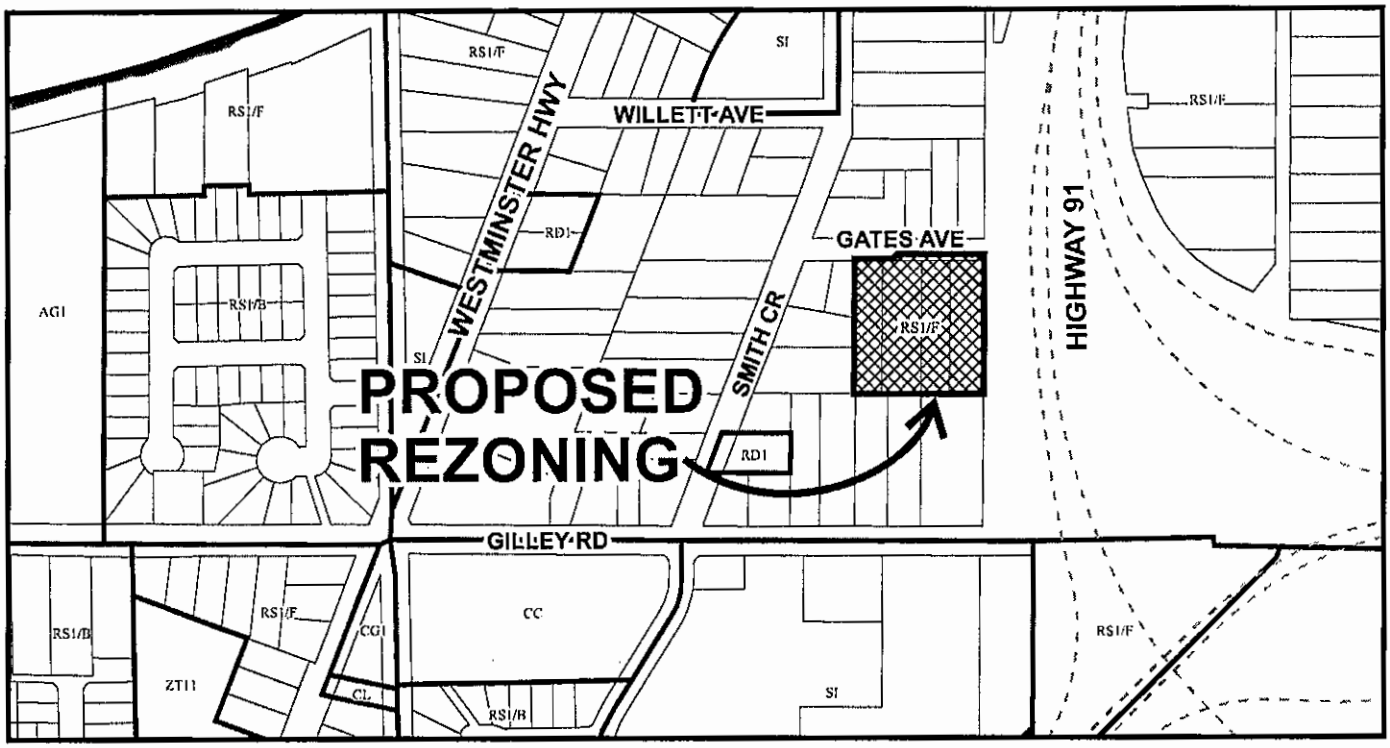
It is recommended that Richmond Zoning Bylaw 8500, Amendment Bylaw 9932 and OCP Bylaw 9000, Amendment Bylaw 10011 be introduced and given first reading.

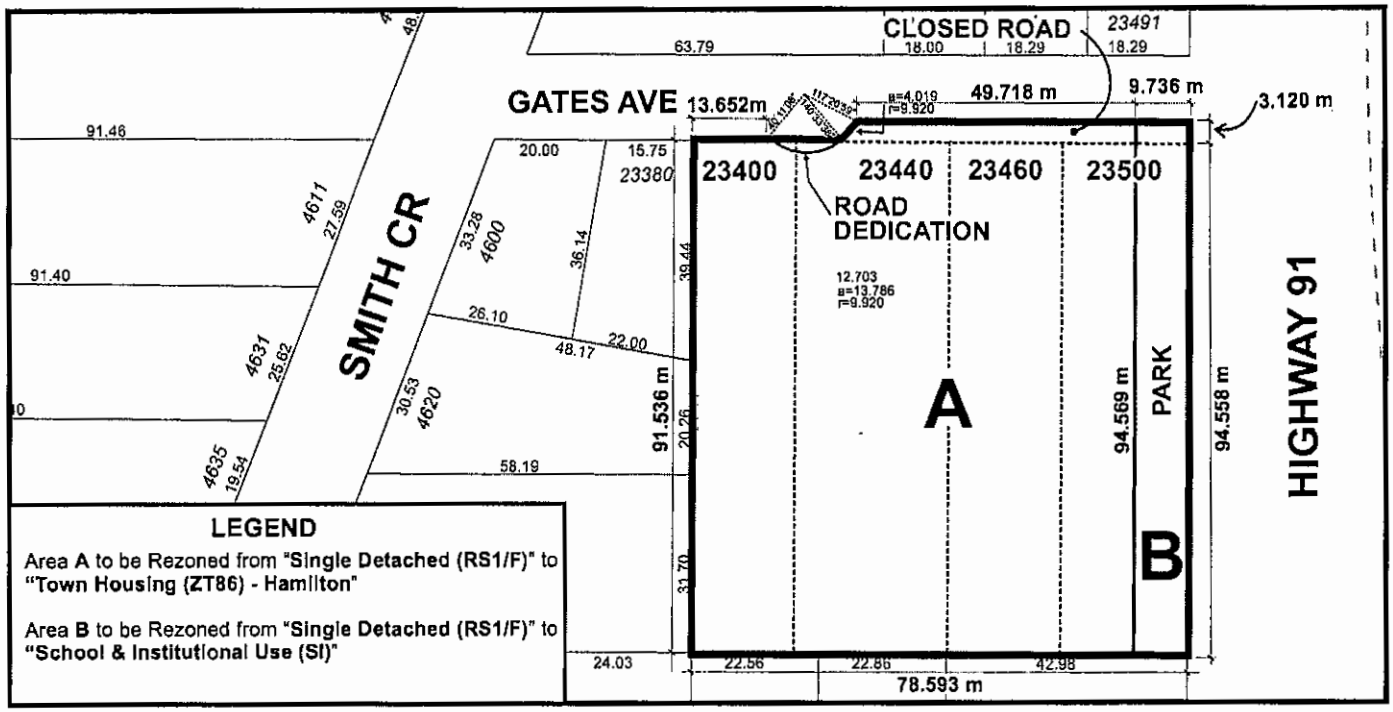
Mark McMullen
Senior Coordinator - Major Projects
(604-276-4173)

MM:rg

Attachment 1: Location Map
Attachment 2: Development Application Data Sheet
Attachment 3: Hamilton Area Plan Maps
Attachment 4: Neighbourhood Consultation Form
Attachment 5: Excerpts from QEP Report on the Environmentally Sensitive Area
Attachment 6: Conceptual Development Plans
Attachment 7: Tree Preservation Plan
Attachment 8: Rezoning Considerations

City of Richmond





LEGEND

Area A to be Rezoned from "Single Detached (RS1/F)" to "Town Housing (ZT86) - Hamilton"

Area B to be Rezoned from "Single Detached (RS1/F)" to "School & Institutional Use (SI)"

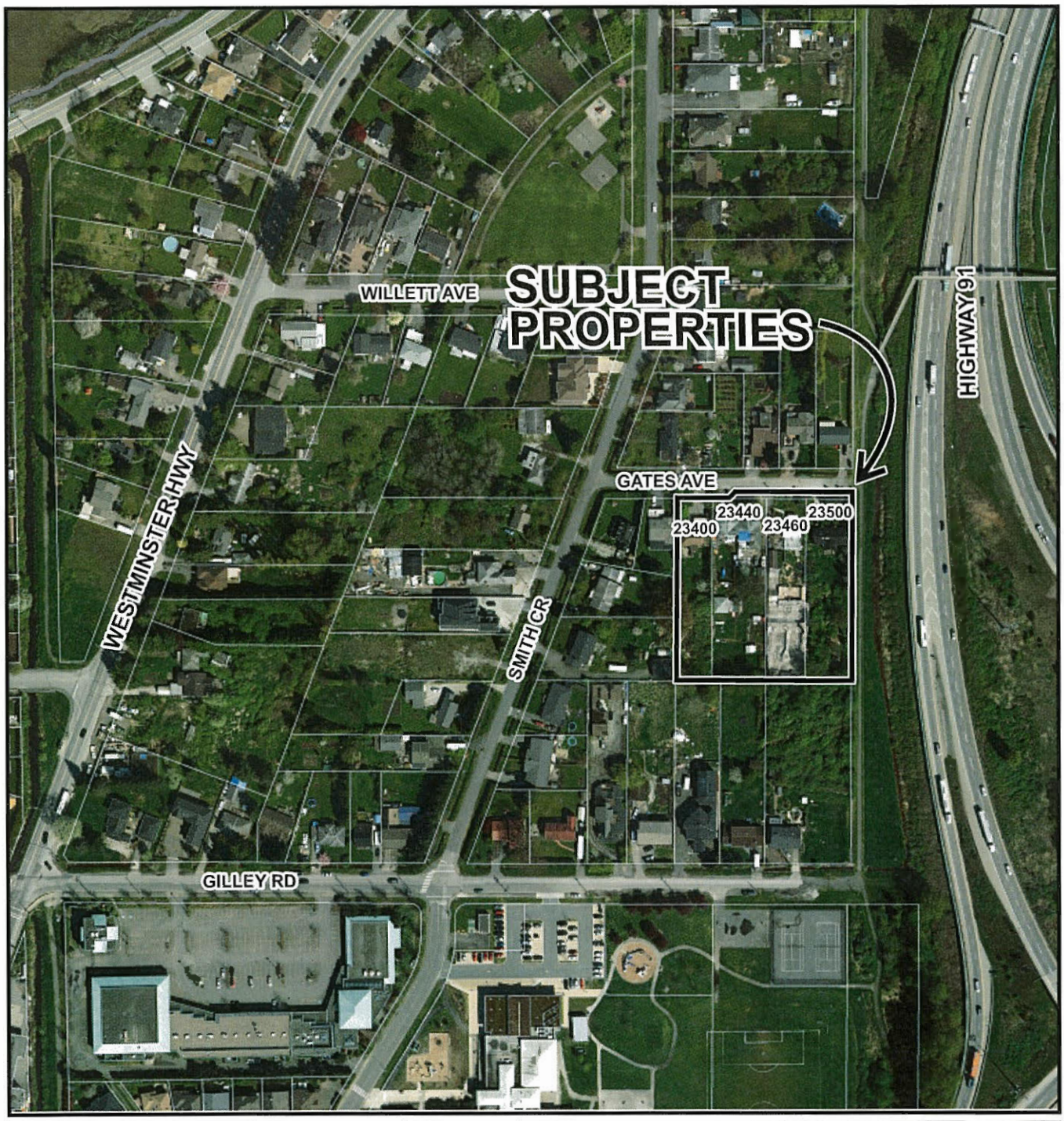
RZ 17-766714

Original Date: 04/06/17

Revision Date: 05/24/19

Note: Dimensions are in METRES

City of Richmond



RZ 17-766714

Original Date: 04/06/17

Revision Date: 05/24/19

Note: Dimensions are in METRES

City of Richmond

Development Application Data Sheet

Development Applications Department

RZ 17-766714 **Attachment 2**

Address: 23400, 23440, 23460 & 23500 Gates Avenue, and a Portion of Gates Avenue

Applicant: Fougere Architecture Inc.

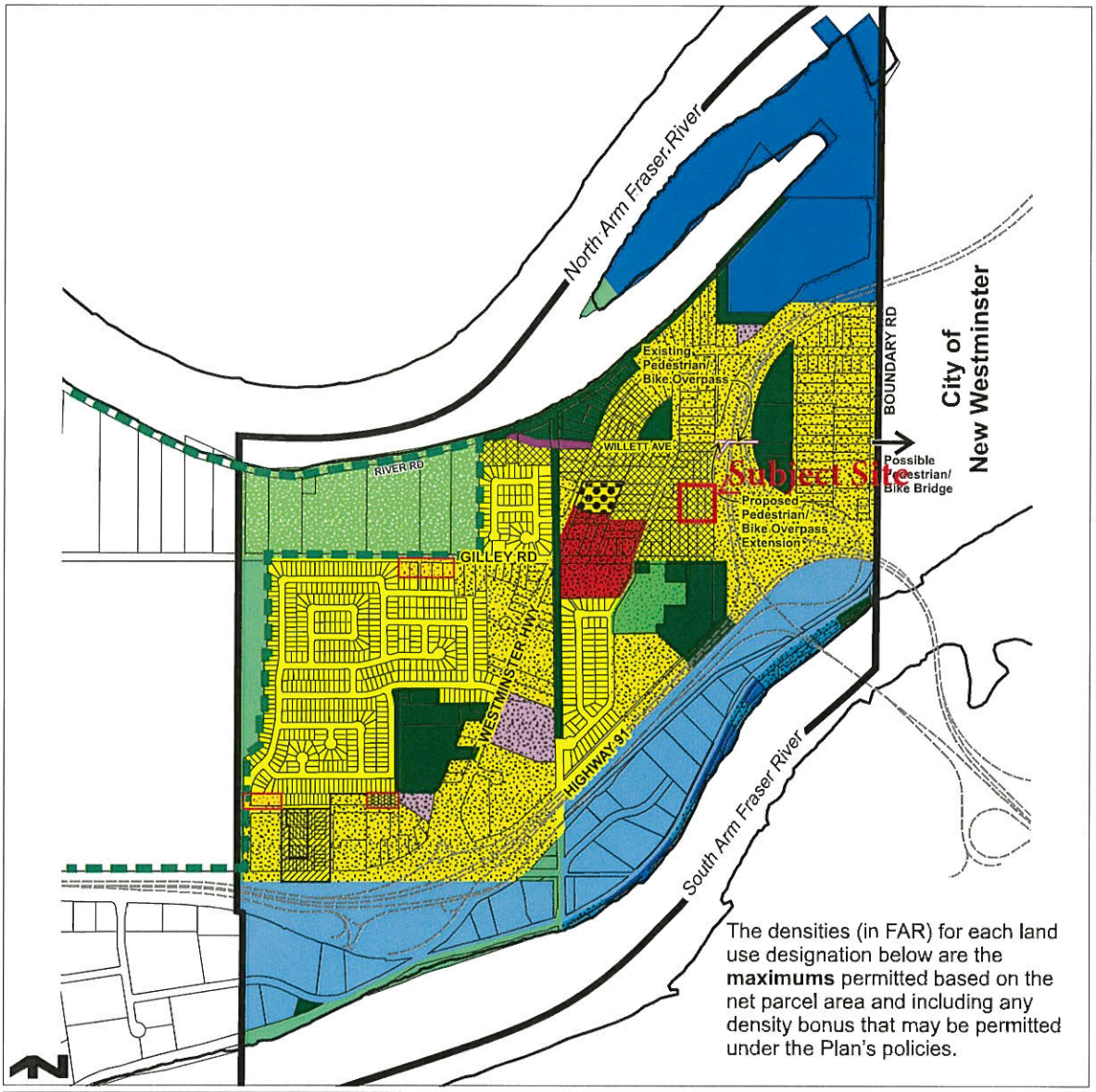
Planning Area(s): Hamilton Area Plan

	Existing	Proposed
Owner:	1116515 BC LTD	1116515 BC LTD
Site Size (m^2):	8,248.2 m^2	7,327.6 m^2 development lot 920.6 m^2 conservation area
Land Uses:	Single Family Dwellings and a Non-Conforming Duplex	Townhouses
OCP Designation:	NRES – Neighbourhood Residential	NRES – Neighbourhood Residential
Area Plan Designation:	Neighbourhood Residential (Stacked Townhouse 1.0 FAR)	Neighbourhood Residential (Stacked Townhouse 1.0 FAR)
Zoning:	"Single Detached (RS1/F)"	"Town Housing (ZT86) – Hamilton" and "School & Institutional Use (SI)"
Number of Units:	5 units	60 units
Other Designations:	ESA	ESA

On Future Subdivided Lots	Bylaw Requirement	Proposed	Variance
Floor Area Ratio:	Max. 1.0	0.962	none permitted
Lot Coverage (% of lot area):	Building: Max. 45%	Building: Max. 44.2%	none
Lot Size:	Min. 7,000 m^2	7,328 m^2	none
Lot Dimensions (m):	Min. Width: 75.0 m Min. Depth: 85.0 m	Width: 78.6 m Depth: 91.5 m	none
Setbacks (m):	Front: Min. 4.0 m Rear: Min. 6.0 m East Side: Min. 2.0 m West Side: Min. 7.5 m	Front: Min. 4.0 m Rear: Min. 6.2 m East Side: Min. 2.2 m West Side: Min. 7.5 m	none
Height (m):	Max. 12 m	10.5 m	none
Off-street Parking Spaces – Regular (R) / Visitor (V):	111 (R) and 8 (V)	111 (R) and 8 (V)	none
Tandem Parking Spaces:	67% of spaces as provided in the ZT86 zone	67% of spaces as provided in the ZT86 zone	none
Amenity Space – Indoor:	100 m^2 or Cash-In-Lieu	Cash-In-Lieu Contribution	none
Amenity Space – Outdoor:	Min. 360 m^2	542 m^2	none

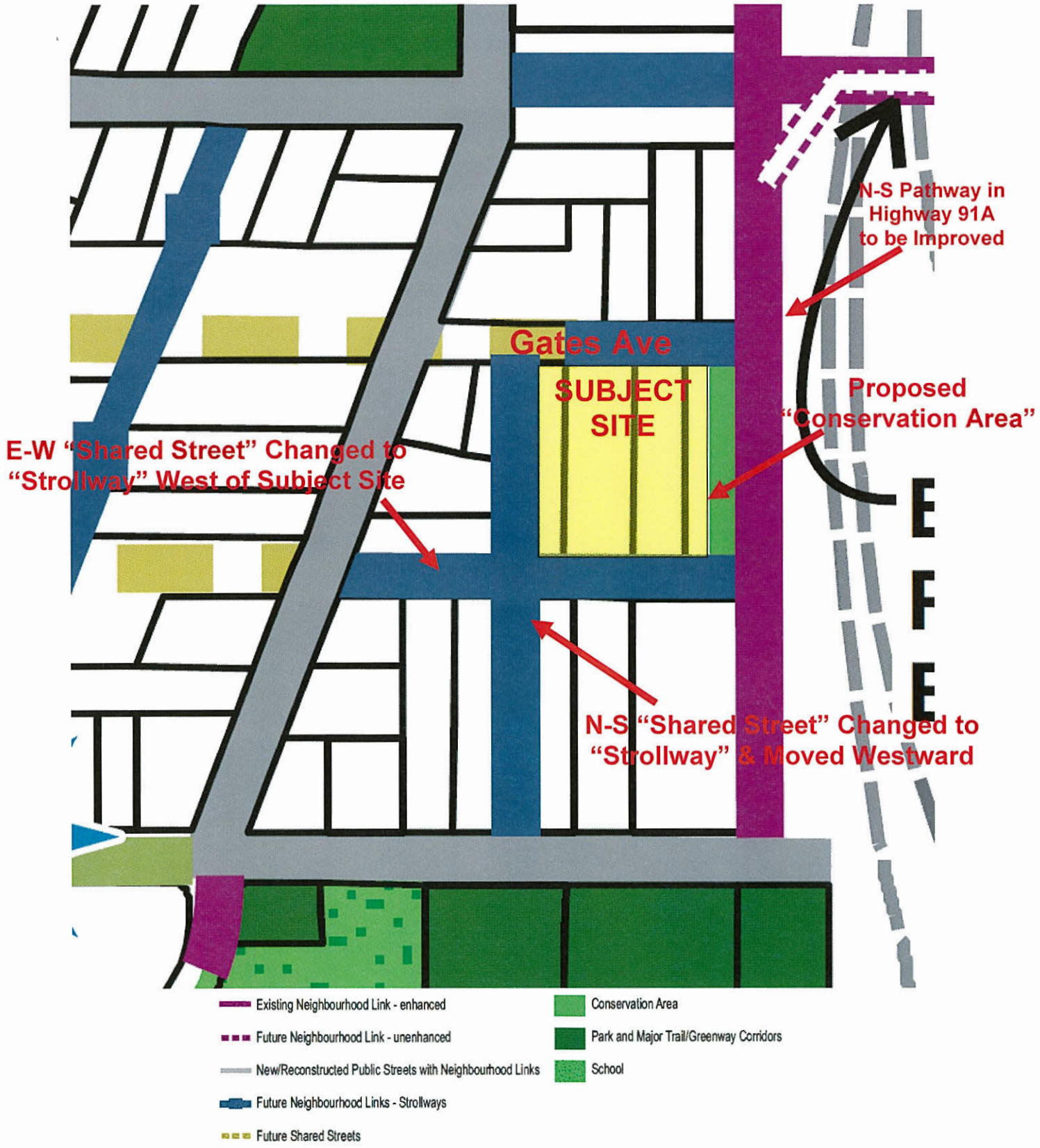
Land Use Map

Bylaw 9260
2017/06/12



- Area Plan Boundary
- ALR Boundary
- Agriculture
- Community Institutional
- Conservation Area
- Industrial
- Marine Residential/Industrial
- Mixed Employment
- Neighbourhood Residential (Single Family 0.55 FAR)
- Neighbourhood Residential (Single Family 0.60 FAR)
- Neighbourhood Residential (Single Family with Coach Houses 0.60 FAR)
- Neighbourhood Residential (Single Family or Duplex 0.75 FAR)
- Neighbourhood Residential (Townhouse 0.55 FAR)
- Neighbourhood Residential (Townhouse 0.75 FAR)
- Neighbourhood Residential (Stacked Townhouse 1.00 FAR)
- Neighbourhood Village Centre (Residential 4 Storey 1.50 FAR)
- Neighbourhood Village Centre (Retail and Office with Residential above 4 Storey 1.50 FAR)
- Park and Major Trail/Greenway Corridors
- Proposed Streets
- School

Proposed Changes to Hamilton Area Plan
"Circulation" and "Parks, Public Realm and Open Space" Maps



6197811

TOWNHOUSE DEVELOPMENT
HAMILTON HOUSE

23400, 23440, 23460 & 23500 GATES AVENUE, RICHMOND

2018 829228 000 00 DP (In Circulation)
FOUGERE ARCHITECTURE INC has applied to the City of Richmond for permission to develop 23400, 23440, 23460 & 23500 Gates Ave in order to construct sixty (60) townhouse units in three and four storey buildings.

2017 766714 000 00 RZ (In Circulation)
FOUGERE ARCHITECTURE INC has applied to the City of Richmond for permission to rezone 23400, 23440, 23460 & 23500 Gates Ave from "Single Family Dwelling (RS1/F)" to a site-specific zone in order to develop a 60-unit townhouse project within three-storey buildings.

We, the undersigned owners and residents of the following properties hereby support the above mentioned development and acknowledge having received the attached development information package dated December 04, 2018.

1) 4500 Smith Crescent:
Tim MUSTART

2) 4600 Smith Crescent:
ANNA Andrews

3) 23380 Gates Avenue:
Richard Desai

4) 23400 Gates Avenue:
GAIL BATH

5) 23440 Gates Avenue:
WAYNE Lowe

6) 23460 Gates Avenue:
LIS LETOURNEAU

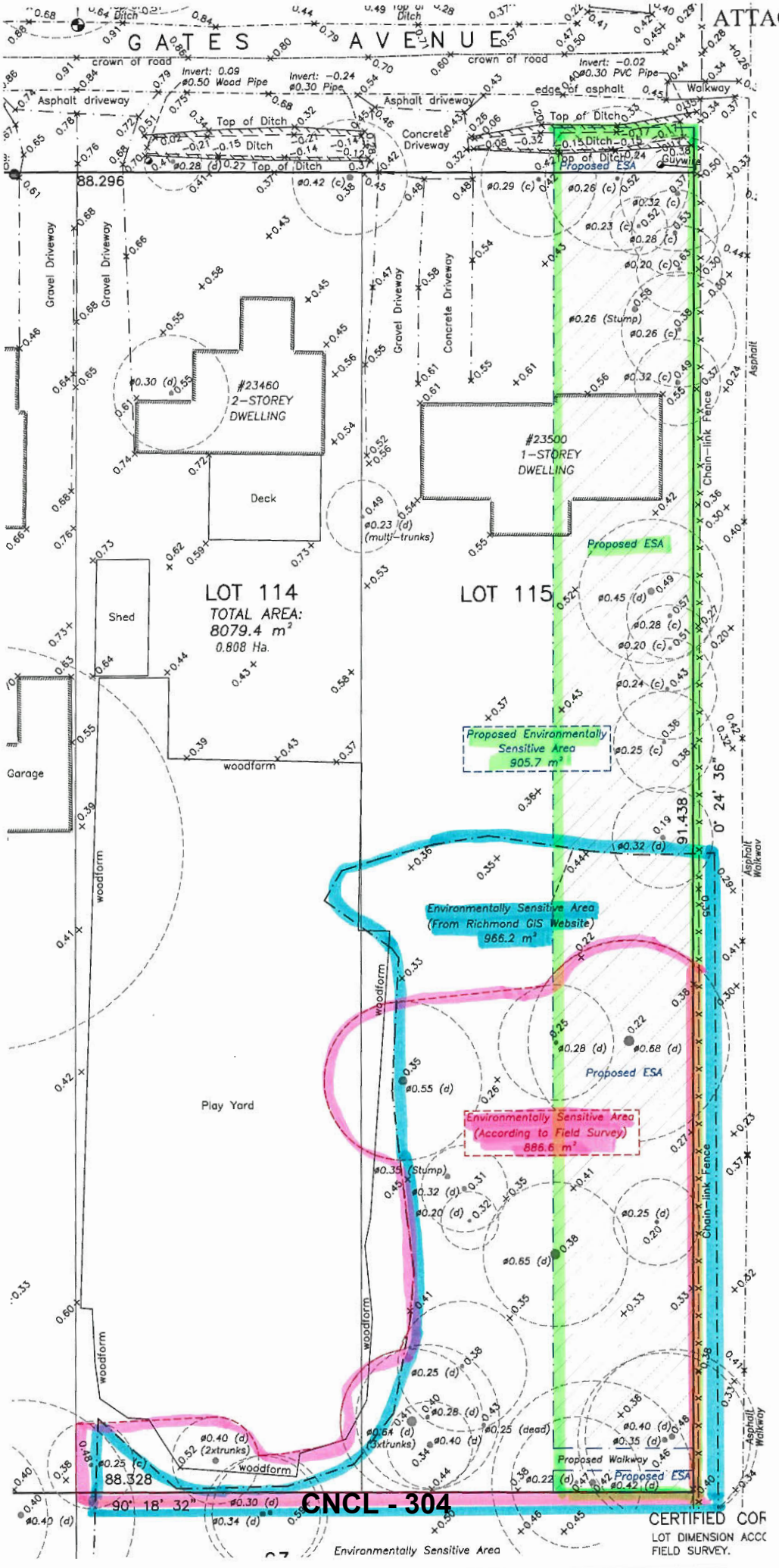
7) 23500 Gates Avenue:
MORGAN STEEL

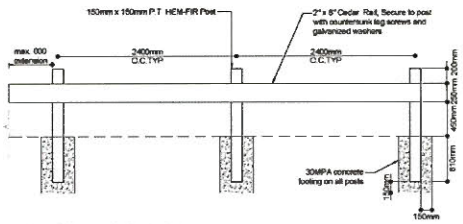
8) 23451 Gates Avenue:
Cathy Friesen

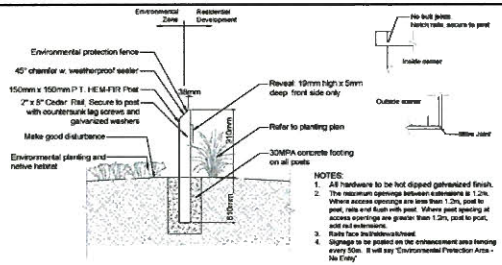
9) 23471 Gates Avenue:
Dana Steeves

10) 23491 Gates Avenue:
Brittany — received package Dec 14/2018

ATTACHMENT 5







4 **ESA SINGLE RAIL FENCE DETAIL**
Scale 1:30

ESA SUN PLANTING

SHRUBS Quantity: 326
Arctostaphylos uva-ursi / Kinnikinnick
Cornus stolonifera / Dogwood
Ribes sanguineum / Red Flowering Currant
Rubus spectabilis / Salmonberry
Salix sitchensis / Sitka Willow
Spiraea douglasii / Western Spirea

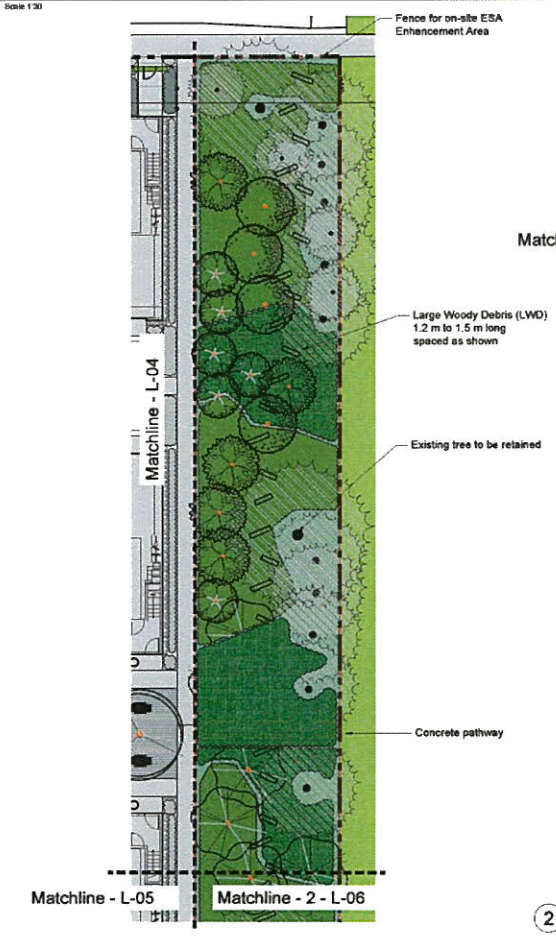
ESA SHADE PLANTING

SHRUBS Quantity: 471
Athyrium filix-femina cuclosorum / Lady Fern
Gaultheria shallon / Salal
Mahonia aquifolium / Oregon Grape
Polystichum munitum / Western Sword Fern
Rosa gymnocarpa Nutt. / Baldhip Rose
Sambucus racemosa / Red Elderberry
Symphoricarpos albus / Common White Snowberry

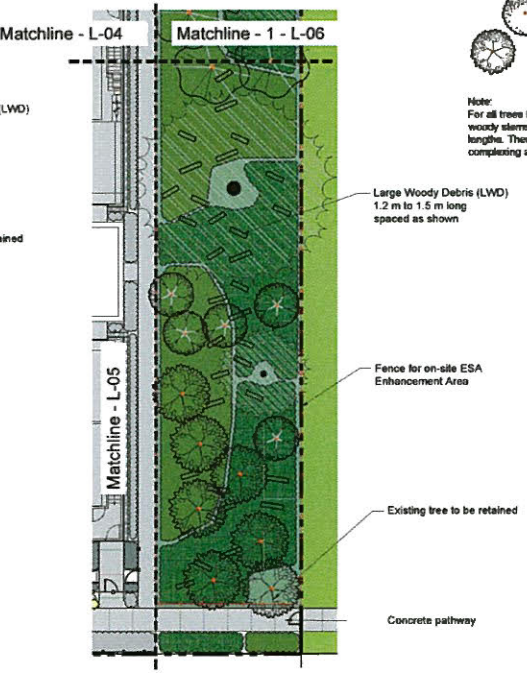
ESA ON-SITE TREE SCHEDULE

TREES	BOTANICAL NAME / COMMON NAME	CONT	QTY
	Betula papyrifera / Paper Birch	6cm	6
	Malus fusca / Oregon Crab Apple	6cm	11
	Pseudotsuga menziesii / Douglas Fir	2.5m Height	4
	Thuja plicata / Western Red Cedar	2.5m Height	12

Note:
For all trees to be removed from the site, retain large woody debris (LWD) all root wads and all woody stems with a diameter greater than 6 inches. Buck stems to between 4 foot and 5 foot lengths. These parts are to be retained and dispersed through ESA areas for use as habitat complexing as shown.

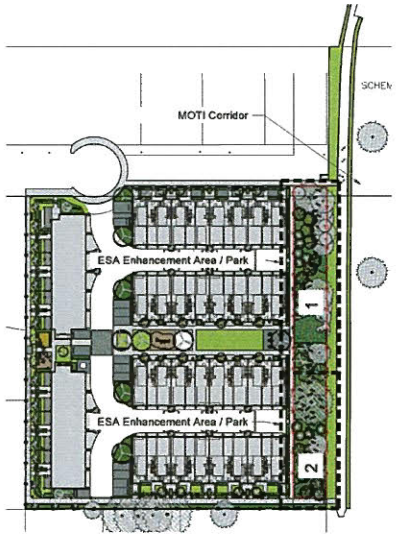


1 **ESA ENHANCEMENT AREA: NORTH**
Scale 1:150



2 **ESA ENHANCEMENT AREA: SOUTH**
Scale 1:150

1:150 0 1.5m 3 4.5 6 7.5 9 10.5 12 13.5 15 16.5 18 19.5 21 22.5



3 **KEYMAP**
NTS

van der Zalm + associates inc.
Parks & Recreation • Urban Design • Civil Engineering • Landscape Architecture
Suite 1, 20177 97th Avenue, Langley, British Columbia, V1M 4B6
P 604.882.0604 F 604.882.0647 info@vdzinc.ca

No.	By:	Description	Date
3	TM	Issued for Rezoning	Feb 20, 2019
2	TM	Issued for Rezoning	Dec 07, 2018
1	DV	Issued for Rezoning	July 13, 2018

REVISIONS TABLE FOR DRAWINGS

No.	By:	Description	Date
3	TM	MOTI Update	May 27, 2019
2	TM	ESA Update	Mar 29, 2019
1	TM	ESA Update	Jan 07, 2019

REVISIONS TABLE FOR SHEET

Project:
Gates Avenue Townhouses

Location:
23400, 23440, 23460, 23500 Gates Avenue, Richmond, B.C.

Rezoning #:
RZ17-766714

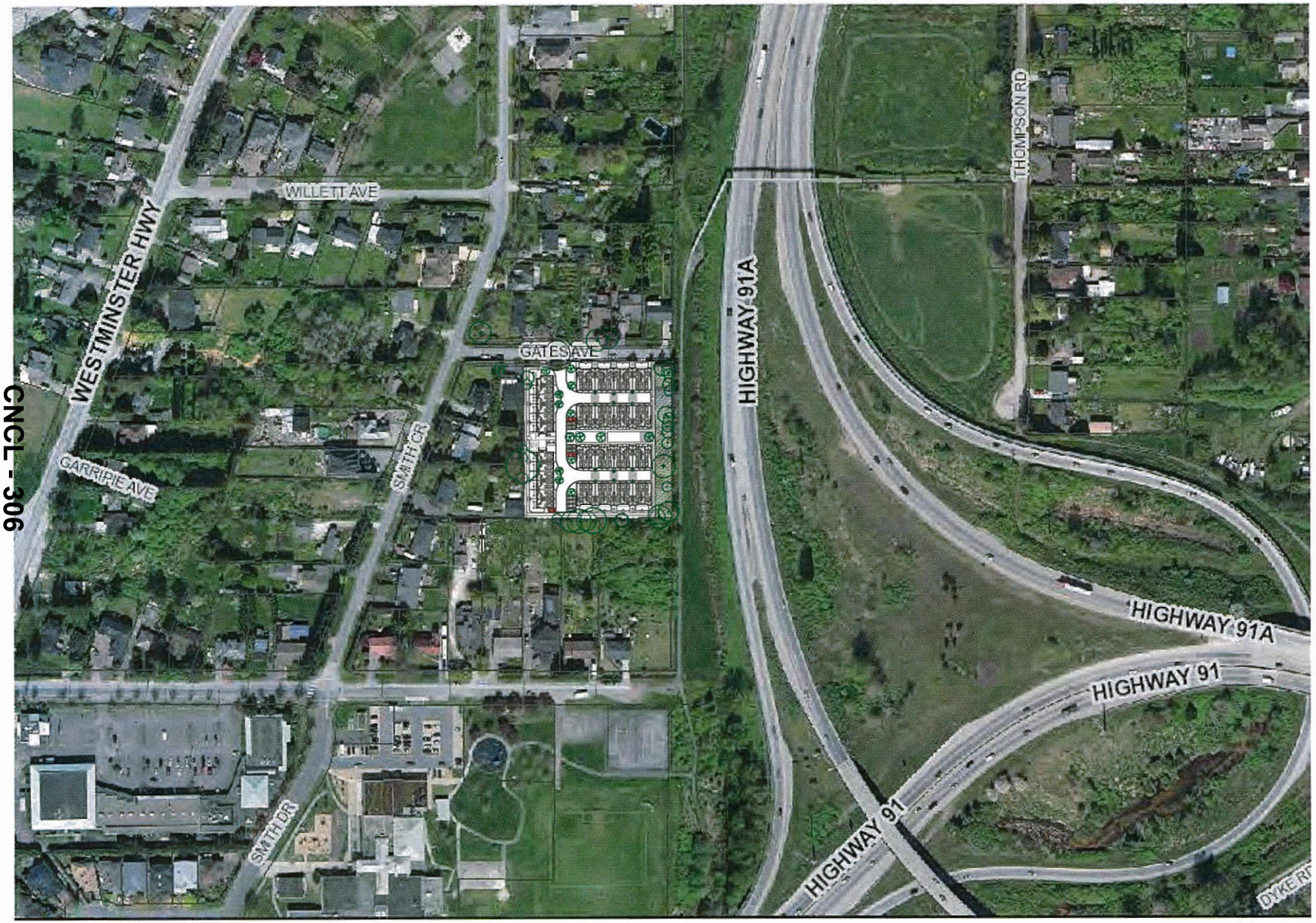
Drawn: DV
Stamp:
Checked: TM
Approved: MVDZ
Original Sheet Size: 24"x36"
Scale: 1:150

Drawing Title:
ESA ENHANCEMENT AREA - ON-SITE
CNCL - 305

VDZ Project #:
DP2017-41

NORTH

Drawing #:
L-06



CNCL - 306

ATTACHMENT 6

23400 - 23500

GATES AVENUE

AREA PLAN

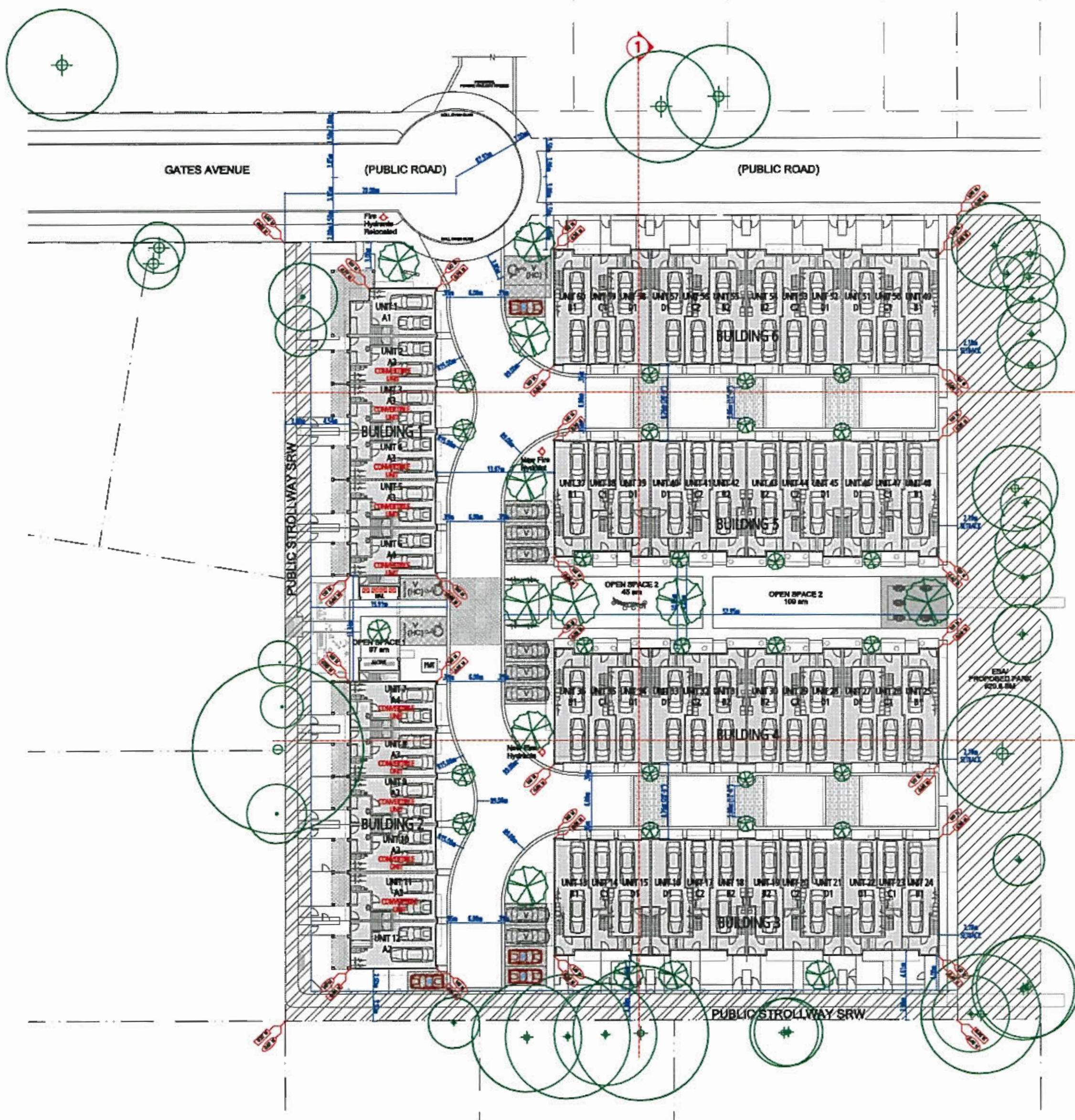
SCALE: 1 = 1000

0 15M 30M 60M

RZ17-766714
JUNE 3, 2019

FOUGERE
architecture inc.
BRITISH COLUMBIA • ALBERTA • WASHINGTON
202 – 2425 Quebec Street 604.873.3097
Vancouver, BC V5T 4L6 fougerearchitecture.ca

1



CODE ANALYSIS - PART 3 BLDG. 3,4,5 & 6 Project: Gates Ave.	
BCBC REF. 3.2.2.52	CODE INFORMATION
Applicable code	British Columbia Building Code 2018
Major occupancy	Group C
Building area (Permitted - [illegible]m²)	(Proposed) [illegible] m²
Building height	3 Storeys
Streets faced	1 Street
Floor FRR*	1 hr
Roof FRR	1 hr
Load bearing wall FRR	1 hr
Sprinkler system required	N/A
Construction type (Permitted - [illegible])	(Proposed) combustible
Fire alarm required	N/A
Standpipe required	N/A
Separation of residential suites	1 Hour

* Fire Resistance Rating

SCHEMATIC SITE DATA

GROSS SITE AREA	8248.2 SM
ESA DEDICATION	920.6 SM
NET SITE AREA	7,327.6 SM
UNIT COUNT	60 UNITS
DENSITY (UPH)	81.8
DENSITY (FAR)	0.962
DENSITY INCLUDING ESA (FAR)	0.854
TANDEM GARAGES	(32/48) 66%
RESIDENTIAL PARKING REQUIRED	(60 x 1.8) 108 STALLS
RESIDENTIAL PARKING PROVIDED	108 STALLS
VISITOR PARKING REQUIRED	(60 x .18) 11 STALLS
VISITOR PARKING PROVIDED	11 STALLS
STACK TOWNHOMES	(48/60) 80%
OPEN SPACE REQUIRED	360 SM
OPEN SPACE PROVIDED	542 SM
PLAYGROUND SPACE REQUIRED	180 SM
PLAYGROUND SPACE PROVIDED	251 SM
GARBAGE/RECYCLING	DOOR-TO-DOOR PICKUP

FAR CALCULATION

1	A1 (3 BR)	@ 137.1 SM	137.3	SM
1	A2 (3 BR)	@ 128.5 SM	128.5	SM
8	A3 (3 BR)	@ 128.0 SM	1,024.0	SM
2	A4 (3 BR)	@ 130.0 SM	260.0	SM
8	B1 (3 BR)	@ 157.3 SM	1,181.6	SM
8	B2 (3 BR)	@ 133.7 SM	1,041.6	SM
8	C1 (2 BR)	@ 77.1 SM	616.8	SM
8	C2 (2 BR)	@ 74.4 SM	595.2	SM
16	D1 (3BR)	@ 132.4 SM	2,062.4	SM
60	Homes		7,047.4	SM

COVERAGE CALCULATION

1	A1 (3 BR)	@ 80.7 SM	80.7	SM
1	A2 (3 BR)	@ 66.2 SM	66.2	SM
8	A3 (3 BR)	@ 66.0 SM	528.0	SM
2	A4 (3 BR)	@ 66.2 SM	132.4	SM
8	B1 (3 BR)	@ 56.2 SM	449.6	SM
8	B2 (3 BR)	@ 55.8 SM	446.4	SM
8	C1 (2 BR)	@ 36.5 SM	292.0	SM
8	C2 (2 BR)	@ 36.5 SM	292.0	SM
16	D1 (3BR)	@ 57.7 SM	923.2	SM
	Electrical rooms	@ 26.8 SM	26.8	SM
60	Homes		3,237.3	SM

COVERAGE- Buildings	44.2% (on NET area)
	39.2 % (on GROSS area)
COVERAGE- Building + Non-Porous	78.4 % (on NET area)
	69.6 % (on GROSS area)
COVERAGE- Live Plant	18.8 % (on NET area)
	27.9 % (on GROSS area)

PARKING SPACES	required	provided
TOTAL (0.18 cars/unit)	108 cars	108 cars
units w. side-by-side garage		24 cars
units w. one in, one out		8 cars
units w. tandem garage	max. 50%	64 cars (66%)
units w. one car		12 cars
VISITOR PARKING		
0.18 cars/unit	11	11
Accessible (2% of 119)	3	3

23400 - 23500 GATES AVENUE

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REGISTERED ARCHITECT BRITISH COLUMBIA

SITE PLAN

SCALE: 1 : 250

0 4M 8M 16M

RZ17-766714
JUNE 3, 2019

FOUGERE architecture inc.
BRITISH COLUMBIA • ALBERTA • WASHINGTON
202-2425 Quebec Street, Vancouver, BC V5T 4L6
604.873.2907 fougerearchitecture.ca

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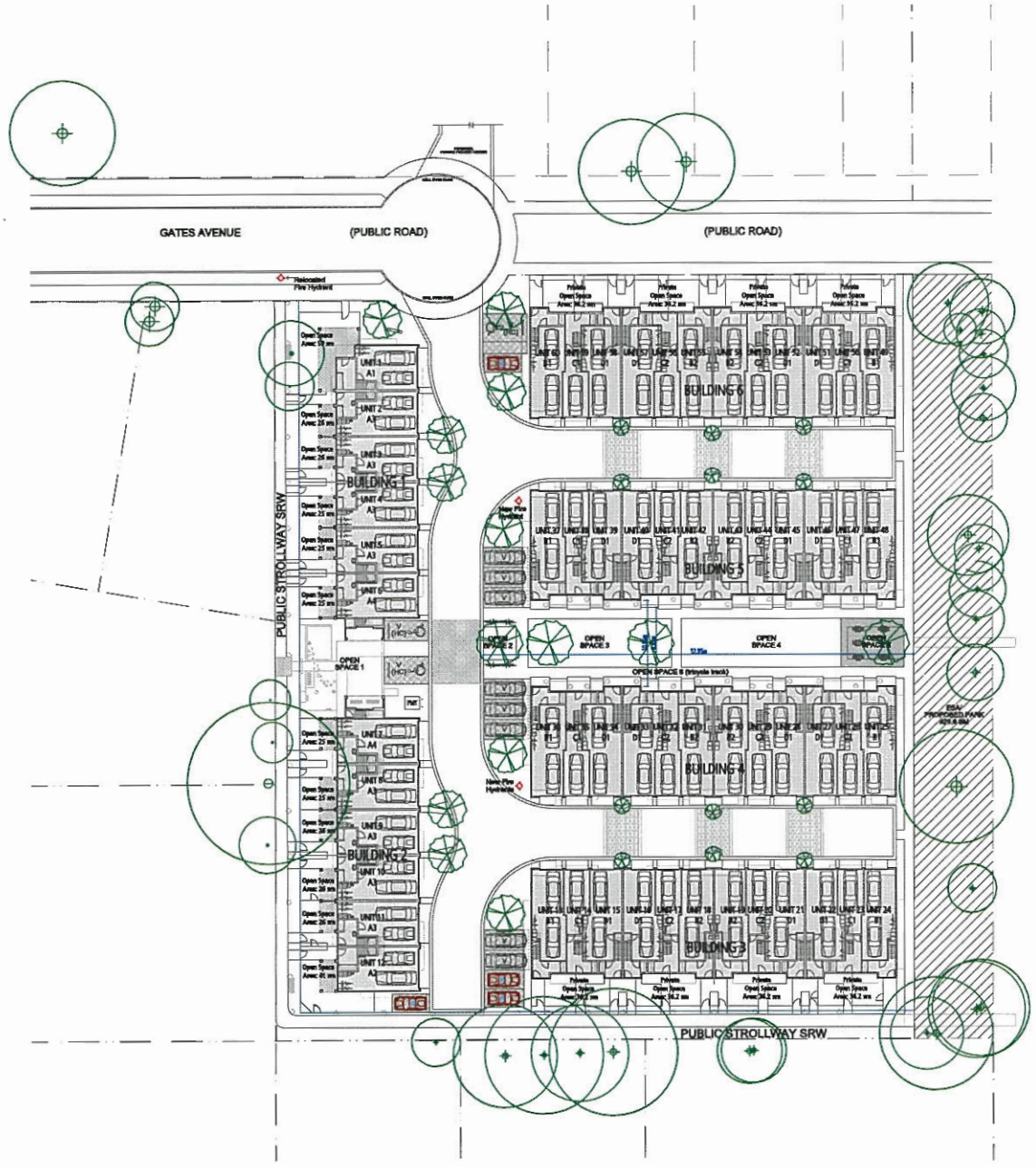


PRIVATE OUTDOOR AREAS PER UNIT:

UNIT	Balcony	On Ground	TOTAL
1 A1	22.0	59.0	81.0 sm
2 A3	8.5	25.6	34.1 sm
3 A3	8.5	25.6	34.1 sm
4 A3	8.5	24.5	33.0 sm
5 A3	8.5	24.5	33.0 sm
6 A4	8.5	25.6	34.1 sm
7 A4	8.5	25.6	34.1 sm
8 A3	8.5	24.5	33.0 sm
9 A3	8.5	25.6	34.1 sm
10 A3	8.5	25.6	34.1 sm
11 A3	8.5	25.6	34.1 sm
12 A2	8.5	41.1	49.6 sm
13 B1	79.8	0.0	79.8 sm
14 C1	8.6	36.2	44.8 sm
15 D1	74.6	0.0	74.6 sm
16 D1	74.6	0.0	74.6 sm
17 C2	8.5	36.2	44.7 sm
18 B2	74.6	0.0	74.6 sm
19 B2	74.6	0.0	74.6 sm
20 C2	8.5	36.2	44.7 sm
21 D1	74.6	0.0	74.6 sm
22 D1	74.6	0.0	74.6 sm
23 C1	8.6	36.2	44.8 sm
24 B1	79.8	0.0	79.8 sm
25 B1	79.8	0.0	79.8 sm
26 C1	8.6	11.2	19.8 sm
27 D1	74.6	0.0	74.6 sm
28 D1	74.6	0.0	74.6 sm
29 C2	8.5	11.2	19.7 sm
30 B2	74.6	0.0	74.6 sm
31 B2	74.6	0.0	74.6 sm
32 C2	8.5	11.2	19.7 sm
33 D1	74.6	0.0	74.6 sm
34 D1	74.6	0.0	74.6 sm
35 C1	8.6	11.2	19.8 sm
36 B1	79.8	0.0	79.8 sm
37 B1	79.8	0.0	79.8 sm
38 C1	8.6	11.2	19.8 sm
39 D1	74.6	0.0	74.6 sm
40 D1	74.6	0.0	74.6 sm
41 C2	8.5	11.2	19.7 sm
42 B2	74.6	0.0	74.6 sm
43 B2	74.6	0.0	74.6 sm
44 C2	8.5	11.2	19.7 sm
45 D1	74.6	0.0	74.6 sm
46 D1	74.6	0.0	74.6 sm
47 C1	8.6	11.2	19.8 sm
48 B1	79.8	0.0	79.8 sm
49 B1	79.8	0.0	79.8 sm
50 C1	8.6	36.2	44.8 sm
51 D1	74.6	0.0	74.6 sm
52 D1	74.6	0.0	74.6 sm
53 C2	8.5	36.2	44.7 sm
54 B2	74.6	0.0	74.6 sm
55 B2	74.6	0.0	74.6 sm
56 C2	8.5	36.2	44.7 sm
57 D1	74.6	0.0	74.6 sm
58 D1	74.6	0.0	74.6 sm
59 C1	8.6	36.2	44.8 sm
60 B1	79.8	0.0	79.8 sm

PRIVATE OUTDOOR AREAS AVERAGE PER UNIT: 56.9 sm

COMMON OUTDOOR AREAS

OPEN SPACE REQUIRED	360 sm
OPEN SPACE 1	108 sm
OPEN SPACE 2	16 sm
OPEN SPACE 3	106 sm
OPEN SPACE 4	118 sm
OPEN SPACE 5	46 sm
OPEN SPACE 6	148 sm
TOTAL OPEN SPACE PROVIDED	542 sm

23400 - 23500

GATES AVENUE

PRIVATE OUTDOOR SPACE CALCULATION PLAN

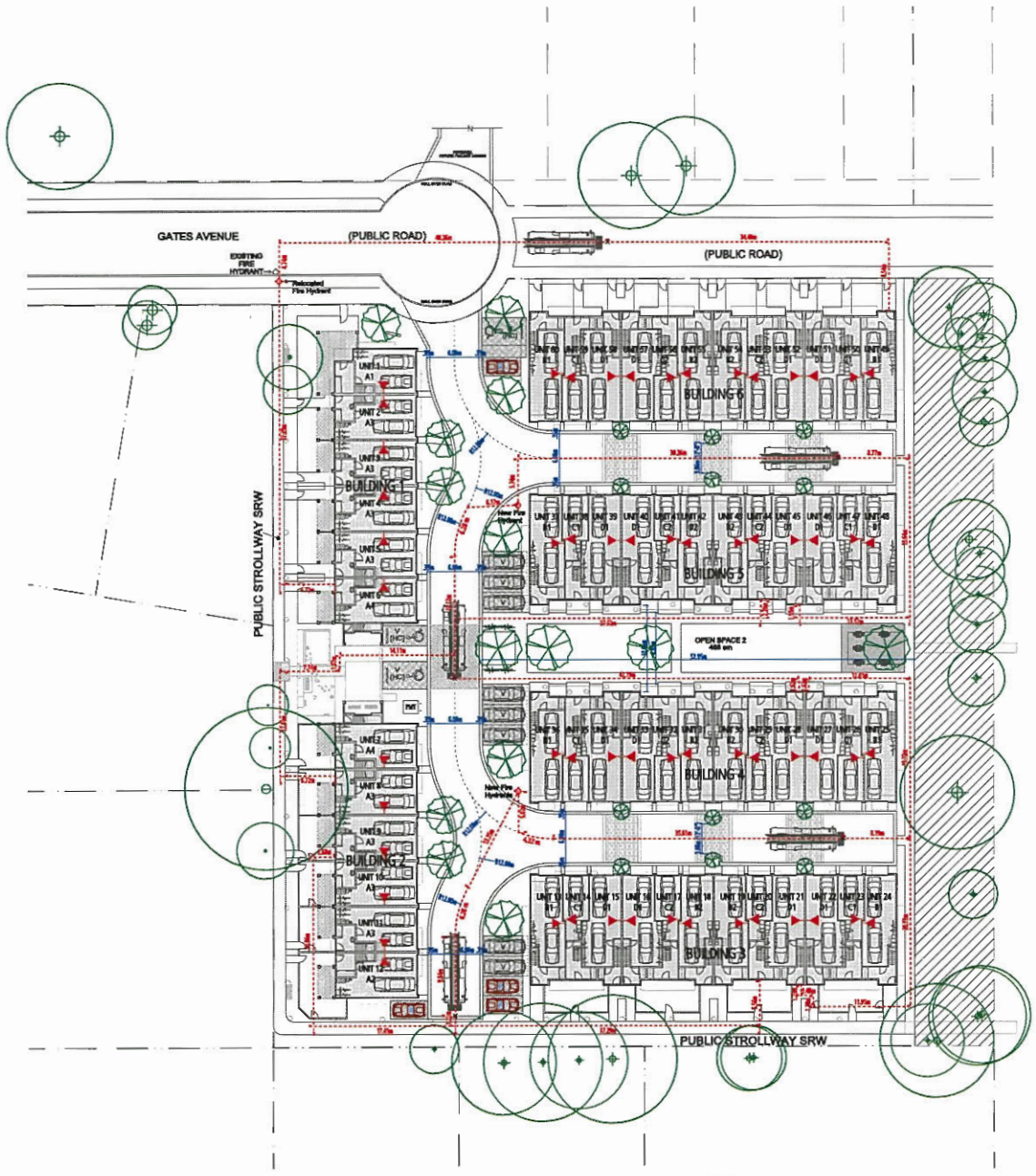
SCALE: 1 : 250

0 4M 8M 16M

RZ17-766714

JUNE 3, 2019

FOUGERE architecture inc.
BRITISH COLUMBIA • ALBERTA • WASHINGTON
202 – 2425 Quebec Street 604.879.2997
Vancouver, BC V5T 4L6 fougerearchitecture.ca



PARKING & BICYCLE DATA

Residential 1.0 cars/unit	108
Visitor 0.10 cars/unit	11
Total Required	119
Required Handicap Stall	
2% of the total required parking spaces	3
Permitted Small Parking stall	
50% of provided parking spaces	59
Parking Provided	
Standard Stall	94
Small Stall	14
Visitor Provided	11
Total Provided	119
On-site Bicycle Parking Requirements	
Class 1 Required: 1.25 stalls/unit	75
Class 1 Stalls Provided	88
Class 2 Required: 0.2 stall/unit	12
Class 2 Stalls Provided	12

PARKING LEGEND

STANDARD CAR STALL SIZE: 5.5m x 2.5m

SMALL CAR STALL SIZE: 5.0m x 2.5m

HANDICAP CAR STALL SIZE: 5.5m x 3.5m

LEGEND

▲ Electric Vehicle Plug-ins 1 per unit

23400 - 23500 GATES AVENUE

REGISTERED ARCHITECT BRIAN A. FOUGERE PROVINCE OF BRITISH COLUMBIA

PARKING PLAN

SCALE: 1 : 250

0 4M 8M 16M

RZ17-766714
JUNE 3, 2019

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BRITISH COLUMBIA • ALBERTA • WASHINGTON
202 – 2425 Quebec Street 604.872.2997
Vancouver, BC V5T 4L6 fougerearchitecture.ca

4

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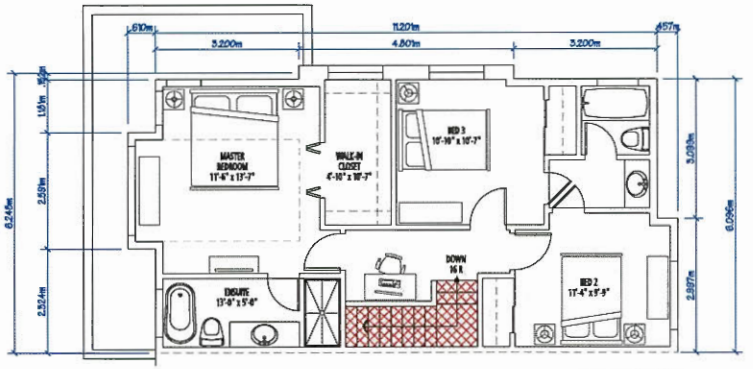
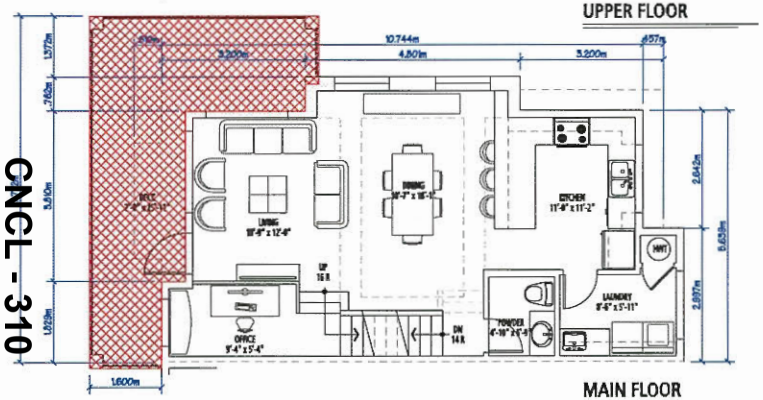
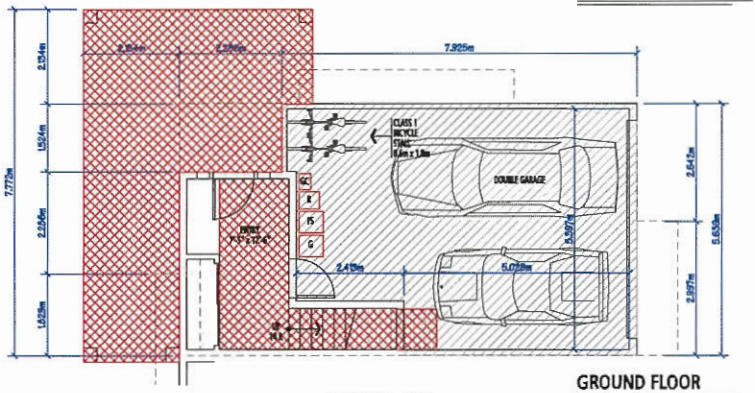


UPPER FLOOR



MAIN FLOOR



GROUND FLOOR

UNIT A1

(3 Bedrooms End Units)

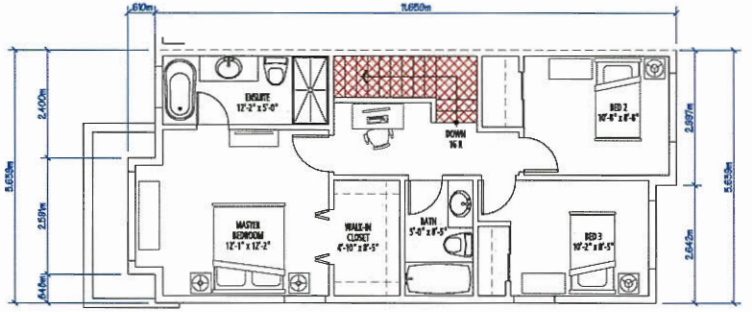
UNIT A1

FLOOR AREA CALCULATION

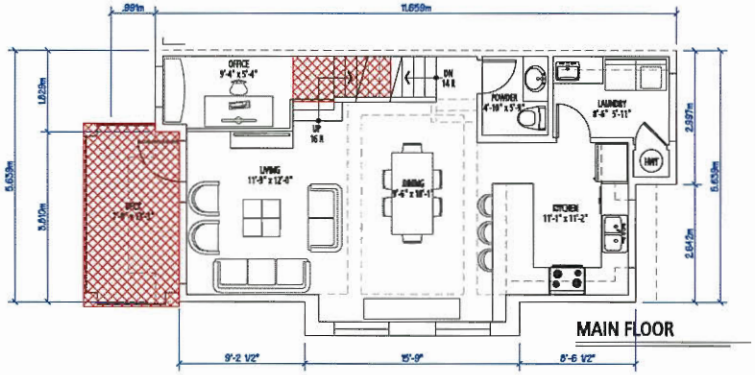
GROUND FLOOR	80.7 sm
SECOND FLOOR	86.2 sm
THIRD FLOOR	72.0 sm
GROSS	238.9 sm
less garage	39.8 sm
less covered area	48.6 sm
SALEABLE	150.5 sm
less ground floor stair	8.0 sm
less main floor stair	2.0 sm
less upper floor stair	3.2 sm
TOTAL NET	137.3 sm

PROVISION OF ACCESSIBILITY FEATURES
"AGING-IN-PLACE" REQUIREMENTS
ON ALL UNITS:

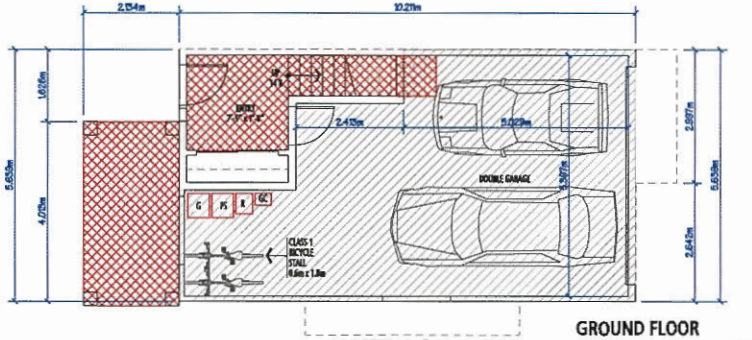
- Entry doors minimum 865 mm clear opening (3'-0" swinging door spec.)
- Hallways minimum 900 mm width
- Door from garage to living area minimum 2'-10" (swinging door spec.)
- Blocking in bedrooms for installation of grab-bars (toilet, tub and shower)
- Provision of lever door handles
- One window that can be opened with a single hand in the living room
- One window that can be opened with a single hand in one bedroom



UPPER FLOOR



MAIN FLOOR



GROUND FLOOR

UNIT A2

(3 Bedrooms End Units)

UNIT A2

FLOOR AREA CALCULATION

GROUND FLOOR	66.2 sm
SECOND FLOOR	72.6 sm
THIRD FLOOR	66.2 sm
GROSS	204.9 sm
less garage	45.8 sm
less covered area	17.2 sm
SALEABLE	141.9 sm
less ground floor stair	7.9 sm
less main floor stair	2.1 sm
less upper floor stair	3.4 sm
TOTAL NET	128.5 sm

CNCL - 310

23400 - 23500

GATES AVENUE

REGISTERED ARCHITECT BRIAN A. FOUGERE BRITISH COLUMBIA

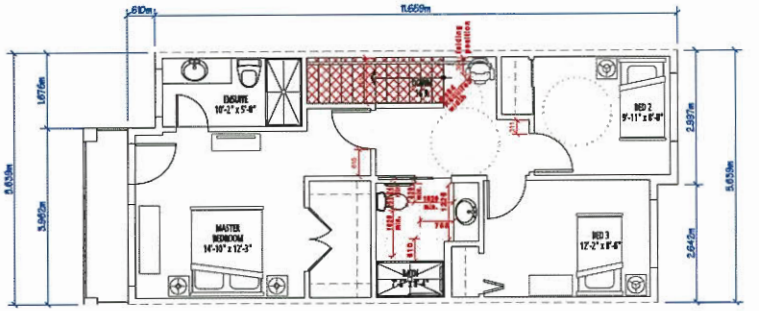
UNIT PLANS

SCALE: 1 : 50

0 1M 2M 3M

RZ17-766714
JUNE 3, 2019

FOUGERE architecture inc.
BRITISH COLUMBIA • ALBERTA • WASHINGTON
202 – 2425 Quebec Street Vancouver, BC V5T 4L6
604.873.2907
fougerearchitecture.ca



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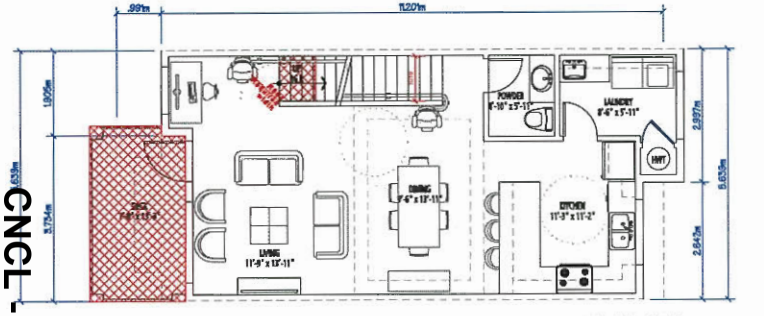
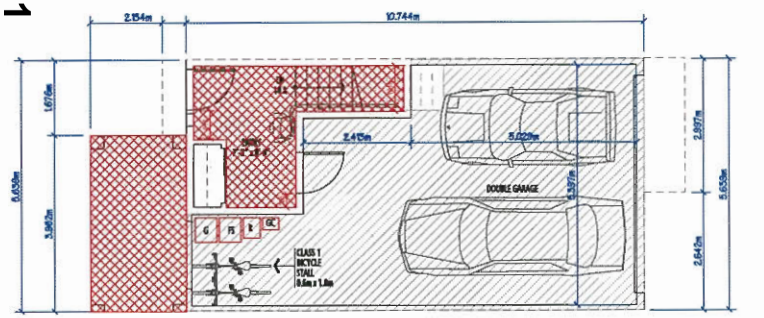


MAIN FLOOR



GROUND FLOOR

UNIT A3

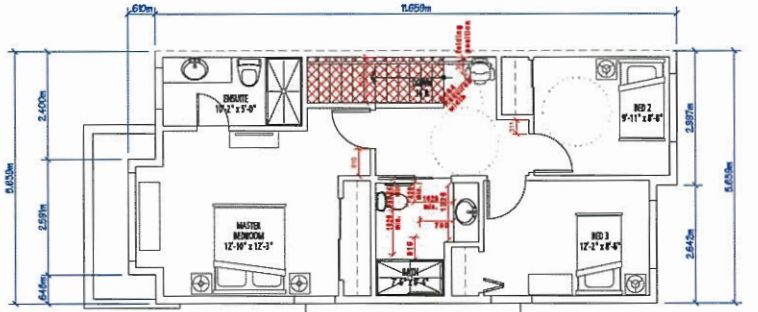
(3 Bedrooms End Units)

UNIT A3

(CONVERTIBLE UNIT)

FLOOR AREA CALCULATION

GROUND FLOOR	66.0 sm
SECOND FLOOR	69.7 sm
THIRD FLOOR	66.9 sm
GROSS	202.6 sm
less garage	44.7 sm
less covered area	16.8 sm
SALEABLE	141.1 sm
less ground floor stair	8.5 sm
less main floor stair	1.5 sm
less upper floor stair	3.1 sm
TOTAL NET	128.0 sm



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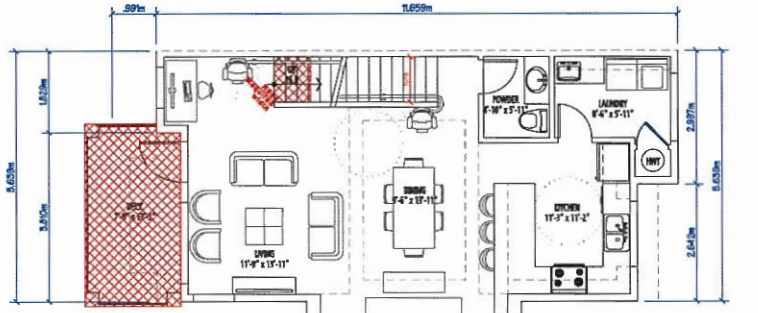
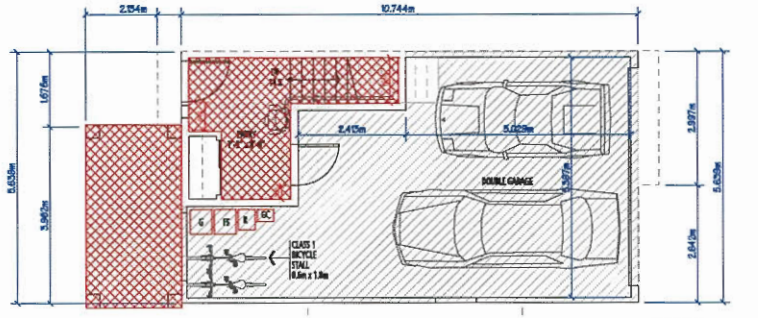


MAIN FLOOR



GROUND FLOOR

UNIT A4

(3 Bedrooms End Units)

UNIT A4

(CONVERTIBLE UNIT)

FLOOR AREA CALCULATION

GROUND FLOOR	66.2 sm
SECOND FLOOR	72.6 sm
THIRD FLOOR	66.1 sm
GROSS	204.9 sm
less garage	44.7 sm
less covered area	17.1 sm
SALEABLE	143.1 sm
less ground floor stair	8.5 sm
less main floor stair	1.5 sm
less upper floor stair	3.1 sm
TOTAL NET	130.0 sm

Summary of the Convertible Unit Features

- Entry doors min. 863mm opening, but ideally 914 mm.
- Entry door clear exterior floor space min. 1220 mm depth by door width plus 600 mm on latch side.
- Interior doors to entry & main living areas, min. 800 mm clear opening. (2'6"sliding or 2'10"swinging door spec.) with flush thresholds max.13mm height.
- Stair lift as per manufacturer spec (Bruno,SRE-2010-Electra-Ride)
- Hallways minimum 900 mm width
- Door from garage to living area minimum 800 mm clear opening.
- Min. 1 accessible parking space with min. 4 m garage width.
- Min. clear opening 860 mm clear opening to Patios and Balconies.
- Toilet clear floor space min. 1020 mm at side and in front
- Interior Doors to main living areas, 1 bedroom and 1 bedroom min 800 mm clear opening with flush thresholds max. 13 mm height.
- Wall blocking for future installation of grab-bars (toilet, tub and shower)
- Clear area needed under future work space. Plumbing and gas pipes (in-wall and in-floor) located clear of under counter area of future work space (stove, sink & min. 810 mm wide counter)
- 1500 mm turning diameter or turning path diagram
- One window that can be opened with a single hand in the living room
- One window that can be opened with a single hand in one bedroom

CNCL - 311

23400 - 23500

GATES AVENUE

REGISTERED ARCHITECT

UNIT PLANS

SCALE: 1 : 50

0 1M 2M 3M

RZ17-766714

JUNE 3, 2019

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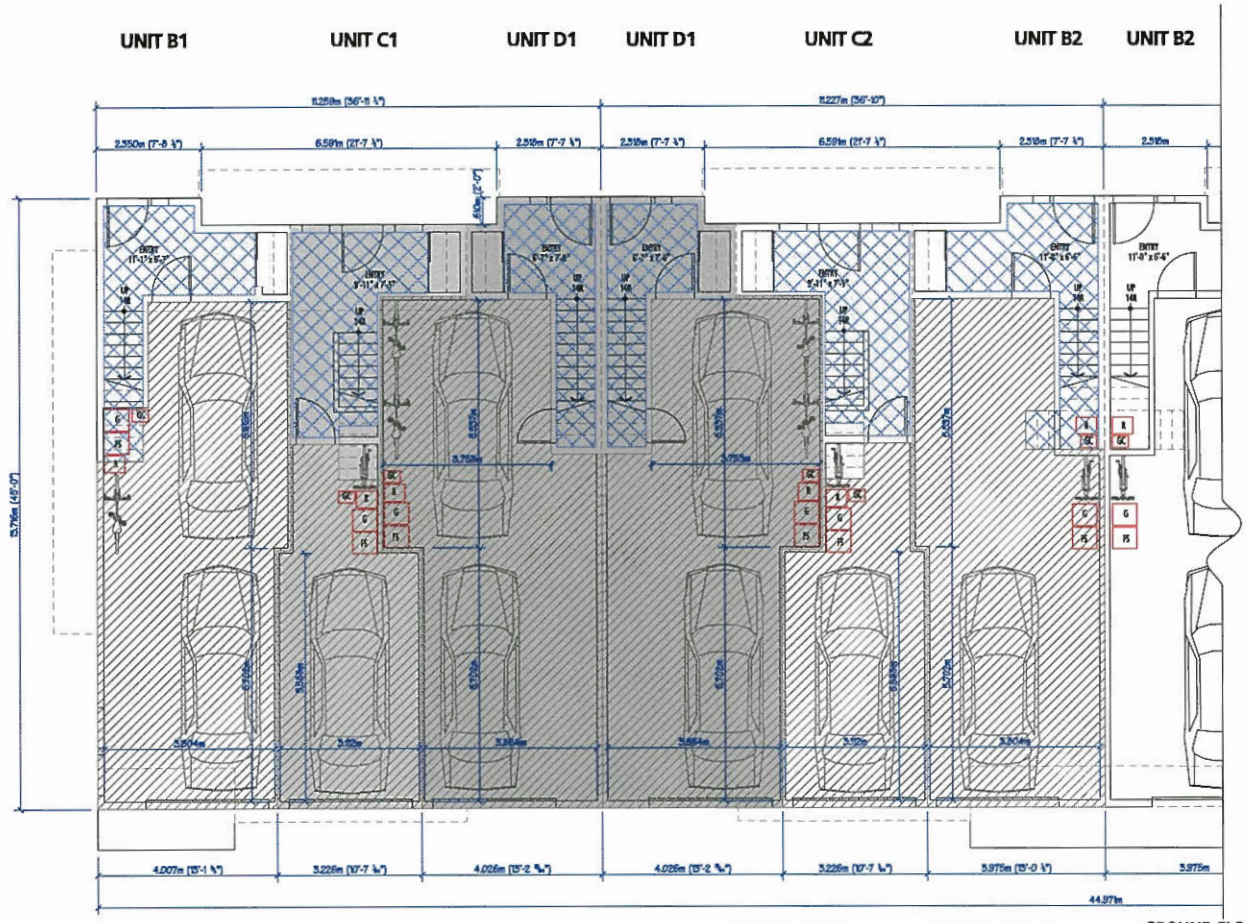
Vancouver, BC V5T 4L6 fougerearchitecture.ca

CNCL - 312



GROUND FLOOR

UNIT B1

FLOOR AREA CALCULATION

GROUND FLOOR	56.2 sm
SECOND FLOOR	48.7 sm
THIRD FLOOR	91.5 sm
ROOF TOP ACCESS	9.0 sm
GROSS	205.4 sm
less garage	43.4 sm
less covered area	0.0 sm
SALEABLE	171.6 sm
less ground floor stair	9.2 sm
less main floor stair	0.8 sm
less upper floor stair	4.3 sm
TOTAL NET	147.7 sm

UNIT B2

FLOOR AREA CALCULATION

GROUND FLOOR	55.8 sm
SECOND FLOOR	42.6 sm
THIRD FLOOR	82.7 sm
ROOF TOP ACCESS	5.4 sm
GROSS	186.5 sm
less garage	42.7 sm
less covered area	0.0 sm
SALEABLE	147.3 sm
less ground floor stair	9.6 sm
less main floor stair	0.4 sm
less upper floor stair	3.6 sm
TOTAL NET	130.2 sm

UNIT C1

FLOOR AREA CALCULATION

GROUND FLOOR	36.5 sm
SECOND FLOOR	73.4 sm
	0.0 sm
	0.0 sm
GROSS	109.9 sm
less garage	22.8 sm
less covered area	0.0 sm
SALEABLE	87.1 sm
less ground floor stair	10.0 sm
less main floor stair	0.0 sm
less upper floor stair	0.0 sm
TOTAL NET	77.1 sm

UNIT C2

FLOOR AREA CALCULATION

GROUND FLOOR	36.5 sm
SECOND FLOOR	74.4 sm
	0.0 sm
	0.0 sm
GROSS	110.9 sm
less garage	22.8 sm
less covered area	3.7 sm
SALEABLE	84.4 sm
less ground floor stair	10.0 sm
less main floor stair	0.0 sm
less upper floor stair	0.0 sm
TOTAL NET	74.4 sm

UNIT D1

FLOOR AREA CALCULATION

GROUND FLOOR	57.7 sm
SECOND FLOOR	44.0 sm
THIRD FLOOR	82.7 sm
ROOF TOP ACCESS	8.9 sm
GROSS	189.8 sm
less garage	47.3 sm
less covered area	0.0 sm
SALEABLE	146.0 sm
less ground floor stair	7.0 sm
less main floor stair	3.0 sm
less upper floor stair	3.6 sm
TOTAL NET	128.9 sm

PROVISION OF ACCESSIBILITY FEATURES
"AGING-IN-PLACE" REQUIREMENTS
ON ALL UNITS:

- Entry doors minimum 855 mm clear opening (3'-0" swinging door spec.)
- Hallways minimum 900 mm width
- Door from garage to living area minimum 2'-10" (swinging door spec.)
- Blocking to bathrooms for installation of grab-bars (toilet, tub and shower)
- Provision of lever door handles
- One window that can be opened with a single hand in the living room
- One window that can be opened with a single hand in one bedroom

23400 - 23500
GATES AVENUE

REVISED UNIT PLANS
SCALE: 1 : 50

0 1M 2M 3M

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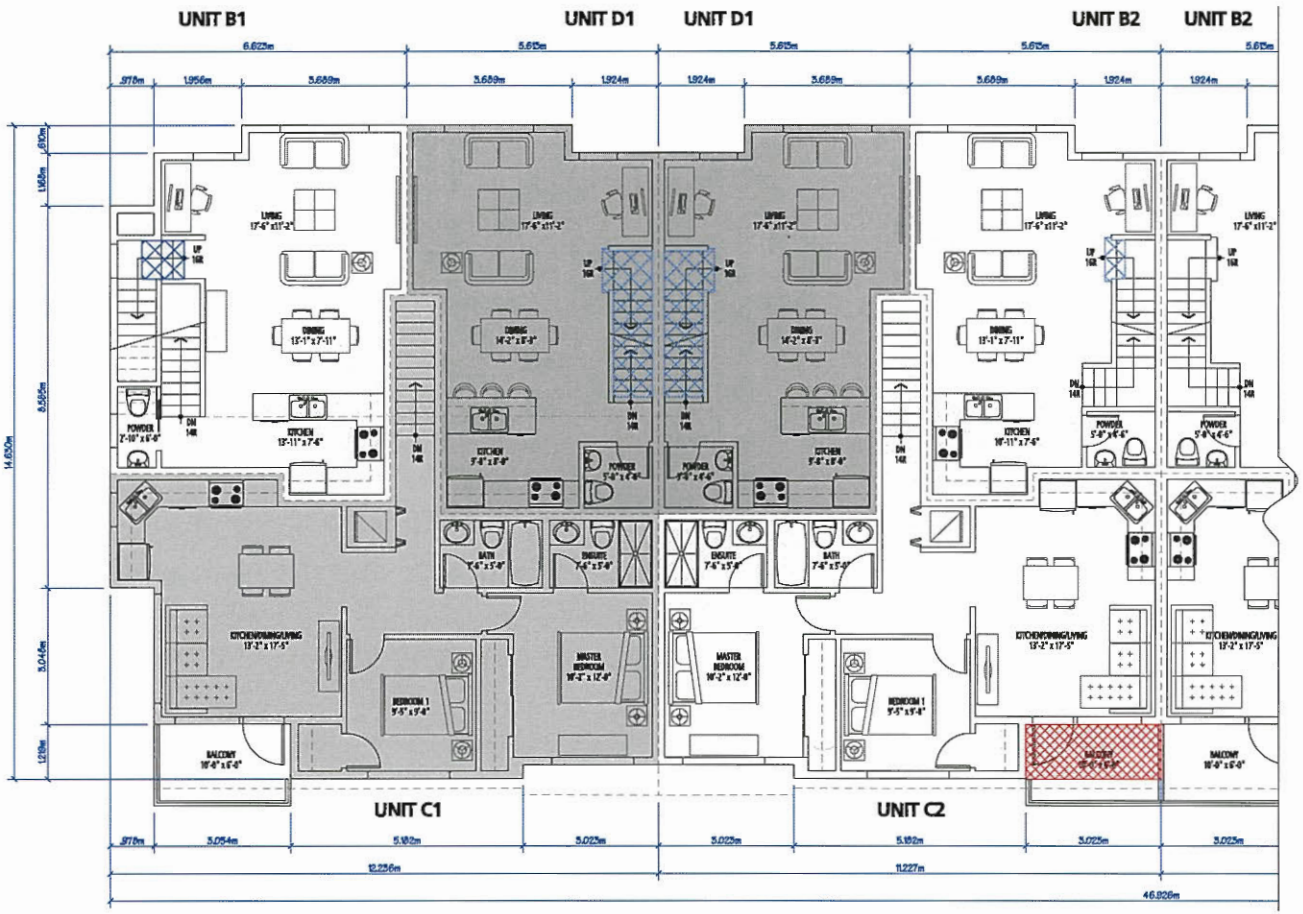
CNCL - 313



MAIN FLOOR

PROVISION OF ACCESSIBILITY FEATURES
"AGING-IN-PLACE" REQUIREMENTS
ON ALL UNITS:

- Entry doors minimum 809 mm clear opening (3'-0" swinging door spec.)
- Hallways minimum 900 mm width
- Door from garage to living area minimum 2'-10" (swinging door spec.)
- Blocking to bathrooms for installation of grab-bars (toilet, tub and shower)
- Provision of lever door handles
- One window that can be opened with a single hand in the living room
- One window that can be opened with a single hand in one bedroom

23400 - 23500

GATES AVENUE

REVISED UNIT PLANS

SCALE: 1 : 50

0 1M 2M 3M

RZ17-766714

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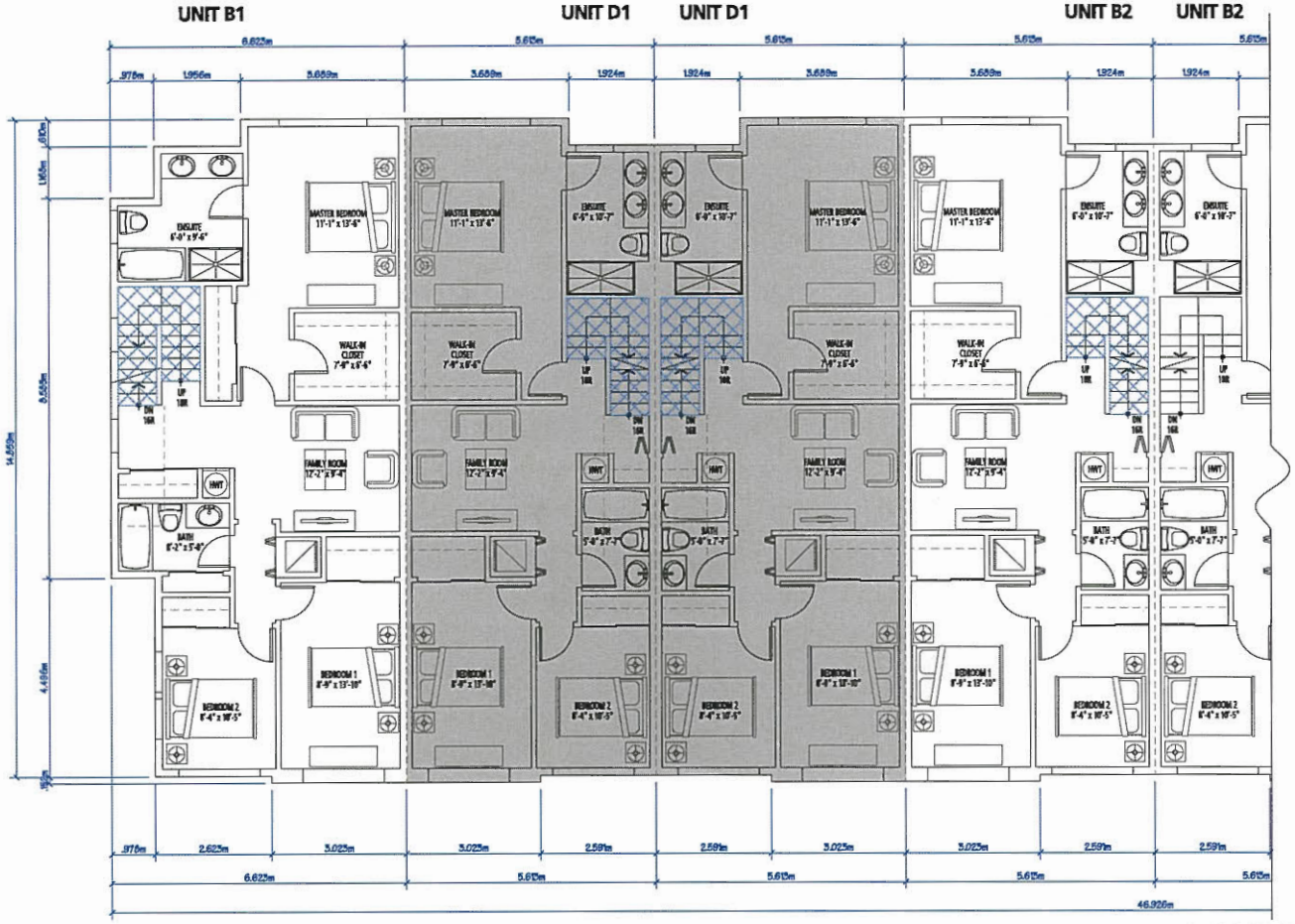
CNCL - 314



UPPER FLOOR

PROVISION OF ACCESSIBILITY FEATURES
"AGING-IN-PLACE" REQUIREMENTS
ON ALL UNITS:

- Entry doors minimum 865 mm clear opening (3'-0" swinging door spec.)
- Hallways minimum 900 mm width
- Door from garage to living area minimum 2'-10" (swinging door spec.)
- Blocking to bathrooms for installation of grab bars (toilet, tub and shower)
- Provision of lever door handles
- One window that can be opened with a single hand in the living room
- One window that can be opened with a single hand in one bedroom

23400 - 23500
GATES AVENUE

REVISED UNIT PLANS
SCALE: 1 : 50
0 1M 2M 3M

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JUNE 3, 2019

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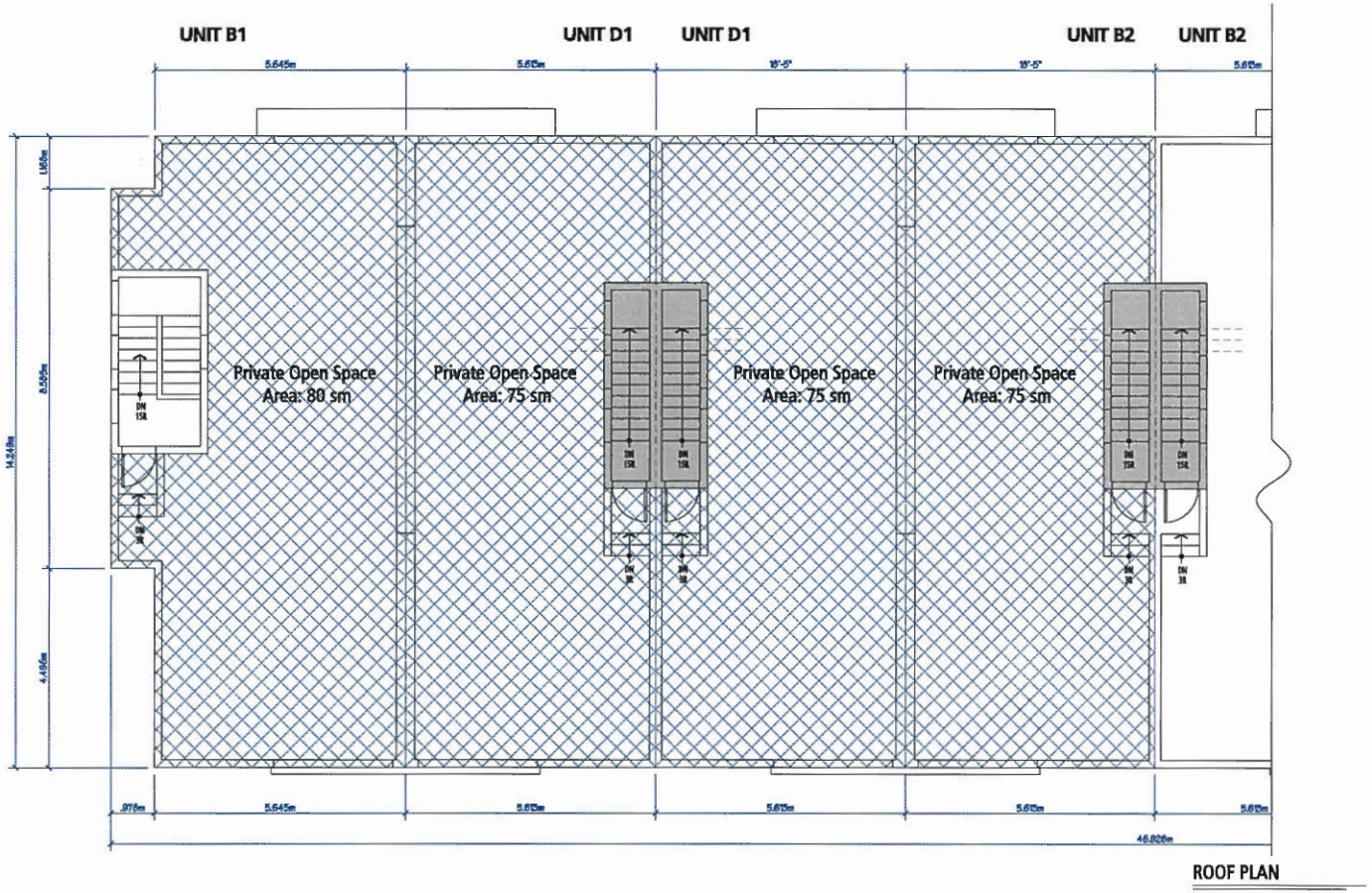
604.873.2907



ROOF PLAN

PROVISION OF ACCESSIBILITY FEATURES
"AGING-IN-PLACE" REQUIREMENTS
ON ALL UNITS:

- Entry doors minimum 808 mm clear opening (3'-0" swinging door span.)
- Hallways minimum 900 mm width
- Door from garage to living area minimum 2'-10" (swinging door span.)
- Blocking to bathrooms for installation of grab-bars (toilet, tub and shower)
- Provision of lever door handles
- One window that can be opened with a single hand in the living room
- One window that can be opened with a single hand in one bedroom

CNCL - 315

23400 - 23500
GATES AVENUE

REVISED UNIT PLANS
SCALE: 1 : 50

0 1M 2M 3M

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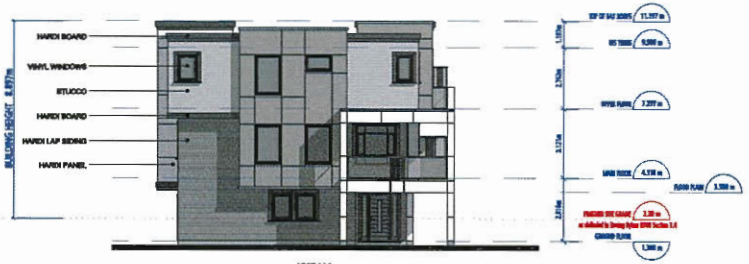
WEST ELEVATION

EAST ELEVATION

SOUTH ELEVATION



NORTH ELEVATION

23400 - 23500

GATES AVENUE

ELEVATIONS BUILDING 1

SCALE: 1 : 100

0 2M 4M 6M

RZ17-766714

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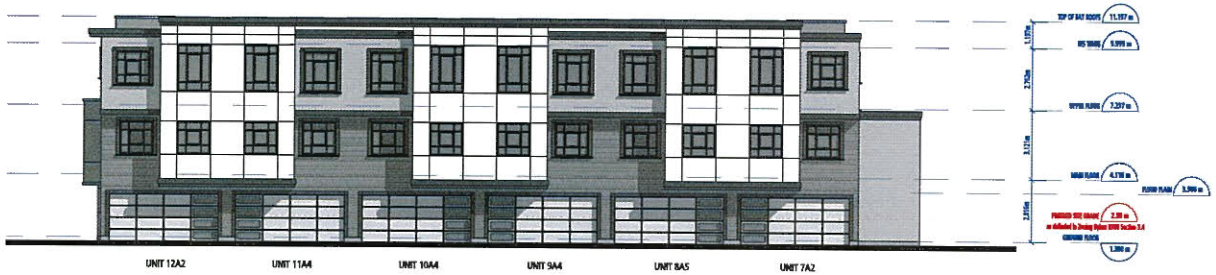
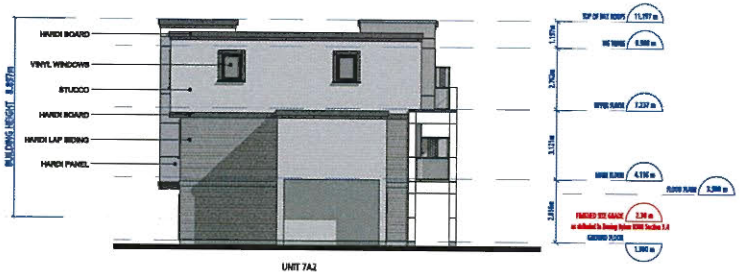
WEST ELEVATION



EAST ELEVATION

SOUTH ELEVATION



NORTH ELEVATION

23400 - 23500

GATES AVENUE

ELEVATIONS BUILDING 2

SCALE: 1 : 100

0 2M 4M 6M

RZ17-766714

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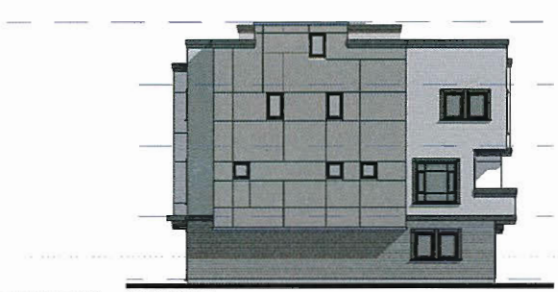
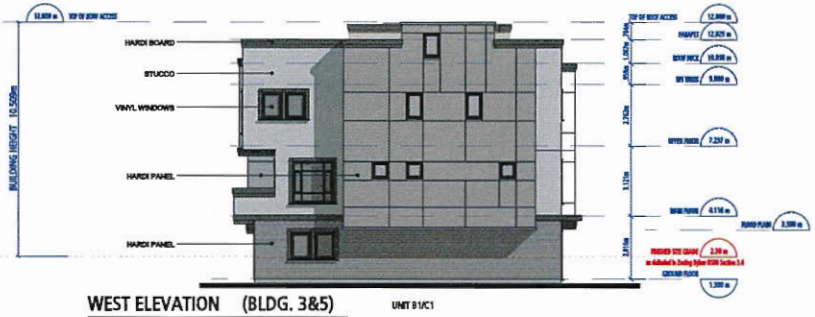
NORTH ELEVATION (BLDG. 3&5)
SOUTH ELEVATION (BLDG. 4&6)

SOUTH ELEVATION (BLDG. 3&5)
NORTH ELEVATION (BLDG. 4&6)



EAST ELEVATION (BLDG. 3&5)
WEST ELEVATION (BLDG. 4&6)



WEST ELEVATION (BLDG. 3&5)
EAST ELEVATION (BLDG. 4&6)

23400 - 23500
GATES AVENUE

REGISTERED ARCHITECT
PROVINCE OF BRITISH COLUMBIA

ELEVATIONS
BUILDING 3,4,5,6
SCALE: 1 : 100

0 2M 4M 6M

RZ17-766714
JUNE 3, 2019

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GATES AVENUE STREETSCAPE (NORTH)

YARDSCAPE (WEST)

YARDSCAPE (SOUTH)

CNCL - 319

23400 - 23500

GATES AVENUE

REGISTERED ARCHITECT BRITISH COLUMBIA

STREETSCAPE AND YARDSCAPE

SCALE: 1 : 200

0 2M 5M 10M

RZ17-766714

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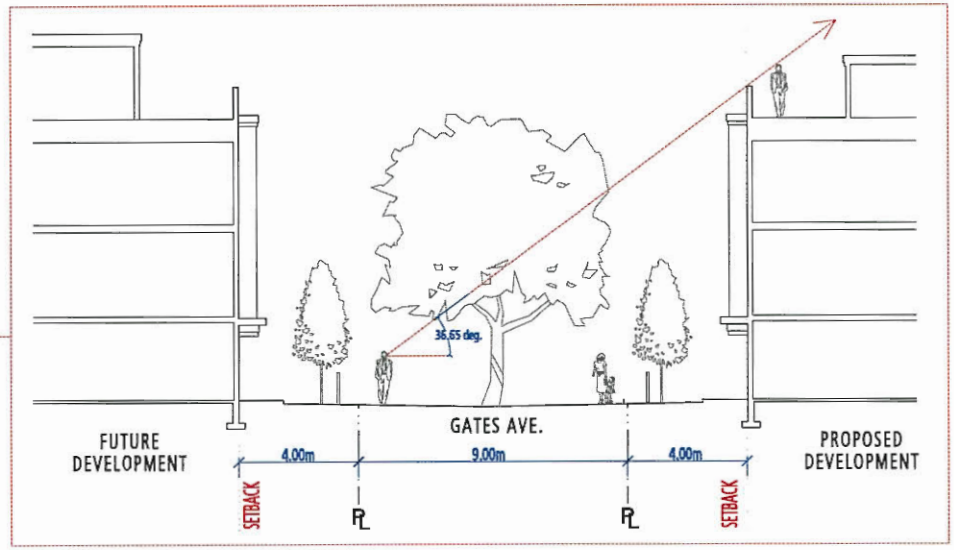

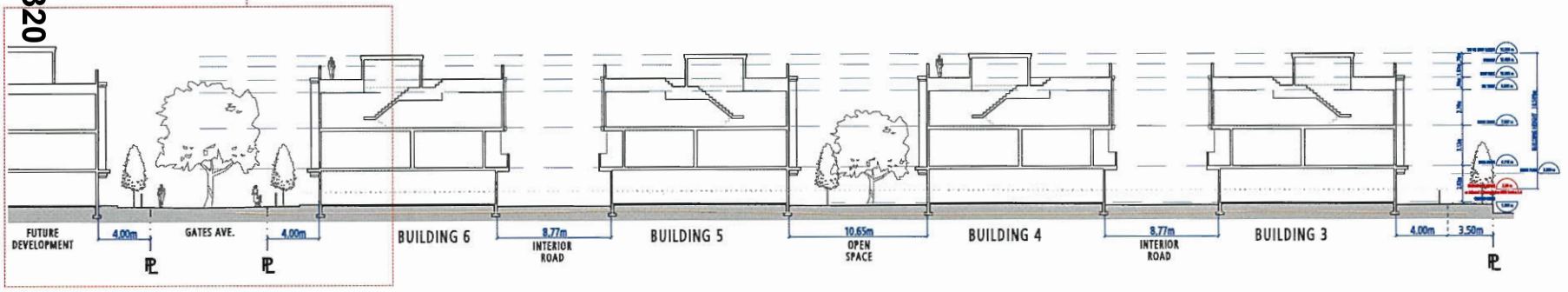

CNCL - 320

23400 - 23500

GATES AVENUE

SITE SECTIONS

SCALE: 1 : 150

0 2M 5M 10M

RZ17-766714

JUNE 3, 2019

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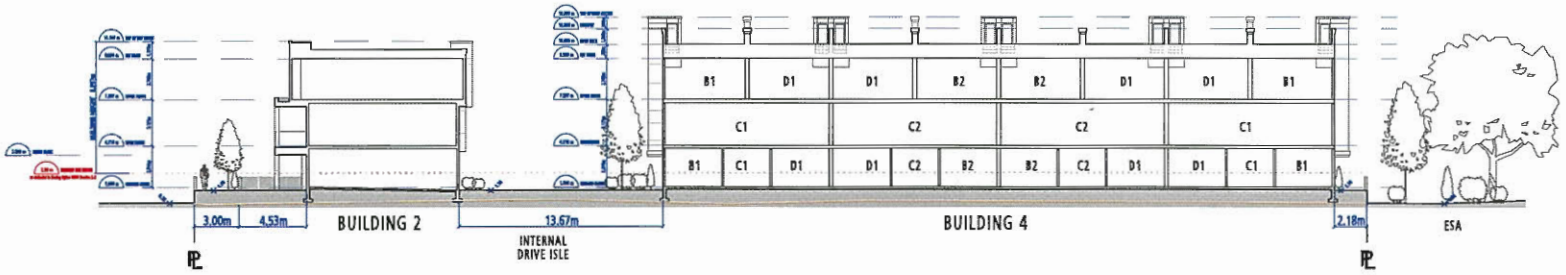
SITE SECTION 2



SITE SECTION 3

CNCL - 321

23400 - 23500

GATES AVENUE

REGISTERED ARCHITECT PROVINCE OF BRITISH COLUMBIA

SITE SECTIONS

SCALE: 1 : 150

0 2M 5M 10M

RZ17-766714
JUNE 3, 2019

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VIEW FROM NORTH

VIEW FROM NORTH WEST

VIEW FROM WEST

VIEW FROM SOUTH

CNCL - 322

23400 - 23500

GATES AVENUE

PERSPECTIVES

SCALE: NTS

RZ17-766714
JUNE 3, 2019

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Gates Avenue Townhouses

Issued for Re-Zoning

Contact Information	Other Key Contacts:	
van der Zalm + associates Inc. Project Landscape Architecture Suite 1 - 20177 97th Avenue Langley, British Columbia, V1M 4B9 t. 604 882 0024 f. 604 882 0042 Primary project contact: Travis Martin Travis@vdz.ca e. 604 882 0024 Alternate contacts (incase away): Mark van der Zalm Principal Landscape Architect mark@vdz.ca o. 604 882 0024 x22	Westin Capital Project Owner 408 Granville Street Vancouver, B.C. V6C 1T2	Fougere Architecture Inc. Project Building Architecture 202-2425 Quebec Street Vancouver, B.C. V5T 4L6 604.873.2907

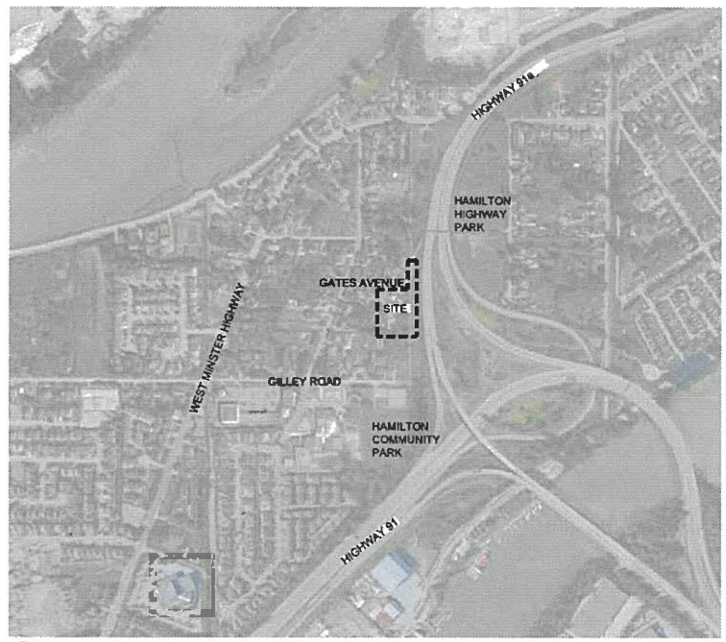
Legal Address and Description:

Lot 124 Plan 44742
Lot 58 Plan 8421 Except: part Subdivided by Plan 44742
Lot 114 Plan 41387
Lot 115 Plan 41387
All of Section 36 Block 5 North Range 4 West New Westminster District
#23400 Gates Avenue, Richmond B.C. P.I.D 003-960-501
#23440 Gates Avenue, Richmond B.C. P.I.D 011-323-370
#23460 Gates Avenue, Richmond B.C. P.I.D 006-141-935
#23500 Gates Avenue, Richmond B.C. P.I.D 003-453-138

Sheet List Table

Sheet Number	Sheet Title
L-01	COVER PAGE
L-02	OVERALL SITE PLAN
L-03	AMENITY AREA
L-04	SITE PLAN NORTH
L-05	SITE PLAN SOUTH
L-06	ESA ENHANCEMENT AREA - ON-SITE
L-07	POSSIBLE ESA COMPENSATION AREA - OFF-SITE
L-08	GREEN SPACE RATIO
LS-01	SECTIONS
LD-01	DETAILS
LD-02	DETAILS
LD-03	DETAILS

1 SITE PLAN
Scale 1:400



2 LOCATION MAP
NTS

van der Zalm + associates inc.
Parks & Recreation • Civil Engineering • Urban Design • Landscape Architecture
Suite 1, 20177 97th Avenue, Langley, British Columbia V1M 4B9

No.	By:	Description	Date
3	TM	Issued for Rezoning	Feb 20, 2019
2	TM	Issued for Rezoning	Dec 07, 2018
1	DV	Issued for Rezoning	July 13, 2018

REVISIONS TABLE FOR DRAWINGS

No.	By:	Description	Date
1	TM	MOTI Update	May 27, 2019

REVISIONS TABLE FOR SHEET

Project:
Gates Avenue Townhouses

Location:
23400, 23440, 23460, 23500
Gates Avenue, Richmond, B.C.

Rezoning #:
RZ17-768714

Drawn: DV
Stamp:
Checked: TM
Approved: MVDZ
Original Sheet Size: 24"x36"
Scale: AS SHOWN

Drawing Title: COVER PAGE
NORTH
VDZ Project #: DP2017-41
Drawing #: L-01

\\VDZ-SERVER\PROJECTS\DEVELOPMENT PERMITS\ACTIVE\DP2017-41 GATES AVENUE\DWG\SHEETS\L-02 OVERALL SITE PLAN.DWG

1 SITE PLAN
Scale 1:200

ON-SITE TREE SCHEDULE

TREES	BOTANICAL NAME / COMMON NAME	CONT	QTY
	Acer rubrum 'Armstrong' / Armstrong Red Maple	6cm	2
	Acer rubrum 'Autumn Glory' / Autumn Glory Maple	6cm	9
	Betula papyrifera / Paper Birch	6cm	5
	Fagus sylvatica 'Dawyck Gold' / European Beech	6cm	22
	Malus fusca / Oregon Crab Apple	6cm	15
	Pseudotsuga menziesii / Douglas Fir	2.5m Height	4
	Sorbus scopulina / Western Mountain Ash	6cm	13
	Thuja plicata / Western Red Cedar	2.5m Height	12
	Tsuga heterophylla / Western Hemlock	6cm	3

HARDSCAPE MATERIALS

KEY	REF.	DESCRIPTION
	6 / LD-01	CONCRETE SIDEWALK PEDESTRIAN
	8 / LD-01	CONCRETE PAVERS PEDESTRIAN
	7 / LD-01	CONCRETE PAVERS VEHICULAR
		PERMEABLE PAVERS VEHICULAR TO MATCH CONCRETE VEHICULAR PAVERS [illegible] INSTALLATION
	1 / LD-03	WOOD DECK
	5 / LD-01	DRIP STRIP

FENCING

KEY	REF.	DESCRIPTION
	6 / LD-03	[illegible] RAIL FENCE
	5 / LD-03	PRIVACY FENCE
		UNIT GATE

SOFTSCAPE MATERIALS

KEY	REF.	DESCRIPTION
	1 / LD-01	PROPOSED TREE
		EXISTING TREE
		SOD See Critical Landscape Notes for Specifications
		GROUNDCOVER / SHADE MIX
	4 / LD-03	SAND PLAY AREA
	7 / LD-03	ENGINEERED WOOD FIBRE PLAY SURFACE
	2,2 / LD-01	SHRUB PLANTING
	2,3 / LD-01	HEDGE PLANTING
		CRUSHED AGGREGATE PATHWAY

SITE FURNISHINGS/LIGHTING

KEY	REF.	DESCRIPTION
	1 / LD-02	BENCH
	1 / LD-02	PICNIC TABLE
	3 / LD-02	TABLES AND CHAIRS
	2 / LD-03	ENTRY TRELLIS
	3 / LD-03	CONCRETE PLANTER
	8 / LD-02	[illegible] CIRCLE
	8 / LD-02	WOOD STEPS
	6 / LD-02	TALK TUBES
	4,5 / LD-02	PLAY PANEL/CHALK BOARD
		LIGHT BOLLARD
		BIKE RACK

van der Zalm + associates inc.
Parks & Recreation • Civil Engineering
Urban Design • Landscape Architecture
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F 604 882 0042
info@vdz.ca

Key Map (NTS)

No.	By:	Description	Date
3	TM	Issued for Rezoning	Feb 20, 2019
2	TM	Issued for Rezoning	Dec 07, 2018
1	DV	Issued for Rezoning	July 13, 2018

REVISIONS TABLE FOR DRAWINGS

No.	By:	Description	Date
2	TM	MOTI Update	May 27, 2019
1	TM	ESA Update	Jan 07, 2019

REVISIONS TABLE FOR SHEET

Project:
Gates Avenue Townhouses

Location:
23400, 23440, 23480, 23500 Gates Avenue, Richmond, B.C.

Rezoning #:
RZ17-766714

Drawn: DV
Stamp:
Checked: TM
Approved: MVDZ
Original Sheet Size: 24"x36"
Scale: AS SHOWN

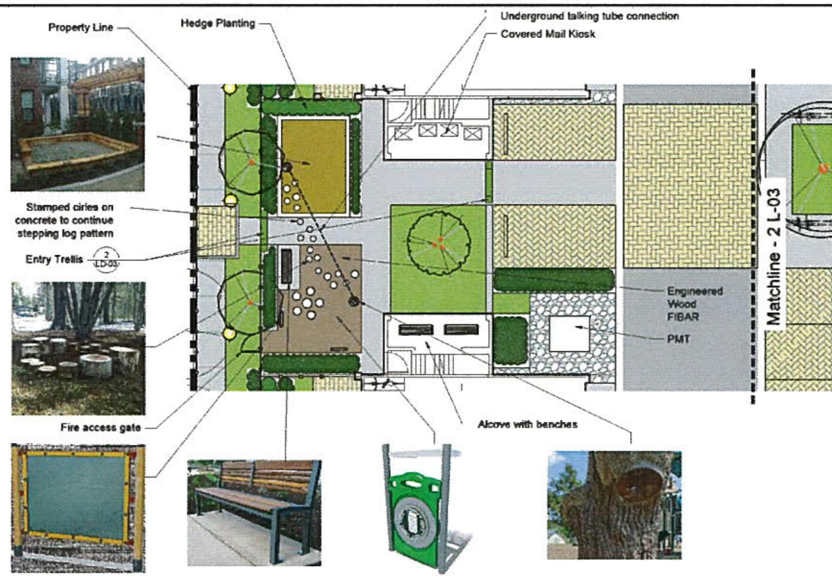
CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE WORK AND REPORT ANY DISCREPANCY TO THE CONSULTANT BEFORE PROCEEDING. ALL DRAWINGS AND SPECIFICATIONS ARE THE EXCLUSIVE PROPERTY OF THE OWNER AND MUST BE RETURNED AT THE COMPLETION OF THE WORK. ALL REZONING/DP/[illegible] DRAWINGS MUST NOT BE PRICED FOR CONSTRUCTION UNLESS LABELED ISSUED FOR TENDER/CONSTRUCTION.

Drawing Title: OVERALL SITE PLAN

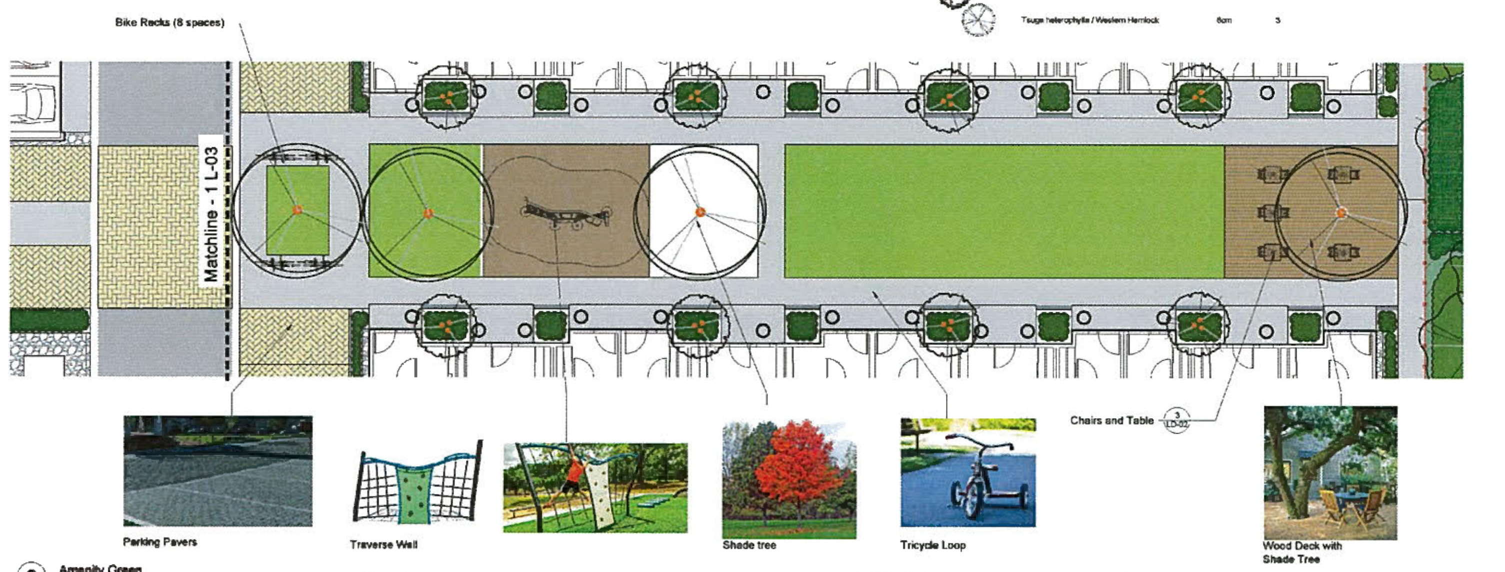
NORTH

VDZ Project #: DP2017-41

Drawing #: L-02



1 **Play area**
Scale 1:100



2 **Amenity Green**
Scale 1:100

1:100 0 1m 2 3 4 5 6 7 8 9 10 11 12 13 14 15

HARDSCAPE MATERIALS

KEY	REF	DESCRIPTION
	6 LD-01	CONCRETE SIDEWALK - PEDESTRIAN
	8 LD-01	CONCRETE PAVERS PEDESTRIAN
	7 LD-01	CONCRETE PAVERS VEHICULAR
		PERMEABLE PAVERS VEHICULAR, TO MATCH CONCRETE VEHICULAR PAVERS REFER TO CIVIL FOR INSTALLATION
	1 LD-03	WOOD DECK
	5 LD-01	DRIP STRIP

FENCING

KEY	REF	DESCRIPTION
	6 LD-03	UNIT RAIL FENCE
	5 LD-03	PRIVACY FENCE
		UNIT GATE

SOFTSCAPE MATERIALS

KEY	REF.	DESCRIPTION
	1 LD-01	PROPOSED TREE
		EXISTING TREE
		SOD See Critical Landscape Notes for Specifications
		GROUNDCOVER SHADE MIX
	4 LD-03	SAND PLAY AREA
	7 LD-02	ENGINEERED WOOD FIBAR PLAY SURFACE
	2,3 LD-01	SHRUB PLANTING
	2,3 LD-01	HEDGE PLANTING
		CRUSHED AGGREGATE PATHWAY

SITE FURNISHINGS/LIGHTING

KEY	REF.	DESCRIPTION
	1 LD-02	BENCH
	1 LD-02	PICNIC TABLE
	3 LD-02	TABLES AND CHAIRS
	2 LD-03	ENTRY TRELLIS
	3 LD-03	CONCRETE PLANTER
	5 LD-03	SITTING CIRCLE
	8 LD-02	WOOD STEPS
	6 LD-02	TALK TUBES
	4,5 LD-02	PLAY PANEL/CHALK BOARD
		LIGHT BOLLARD
		[illegible]

ON-SITE TREE SCHEDULE

TREES	BOTANICAL NAME / COMMON NAME	CONT	QTY
	Acer rubrum 'Armstrong' / Armstrong Red Maple	6cm	2
	Acer rubrum 'Autumn Glory' / Autumn Glory Maple	6cm	9
	Betula papyrifera / Paper Birch	6cm	6
	Fagus sylvatica 'Dawyck Gold' / European Beech	6cm	32
	Malus fusca / Oregon Crab Apple	6cm	15
	Pseudotsuga menziesii / Douglas Fir	2.5m Height	4
	Sorbus scopulina / Western Mountain Ash	6cm	13
	Thuja plicata / Western Red Cedar	2.5m Height	12
	Tsuga heterophylla / Western Hemlock	6cm	3

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info@vdz.ca

Key Map (NTS)

No.	By	Description	Date
3	TM	Issued for Rezoning	Feb 20, 2019
2	TM	Issued for Rezoning	Dec 07, 2018
1	DV	Issued for Rezoning	July 13, 2018

REVISIONS TABLE FOR DRAWINGS

No.	By	Description	Date

REVISIONS TABLE FOR SHEET

Project:
Gates Avenue Townhouses

Location:
23400, 23440, 23460, 23500
Gates Avenue, Richmond, B.C.

Rezoning #:
RZ17-766714

Drawn: DV
Stamp:
Checked: TM
Approved: MVDZ
Original Sheet Size: 24"x36"
Scale: 1:100

Drawing Title:
AMENITY AREA

NORTH

VDZ Project #:
DP2017-41

Drawing #:
L-03

ON-SITE TREE SCHEDULE

TREES	BOTANICAL NAME / COMMON NAME	CONT	QTY
	Acer rubrum 'Armstrong' / Armstrong Red Maple	6cm	2
	Acer rubrum 'Autumn Glory' / Autumn Glory Maple	6cm	9
	Betula papyrifera / Paper Birch	6cm	6
	Fagus sylvatica 'Dawyck Gold' / European Beech	6cm	32
	Malus fusca / Oregon Crab Apple	6cm	15
	Pseudotsuga menziesii / Douglas Fir	2.5m Height	4
	Sorbus scopulina / Western Mountain Ash	6cm	13
	Thuja plicata / Western Red Cedar	2.5m Height	12
	Tsuga heterophylla / Western Hemlock	6cm	3

ESA Planting - See L-06 & L-07

ESA Planting - See L-06 & L-07

1:150 0 1.5 3 4.5 6 7.5 9 10.5 12 13.5 15 16.5 18 19.5 21 22.5

HARDSCAPE MATERIALS

KEY	REF	DESCRIPTION
	6 LD-01	CONCRETE SIDEWALK - PEDESTRIAN
	8 LD-01	CONCRETE PAVERS PEDESTRIAN
	7 LD-01	CONCRETE PAVERS VEHICULAR
		PERMEABLE PAVERS VEHICULAR [illegible]
	1 LD-03	[illegible]
	5 LD-01	DRIP STRIP

FENCING

KEY	REF.	DESCRIPTION
	6 LD-03	[illegible] RAIL FENCE
	5 LD-03	PRIVACY FENCE
		UNIT GATE

SOFTSCAPE MATERIALS

KEY	REF.	DESCRIPTION
	1 LD-01	PROPOSED TREE
		EXISTING TREE
		SOD See Critical Landscape Notes for Specifications
		GROUNDCOVER SHADE MIX
	4 LD-03	SAND PLAY AREA
	7 LD-02	ENGINEERED WOOD FIBER PLAY SURFACE
	2,3 LD-01	SHRUB PLANTING
	2,3 LD-01	HEDGE PLANTING
		CRUSHED AGGREGATE PATHWAY

SITE FURNISHINGS/LIGHTING

KEY	REF.	DESCRIPTION
	1 LD-02	BENCH
	1 LD-02	[illegible]
	3 LD-02	TABLES AND CHAIRS
	2 LD-03	ENTRY TRELLIS
	3 LD-03	CONCRETE PLANTER
	8 LD-02	[illegible]
	8 LD-02	WOOD STEPS
	6 LD-02	TALK TUBES
	4,5 LD-02	PLAY [illegible] BOARD
		LIGHT BOLLARD
		BIKE RACK

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Key Map (NTS)

No.	By	Description	Date
3	TM	Issued for Rezoning	Feb 28, 2019
2	TM	Issued for Rezoning	Dec 07, 2018
1	DV	Issued for Rezoning	July 13, 2018

REVISIONS TABLE FOR DRAWINGS

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No.	By	Description	Date

REVISIONS TABLE FOR SHEET

Project:
Gates Avenue Townhouses

Location:
23400, 23440, 23460, 23500
Gates Avenue, Richmond, B.C.

Rezoning #:
RZ17-766714

Drawn: DV
Stamp:

Checked: TM

Approved: MVDZ
Original Sheet Size: 24"x36"

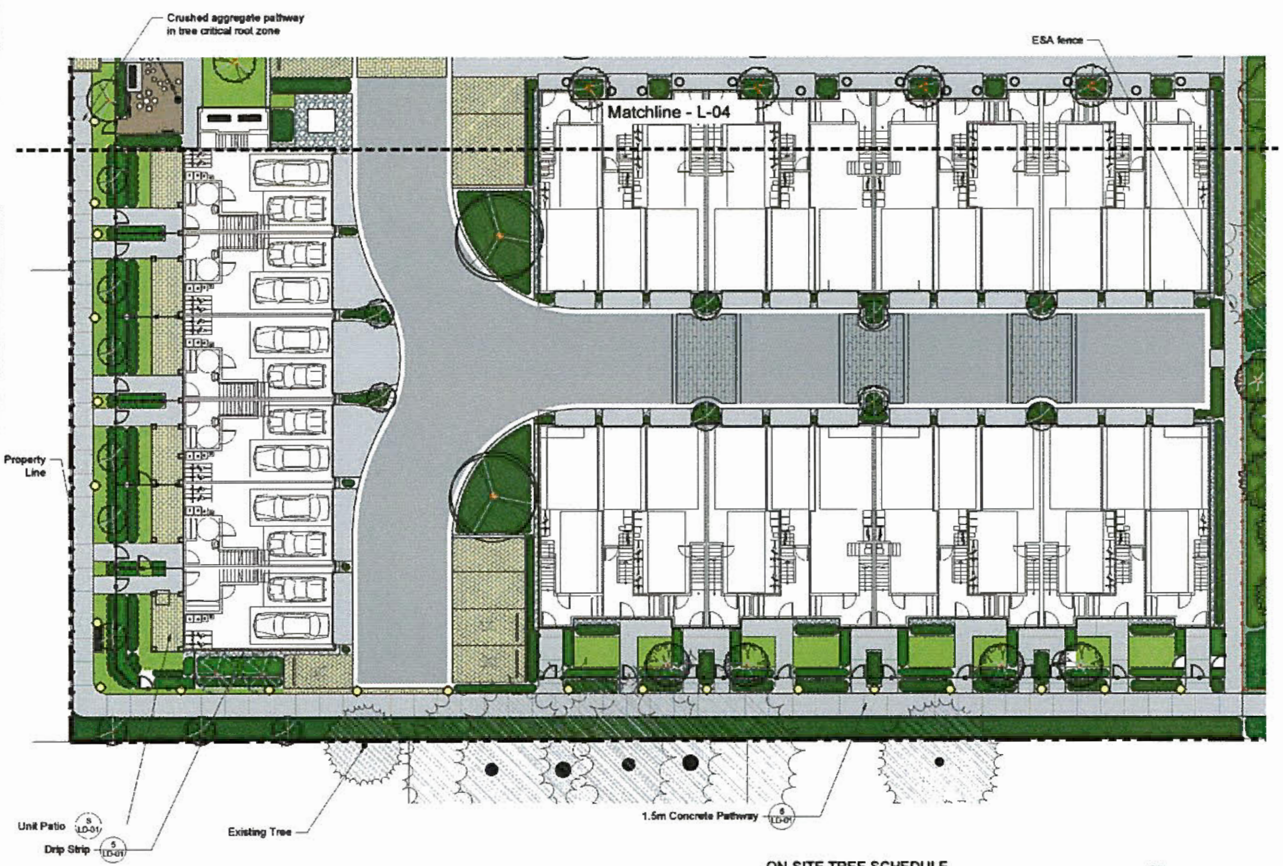
Scale: 1:150

Drawing Title:
SITE PLAN NORTH

VDZ Project #:
DP2017-41

NORTH

Drawing #:
L-04



ON-SITE TREE SCHEDULE

TREES	BOTANICAL NAME / COMMON NAME	CONT	QTY
	Acer rubrum 'Armstrong' / Armstrong Red Maple	6cm	2
	Acer rubrum 'Autumn Glory' / Autumn Glory Maple	6cm	9
	Betula papyrifera / Paper Birch	6cm	6
	Fagus sylvatica 'Dawyck Gold' / European Beech	6cm	32
	Malus fusca / Oregon Crab Apple	6cm	15
	Pseudotsuga menziesii / Douglas Fir	2.5m Height	4
	Sorbus scopulina / Western Mountain Ash	6cm	13
	Thuja plicata / Western Red Cedar	2.5m Height	12
	Tsuga heterophylla / Western Hemlock	6cm	3

ESA Planting - See L-06 & L-07

ESA Planting - See L-06 & L-07

1:150 0 1.5m 3 4.5 6 7.5 9 10.5 12 13.5 15 16.5 18 19.5 21 22.5

HARDSCAPE MATERIALS

KEY	REF	DESCRIPTION
	6 LD-01	CONCRETE SIDEWALK - PEDESTRIAN
	8 LD-01	CONCRETE PAVERS PEDESTRIAN
	7 LD-01	CONCRETE PAVERS VEHICULAR
		PERMEABLE PAVERS VEHICULAR [illegible] REFER TO CIVIL FOR INSTALLATION
	1 LD-03	WOOD DECK
	5 LD-01	DRIP STRIP

FENCING

KEY	REF	DESCRIPTION
	6 LD-03	UNIT RAIL FENCE
	5 LD-03	PRIVACY FENCE
		UNIT GATE

SOFTSCAPE MATERIALS

KEY	REF	DESCRIPTION
	1 LD-01	PROPOSED TREE
		EXISTING TREE
		SOD See Critical Landscape Notes for Specifications
		GROUNDCOVER SHADE MIX
	4 LD-03	SAND PLAY AREA
	7 LD-02	ENGINEERED WOOD FIBER PLAY SURFACE
	2,3 LD-01	SHRUB PLANTING
	2,3 LD-01	EDGE PLANTING
		CRUSHED AGGREGATE PATHWAY

SITE FURNISHINGS&LIGHTING

KEY	REF	DESCRIPTION
	1 LD-03	BENCH
	1 LD-02	PICNIC TABLE
	3 LD-02	TABLES AND CHAIRS
	2 LD-03	ENTRY TRELLIS
	3 LD-03	CONCRETE PLANTER
	8 LD-02	SITTING CIRCLE
	8 LD-02	ROUND STEPS
	6 LD-02	TALK TUBE
	4,5 LD-02	PLAY PANEL/CHALK BOARD
		LIGHT BOLLARD
		BIKE RACK

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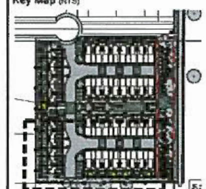
Key Map (NTS)



No.	By	Description	Date
3	TM	Issued for Rezoning	Feb 20, 2019
2	TM	Issued for Rezoning	Dec 07, 2018
1	DV	Issued for Rezoning	July 13, 2018

REVISIONS TABLE FOR DRAWINGS

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No.	By	Description	Date

REVISIONS TABLE FOR SHEET

Project:
Gates Avenue Townhouses

Location:
23400, 23440, 23480, 23500
Gates Avenue, Richmond, B.C.

Rezoning #:
RZ17-766714

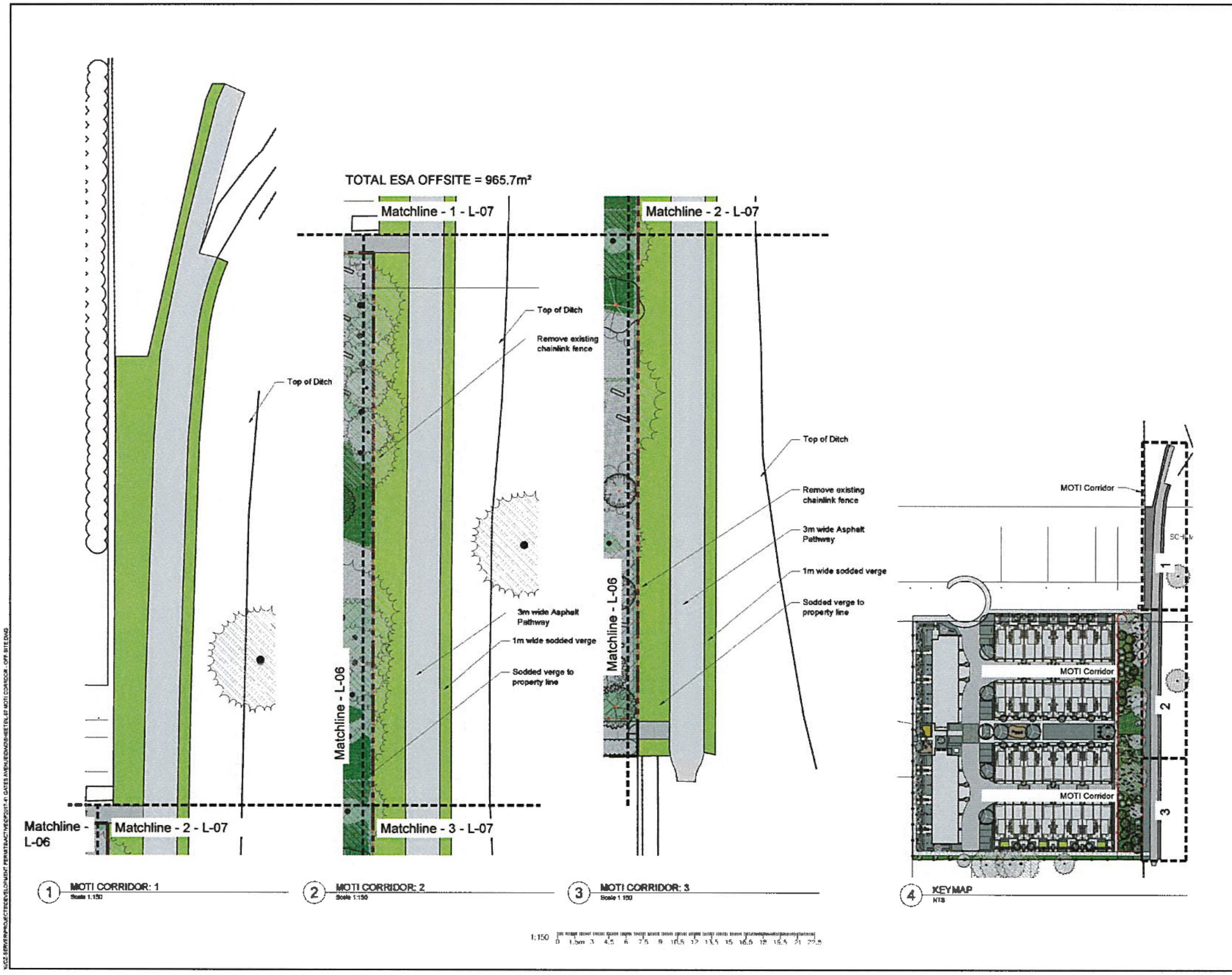
Drawn: DV
Checked: TM
Approved: MVDZ
Scale: 1:150
Stamp:
Original Sheet Size: 24"x36"

Drawing Title: SITE PLAN SOUTH

VDZ Project #: DP2017-41

NORTH

Drawing #: L-05



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No.	By:	Description	Date
3	TM	Issued for Rezoning	Feb 20, 2019
2	TM	Issued for Rezoning	Dec 07, 2018
1	DV	Issued for Rezoning	July 13, 2018

REVISIONS TABLE FOR DRAWINGS

No.	By	Description	Date
3	TM	MOTI Update	May 27, 2019
2	TM	ESA Update	Mar 20, 2019
1	TM	ESA Update	Jan 01, 2019

REVISIONS TABLE FOR SHEET

Project:
Gates Avenue Townhouses

Location:
23400, 23440, 23480, 23500
Gates Avenue, Richmond, B.C.

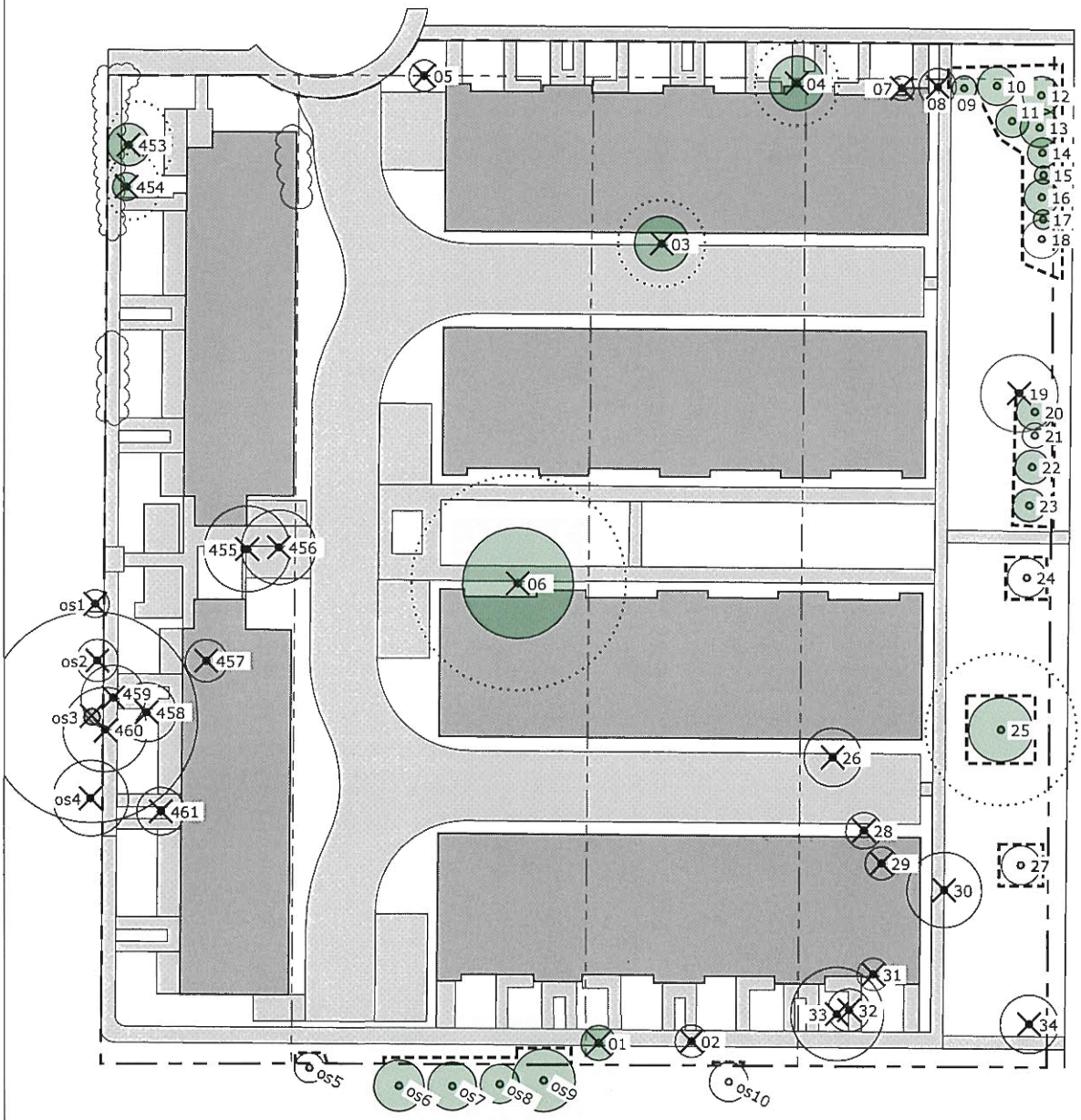
Rezoning #:
RZ17-786714

Drawn: DV
Checked: TM
Approved: MVDZ
Original Sheet Size: 24"x36"
Scale: AS SHOWN

Drawing Title: MOTI CORRDOR - OFF-SITE

VDZ Project #: DP2017-41

Drawing #: L-07



Tree Inventory				Tree Inventory			
Tag	**Species**	**DBH (cm)**	**TPZ (m)**	**Tag**	**Species**	**DBH (cm)**	**TPZ (m)**
01	Douglas Fir	27	1.62	**28**	Mountain Ash	27	1.62
02	Mountain Ash	25	1.50	**29**	Birch	30	1.80
03	Bay Tree	30	1.80	**30**	Birch	60	3.60
04	Cypress	42	2.52	**31**	Birch	28	1.68
05	Apple	24	1.44	**32**	Birch	26	1.56
06	Oak	85	5.10	**33**	Birch	25	1.50
07	Spruce	20	1.20	**34**	Birch	30	1.80
08	Spruce	29	1.74	**453**	Japanese Maple	30	1.80
09	Spruce	20	1.20	**454**	Vine Maple	20	1.20
10	Spruce	30	1.80	**455**	Cherry Tree	61	3.66
11	Spruce	25	1.50	**456**	Cherry Tree	53	3.18
12	Spruce	29	1.74	**457**	Weeping Willow	30	1.80
13	Spruce	30	1.80	**458**	Lombardy Poplar	42	2.52
14	Spruce	23	1.38	**459**	Lombardy Poplar	46	2.76
15	Spruce	15	0.90	**460**	Lombardy Poplar	60	3.60
16	Spruce	27	1.62	**461**	Lombardy Poplar	34	2.04
17	Spruce	16	0.96	**os1**	Lombardy Poplar	20	1.20
18	Spruce	30	1.80	**os2**	Lombardy Poplar	30	1.80
19	Cherry	60	3.60	**os3**	Lombardy Poplar	~150	9.00
20	Spruce	28	1.68	**os4**	Lombardy Poplar	54	3.24
21	Spruce	20	1.20	**os5**	Red Alder	23	1.38
22	Spruce	26	1.56	**os6**	Red Maple	39	2.34
23	Spruce	25	1.50	**os7**	Red Maple	37	2.22
24	Mountain Ash	30	1.80	**os8**	Red Maple	30	1.80
25	English Oak	49	2.94	**os9**	Red Maple	48	2.88
26	Birch	30	1.80	**os10**	Mountain Ash	30	1.80
27	Mountain Ash	23	1.38				

Notes:

- Trees shaded in green have good retention suitability

WOODRIDGE TREE
CONSULTING ARBORISTS LTD

Tree Plan for Development at 23400, 23440, 23460 and 23500 Gates Avenue Richmond, BC

Date: February 14, 2019

Legend

N

dripline

x = remove tree

tree barrier

1m 10m
1:400

Address: 23400, 23440, 23460 & 23500 Gates Ave. and a Portion of Gates Ave. **File No.:** RZ 17-766714

Prior to final adoption of Richmond Zoning Bylaw 8500, Amendment Bylaw 9932, the developer is required to complete the following:

1. Final Adoption of OCP Amendment Bylaw 10011.
2. Provincial Ministry of Transportation & Infrastructure Approval.
3. Consolidation of all the lots and a 188.8 m^2 closed portion of Gates Ave. (which will require the demolition of the existing dwellings) and subdivision of this area into Lot A for the development site, road dedication of 20 m^2, and transfer of a 920.6 m^2 lot to the City for park and conservation purposes as shown on Appendix 1. There will be no Development Cost Charge (DCC) credits available to the developer for the transfer of the park lot or its improvement.
4. Council approval of Road Closure Bylaw 10045 for the 188.8 m^2 of the Gates Ave. road allowance as shown in Appendix 1. The developer shall be required to enter into a purchase and sales agreement with the City for the purchase of the 158.5 m^2 portion of this land to be included within the development site, which is to be based on the business terms approved by Council (this does not include the 30.3 m^2 area of closed road to be included within the proposed park). The primary business terms of the purchase and sales agreement will be brought forward for consideration by Council in a separate report from the Manager, Real Estate Services. All costs associated with the purchase and sales agreement shall be borne by the developer.
5. Submission of a Tree Survival Security to the City in the amount of $90,000 to be held for a term of three (3) years for the 17 trees that are to be retained within the proposed park (labelled with tag nos. 9 to 18 and 20 to 25 and 27) in the arborist report from Woodbridge Tree Consulting Arborists Ltd. dated February 14, 2019).
6. Submission of an on-site landscape plan for the subject project site that includes at least 52 replacement trees based on a ratio of at least 2:1 to compensate for the 26 on-site trees to be removed. The required replacement trees are to be of the minimum sizes, based on the size of the trees being removed as per Tree Protection Bylaw No. 8057. The developer will be required to provide $500 to the City's Tree Compensation Fund for each and any number of trees short of the required 52 replacement trees included within the Development Permit landscape plans.
7. Submission of a Contract entered into between the applicant and a Certified Arborist for supervision of any on-site works conducted within the tree protection zone of the trees to be retained. The Contract should include the scope of work to be undertaken, including: the proposed number of site monitoring inspections, and a provision for the Arborist to submit a post-construction assessment report to the City for review.
8. Installation of appropriate tree protection fencing around all trees to be retained as part of the development prior to any construction activities, including building demolition, occurring on-site.
9. East-West "Strollway" SRW: The granting of a 3.5 m wide statutory right-of-way on the subject property for a 1.5 m wide public pedestrian pathway, landscaping, way-finding signage identified as "Strollway" on Appendix 2 with the developer and owner being responsible for liability, construction and maintenance to provide an additional east-west pedestrian connection to the "Shared Street" in the Servicing Agreement (SA) in accordance with City specifications and standards.
10. North-South "Strollway" SRW: The granting of a 3.0 m wide statutory right-of-way on the subject property for a 2.0 m wide pedestrian pathway, landscaping, way-finding signage identified as "Strollway" on Appendix 2 with the developer and owner being responsible for liability, construction and maintenance, with the design to be included in the Servicing Agreement (SA) in accordance with City specifications and standards.
11. Registration of a legal agreement on title identifying that the proposed development must be designed and constructed in a manner that mitigates potential noise from Highway 91A to the proposed dwelling units with reports being provided prior to Development Permit issuance. Dwelling units must be designed and constructed to achieve:
    a) CMHC guidelines for interior noise levels as indicated in the chart below:

Initial: _____

Portions of Dwelling Units	Noise Levels (decibels)
Bedrooms	35 decibels
Living, dining, recreation rooms	40 decibels
Kitchen, bathrooms, hallways, and utility rooms	45 decibels

b) the ASHRAE 55-2004 "Thermal Environmental Conditions for Human Occupancy" standard for interior living spaces.

12. Registration of a flood plain covenant on title identifying a minimum habitable elevation of 3.5 m GSC.
13. The submission and processing of a Development Permit* completed to a level deemed acceptable by the Director of Development.
14. City acceptance of the developer's offer to voluntarily contribute $0.87 per buildable square foot (e.g. $67,500.00) to the City's Public Art Fund.
15. City acceptance of the developer's offer to voluntarily contribute ($70.50 per square metre) of the total residential floor area (e.g. $508,178.00) to the City's Hamilton Area Plan Amenity Reserve Fund (with the amount to be confirmed on the floor area within the Development Permit plans).
16. Contribution of $215,797.00 in-lieu of on-site indoor amenity space (2019 Rates: 19 units x $1,769/unit plus 20 units x $3,538 plus 21 units x $5,306/unit in City Bulletin DEVAPPS-12.
17. City acceptance of the developer's offer to voluntarily contribute $8.50 per buildable square foot (e.g. $659,502.00) to the City's Affordable Housing Fund.
18. Registration of a legal agreement on title prohibiting the conversion of the tandem parking area into habitable space.
19. Repaving and widening the existing asphalt walkway to a min. 3.0m width and install pedestrian lighting with the Highway 91A road allowance as described in Appendices 3 and 5 . The Ministry of Transportation and Infrastructure has confirmed that they would accept an application from the City for the work. The work will be performed by the developer under a Servicing Agreement and will be an agent to the City's permit granted by MOTI, or a cash-in-lieu contribution will be provided by the developer to allow the City to complete the work.
20. Enter into a Servicing Agreement* for the design and construction of the following works included within Appendices 2, 3,4 and 5. A Letter of Credit or cash security for the value of the Service Agreement works, as determined by the City, will be required as part of entering into the Servicing Agreement.

21. As a Development Permit application (DP 18-829228) for the project was received prior to the City's adoption of the Energy Step Code on July 16, 2018, the subject project is not subject to the BC Energy Step Code. In order to continue to be grandfathered from the BC Energy Step Code Level 3, the applicant must submit a Building Permit prior to December 31, 2019. Therefore, in accordance with the Hamilton Area Plan, the development is required to be confirmed to be LEED Silver equivalent prior to consideration of the Development Permit by the Development Permit Panel and consideration of approval of Bylaw 9932 by Council.
22. Registration of a legal agreement on title identifying that the proposed development must be designed and constructed to meet or exceed EnerGuide 82 criteria for energy efficiency and that all dwellings are pre-ducted for solar hot water heating because this Rezoning application and the associated Development Permit (DP 18-829228) application were received prior to July 16, 2018. In order to continue to be grandfathered from the BC Energy Step Code Level 3, the applicant must submit a Building Permit prior to December 31, 2019.
23. The developer is required to address the vegetation loss within the existing 887m^2 of on-site ESA with equivalent compensation and enhancement with the proposed 905.7 m^2 ESA area within the 920.6 m^2 park being transferred to the City. The planting of trees and shrubs/groundcover plants and other works will, at a minimum, include those provided in the landscape plans within Appendix 5. This ESA compensation and enhancement area has been accepted on the basis of it being larger in than the existing 887m^2 of on-site ESA included in reports prepared by Barsanti Environmental Services Inc. dated January 24, 2018, March 26, 2019 and May 27, 2019 under Project No. 17.0013 (collectively called the Stage 1 QEP Report). Based on the Stage 1 QEP Report and landscape plans provided at the rezoning stage, a Stage 2 QEP Report and final landscape plans will be completed with final planting specifications and the placement of large woody debris for habitat purposes. The Stage 2 QEP Report will include the detailed monitoring plan and reference to the final landscape plans, and will be included within the Servicing Agreement submission to the satisfaction of the City prior adoption of Zoning Amendment Bylaw 9932 and issuance of a Development Permit for the project.

Initial: _____

24. Voluntary contribution of $61,000 to go towards a City Capital Works project for habitat enhancement work within other environmentally sensitive City lands within the Hamilton Area.
25. Ensure to the satisfaction of the City that the Construction, Phasing and Interim Design Measures in Appendix 1 of the Hamilton Area Plan (Schedule 2.14, Official Community Plan Bylaw 9000) are addressed, as applicable, in the Development Permit and Servicing Agreement.

Prior to a Development Permit* being forwarded to the Development Permit Panel for consideration, the developer is required to:

1. Complete acoustical and mechanical engineering reports with recommendations prepared by appropriate registered professionals, which demonstrates that the interior noise levels and noise mitigation standards comply with the City's Official Community Plan and Noise Bylaw requirements. The standard required for air conditioning systems and their alternatives (e.g. ground source heat pumps, heat exchangers and acoustic ducting) is the ASHRAE 55-2004 "Thermal Environmental Conditions for Human Occupancy" standard and subsequent updates as they may occur. Maximum interior noise levels (decibels) within the dwelling units must achieve CMHC standards follows:

Portions of Dwelling Units	Noise Levels (decibels)
Bedrooms	35 decibels
Living, dining, recreation rooms	40 decibels
Kitchen, bathrooms, hallways, and utility rooms	45 decibels

2. Complete a proposed townhouse energy efficiency report and recommendations prepared by a Certified Energy Advisor which demonstrates how the proposed construction will meet or exceed the required townhouse energy efficiency standards (EnerGuide 82 or better), in compliance with the City's Official Community Plan.
3. Accessible Adaptable Units: The Development Permit plans are to identify 10 of the units as "Convertible Housing" with construction specifications to be provided based on the guidelines within the City's OCP and the applicant's plans prepared by Fougere Architecture Inc. dated February 20, 2019.

Prior to Building Permit Issuance, the developer must complete the following requirements:

1. Submission of a Construction Parking and Traffic Management Plan to the Transportation Department. Management Plan shall include location for parking for services, deliveries, workers, loading, application for any lane closures, and proper construction traffic controls as per Traffic Control Manual for works on Roadways (by Ministry of Transportation) and MMCD Traffic Regulation Section 01570.
2. Incorporation of accessibility measures in Building Permit (BP) plans as determined via the Rezoning and/or Development Permit processes.
3. Obtain a Building Permit (BP) for any construction hoarding. If construction hoarding is required to temporarily occupy a public street, the air space above a public street, or any part thereof, additional City approvals and associated fees may be required as part of the Building Permit. For additional information, contact the Building Approvals Department at 604-276-4285.

Note:

* This requires a separate application.

- Where the Director of Development deems appropriate, the preceding agreements are to be drawn not only as personal covenants of the property owner but also as covenants pursuant to Section 219 of the Land Title Act.

  All agreements to be registered in the Land Title Office shall have priority over all such liens, charges and encumbrances as is considered advisable by the Director of Development. All agreements to be registered in the Land Title Office shall, unless the Director of Development determines otherwise, be fully registered in the Land Title Office prior to enactment of the appropriate bylaw.

  The preceding agreements shall provide security to the City including indemnities, warranties, equitable/rent charges, letters of credit and withholding permits, as deemed necessary or advisable by the Director of Development. All agreements shall be in a form and content satisfactory to the Director of Development.

- Additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering may be required including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading,

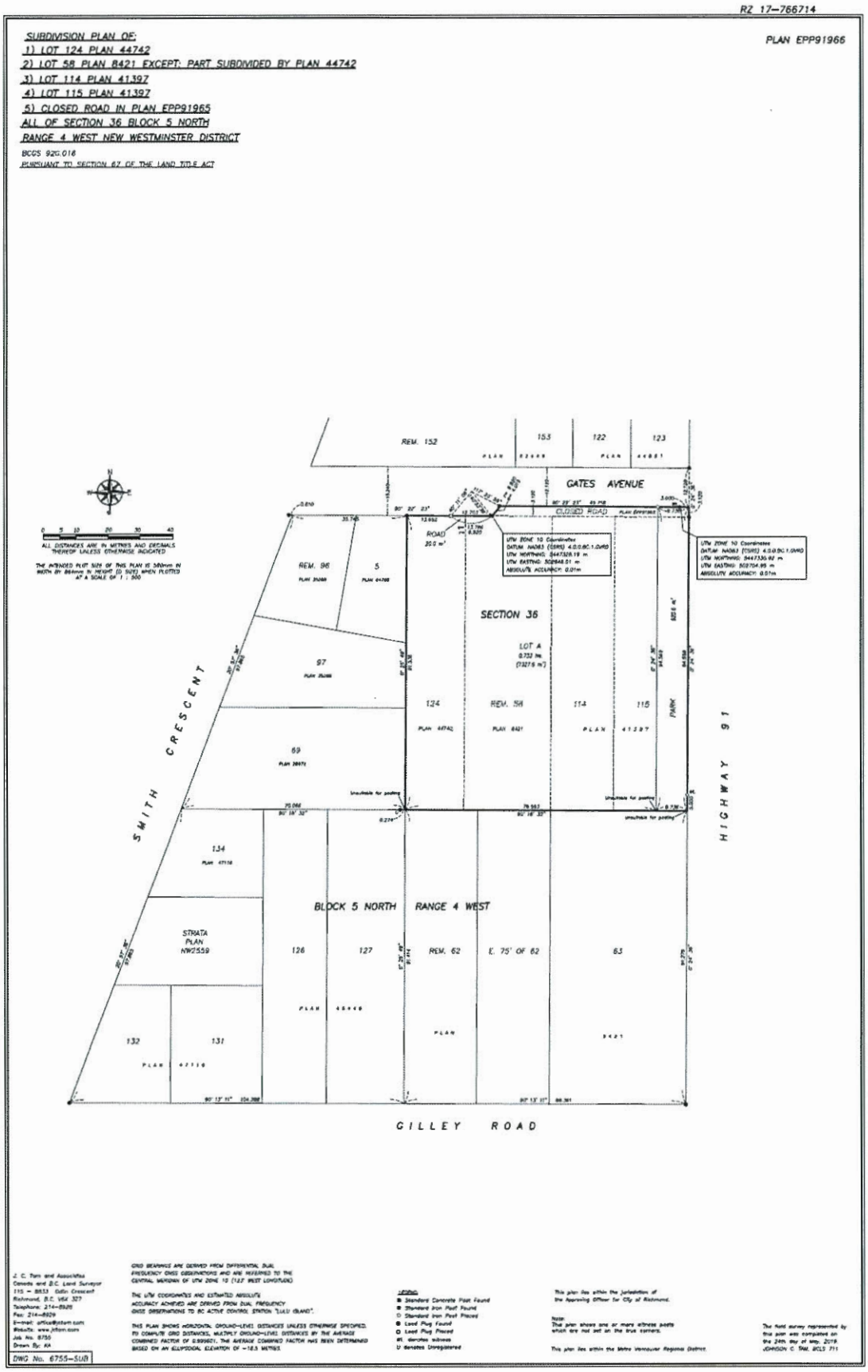
ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.

- Applicants for all City Permits are required to comply at all times with the conditions of the Provincial *Wildlife Act* and Federal *Migratory Birds Convention Act*, which contain prohibitions on the removal or disturbance of both birds and their nests. Issuance of Municipal permits does not give an individual authority to contravene these legislations. The City of Richmond recommends that where significant trees or vegetation exists on site, the services of a Qualified Environmental Professional (QEP) be secured to perform a survey and ensure that development activities are in compliance with all relevant legislation.

Signed _____ Date _____

Initial: _____

Appendix 1: Subdivision Plan



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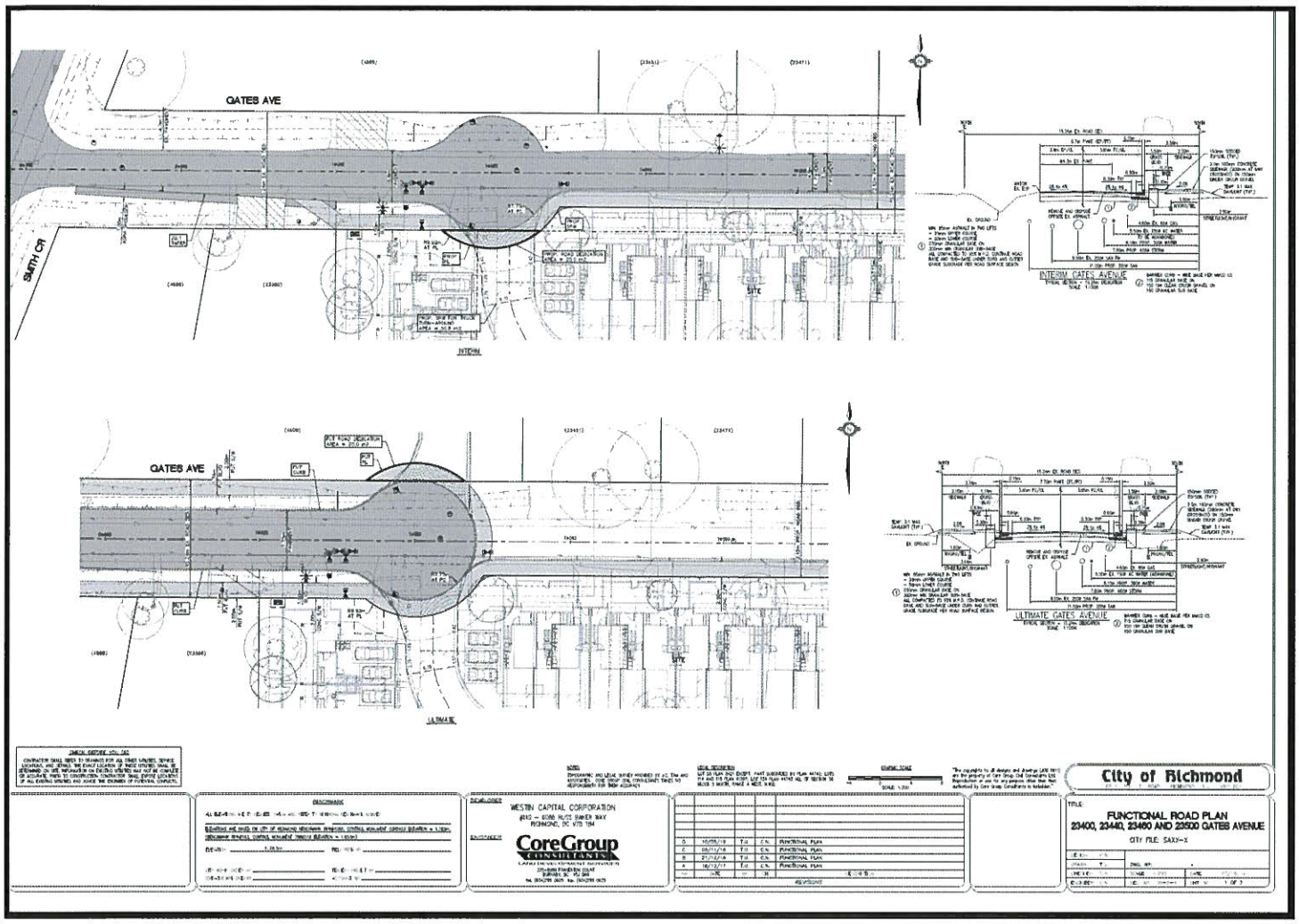
Appendix 2: Functional Road Plan & Key Plan



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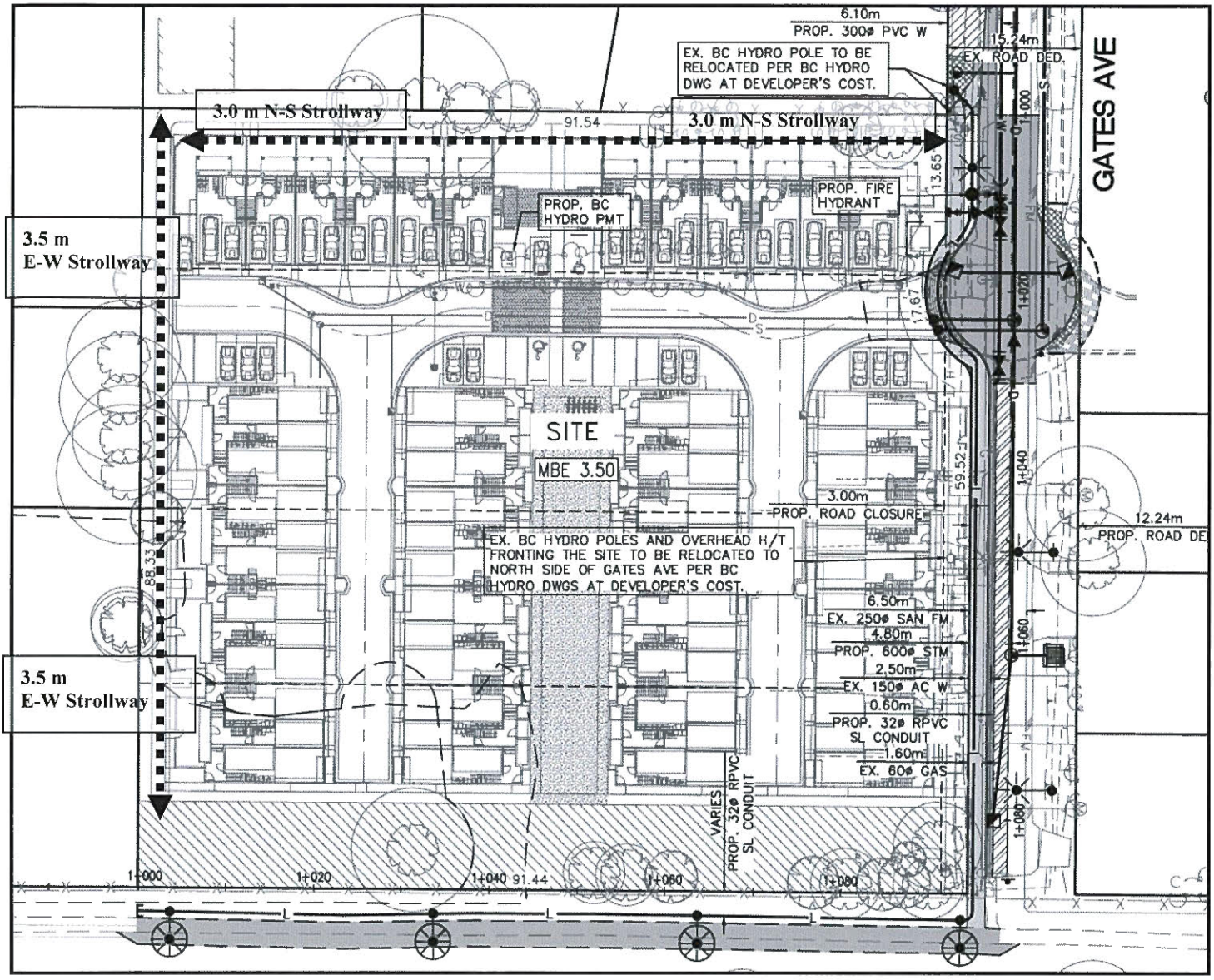
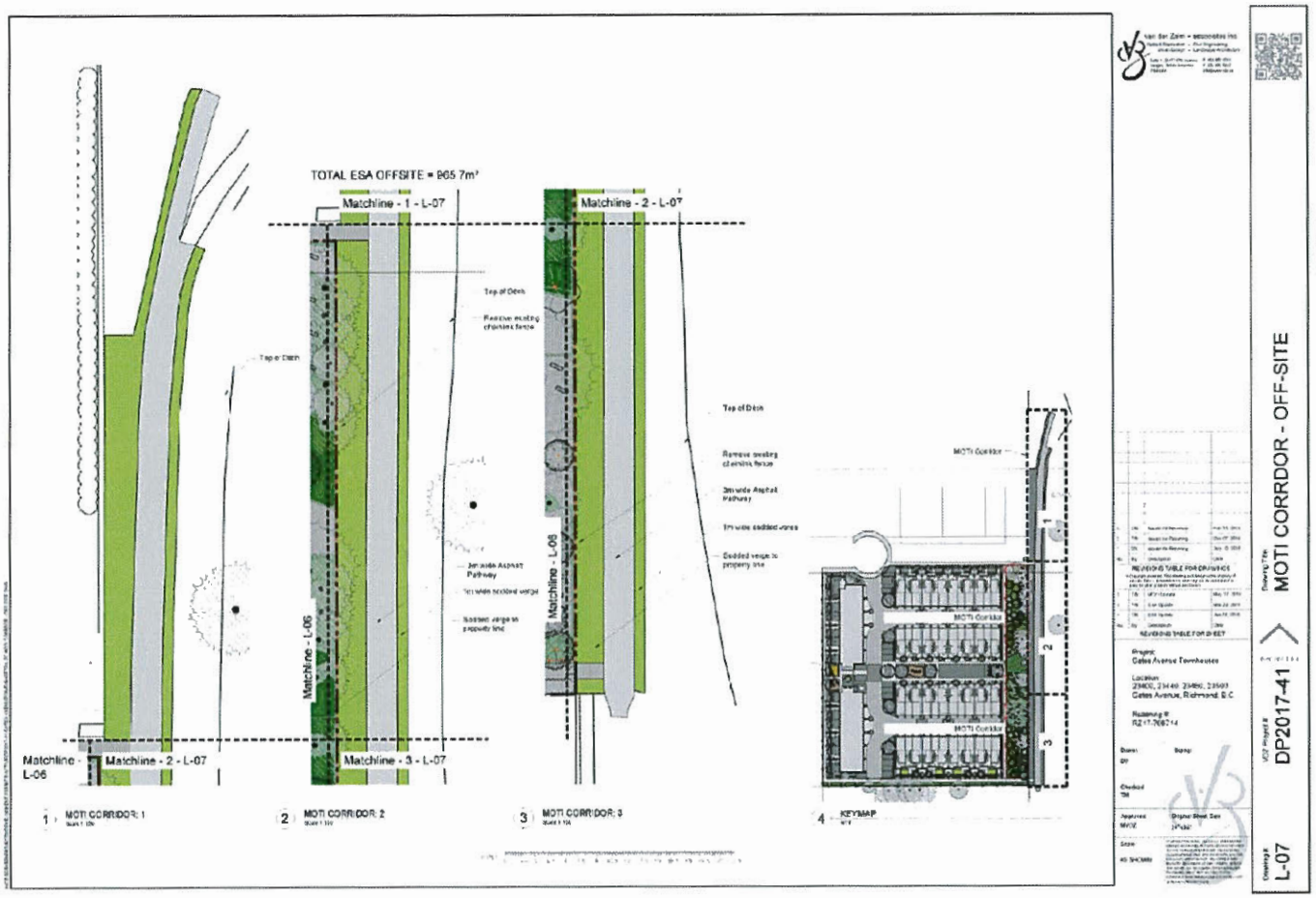

6.10m
PROP. 300ø PVC W
EX. BC HYDRO POLE TO BE RELOCATED PER BC HYDRO DWG AT DEVELOPER'S COST.
15.24m
EX. ROAD DED.
GATES AVE
3.0 m N-S Strollway
91.54
3.0 m N-S Strollway
PROP. BC HYDRO PMT
PROP. FIRE HYDRANT
13.65
3.5 m E-W Strollway
17.67
SITE
MBE 3.50
59.52
3.00m
PROP. ROAD CLOSURE
12.24m
PROP. ROAD DE
EX. BC HYDRO POLES AND OVERHEAD H/T FRONTING THE SITE TO BE RELOCATED TO NORTH SIDE OF GATES AVE PER BC HYDRO DWGS AT DEVELOPER'S COST.
88.33
6.50m
EX. 250ø SAN FM
4.80m
PROP. 600ø STM
2.50m
EX. 150ø AC W
0.60m
PROP. 32ø RPVC SL CONDUIT
1.60m
EX. 60ø GAS
3.5 m E-W Strollway
VARIES
PROP. 32ø RPVC SL CONDUIT
1+000
1+020
1+040
91.44
1+060
1+080

Initial: _____


TOTAL ESA OFFSITE = 865.7m²
Matchline - 1 - L-07
Matchline - 2 - L-07
Matchline - L-06
Matchline - 2 - L-07
Matchline - 3 - L-07
Matchline - L-06
Matchline - L-08
Top of Ditch
Remove existing chainlink fence
3m wide Asphalt Pathway
1m wide sodded verge
Sodded verge to property line
MOTI Corridor
1 MOTI CORRIDOR: 1
2 MOTI CORRIDOR: 2
3 MOTI CORRIDOR: 3
4 KEYMAP
MOTI CORRDOR - OFF-SITE
DP2017-41
L-07

Initial: _____

Appendix 3: Servicing Works

The following works must be included with the Servicing Agreement:

1. Engineering Works

The developer is responsible for the design and construction of the servicing works described in Appendix 4.

2. Transportation Works

The developer is responsible for the design and construction of the works shown in Appendix 2 and as follows:

a. Gates Ave:
   i. From the west property line to western limit of the proposed cul-de-sac, widen on the southern half of the street to accommodate the following cross-section (from south to north):
      - 2m wide concrete sidewalk
      - 1.5m wide treed/grassed boulevard with street lighting
      - 0.15m wide concrete curb/gutter
      - Pavement widening to provide a min. 6.0m wide driving surface and tie to the existing northern edge of the roadway.
   ii. Within the cul-de-sac, construct a 2m wide concrete sidewalk, new curb/gutter and road widening to provide a minimum 7.5m wide driving surface.
   iii. East of the cul-de-sac to the east property line of the site and connect to the north/south pathway, construct a new 2.0m wide concrete sidewalk at the new property line, followed by a new curb/gutter and road widening to maintain two-way traffic.

b. TDM Measures: Along the entire east property line of the site extending northward to the Highway 91A pedestrian overpass, widen the existing asphalt walkway to min. 3.0m wide with pedestrian lighting.

Note: additional roadwork would be necessary outside the development frontage to the west in order to provide a proper transition of the above-noted cross-section to existing road.

3. Parks Works

The developer is responsible for the design and construction of the following to the satisfaction of the City:

a. The ESA and parks/conservation area works as described and generally shown in Appendix 5.
b. The E-W and N-S Strollways as generally shown in Appendix 5 and coordinated with the forthcoming Development Permit and Servicing Agreement landscape plans to satisfaction of the Director, Parks Services.
c. The park work being subject to a monitoring and maintenance period of 3 years commencing upon substantial completion.

Initial: _____

Appendix 4: Engineering Servicing Works

RZ 17-766714 – 23400, 23440, 23460 & 23500 Gates Avenue - Engineering Servicing Requirements:

Scope: FOUGERE ARCHITECTURE INC has applied to the City of Richmond for permission to develop 23400, 23440, 23460 & 23500 Gates Ave in order to construct sixty (60) townhouse units in three and four storey buildings.

Willett Sanitary Pump Station and Forcemain Information:

The City is planning to build a sanitary pump station and sections of associated forcemain and gravity main at the eastern side of the Hamilton VLA Park as part of the City's Capital Project. Should development proceed prior to the completion of this Capital Project, or should the Capital Project not proceed, the Developer will be required to construct the sanitary pump station, the gravity main and the new forcemain from the pump station to the existing forcemain at the intersection of Gates Avenue and Smith Crescent prior to building occupancy being permitted.

Water Works:

Using the OCP Model, there is 106 L/s of water available at a 20 psi residual at the Gates Avenue frontage. Based on your proposed development, your site requires a minimum fire flow of 220 L/s.

At the developers cost, the Developer is required to:

- Submit Fire Underwriter Survey (FUS) or International Organization for Standardization (ISO) fire flow calculations to confirm the development has adequate fire flow for onsite fire protection. Calculations must be signed and sealed by a Professional Engineer and submitted for Engineering's review prior to the first servicing agreement submission. Based on initial calculations, there may be additional water main upgrades required both along and beyond the road frontages.
- At building permit stage, submit Fire Underwriter Survey (FUS) or International Organization for Standardization (ISO) fire flow calculations to confirm the development has adequate fire flow for onsite fire protection. Calculations must be signed and sealed by a Professional Engineer and be based on Building Permit designs at Building Permit stage.
- Remove and replace the existing 150mm watermain at Gates Avenue to 300mm diameter (complete with fire hydrants that are spaced as per City standards) with an approximate length of 85 meters from the intersection of Gates Avenue and Smith Crescent to the eastern edge of the proposed cul-de-sac . Tie-in to the east shall be to the existing AC watermain to retain service for the single-family homes north of the development.
- Install a new water service connection at the eastern end of the new watermain, complete with water meter and meter chamber in a right-of-way. The location and size of the right of way shall be finalized through the servicing agreement process.
- Obtain the required fire flow (220L/s) by installing a 300mm watermain, with an approximate length of 217 meters, along Smith Crescent. Tie in shall be to the new 300mm diameter watermain at Gates Avenue and to the existing 300mm diameter watermain at Gilley Road.

Initial: _____

- Connect the existing service connections along the east and west sides of Smith Crescent to the proposed 300mm diameter along Smith Crescent.

At the developers cost, the City is to:

- Complete all proposed watermain tie-ins.
- Cut and cap at main all existing water service connections.

Storm Sewer Works:

At the developers cost, the Developer is required to:

- Install a 600mm storm sewer just south of the Gates Ave centerline from the eastern edge of the proposed cul-de-sac to the ultimate drainage alignment on the eastern side of Smith Crescent, approximately 80m. A manhole will be required at the high point at the east end of the new 600mm diameter storm sewer. Tie-in at the western end of the pipe shall be via a manhole connecting to the southern ditches along the east side of Smith Crescent through a headwall.
- Retain the existing ditch along the north side of Gates Avenue fronting 23451, 23471 and 23491 Gates Avenue to maintain existing service. Flows from the existing ditch shall be conveyed to the to the proposed 600mm storm sewer along the south side of Gates Avenue as follows:
    - Convey flows from the ditch via a headwall that is connected to a 600mm storm sewer complete with a manhole at the downstream end which will be generally located at the north side of the proposed cul-de-sac.
    - Connect the downstream manhole to the manhole at the high point of the proposed storm sewer at the south side of Gates Ave via a 600mm diameter storm pipe.
- Coordinate with engineering staff prior to first SA design submission to determine the optimum alignments of proposed underground utilities.

At the Developers cost, the City is to:

- Cut and cap at main all existing storm service connections in the proposed site.
- Remove all existing inspection chambers and storm service leads and dispose offsite.
- Connect the new 600mm storm sewer to any existing service connections at the north and south sides of Gates Avenue.
- Complete all proposed storm sewer tie-ins.

Sanitary Sewer Works:

At the Developers cost, the Developer is required to:

- Install sanitary sewers with an approximate length of 178 meters (complete with manholes that are spaced as per City standards) from the eastern edge of the proposed cul-de-sac to the proposed manhole at the intersection of Willett Avenue and Smith Crescent. If the required sanitary main south of the pump station to the manhole at Willett Avenue is not completed the Developer is required to construct this section of sanitary main to connect the development to the proposed pump station.
- Pay, in keeping with the Subdivision and Development Bylaw No. 8751, a $17,368.43 cash-in-lieu contribution towards the Hamilton Area Sanitary Pump Station.

At the Developers cost, the City is to:

- Complete the tie-in of the proposed sanitary main to the manhole that will be constructed by the City in conjunction with the sanitary pump station.

Frontage Improvements:

At the Developers cost, the Developer is required to:

- Provide other frontage improvements as per Transportation's requirements. Improvements shall be built to the ultimate condition wherever possible.
- Provide street lighting along Gates Avenue frontage.
- Put underground the existing private utility overhead lines (e.g., BC Hydro, Telus and Shaw) from the west side of Smith Cr. to the eastern edge of 23500 Gates Avenue, this will require support poles and reverse dip connections to maintain the existing overhead service connections to 23380, 23451, 23471 and 23491 Gate Avenue and to cross Smith Crescent. The developer is required to coordinate with the private utility companies regarding the undergrounding works.
- Coordinate with private utility companies when relocating/modifying any of the existing power poles and/or guy wires.
- To determine if above ground structures are required now or in the future and coordinate their on-site locations (e.g. Vista, PMT, LPT, Shaw cabinets, Telus Kiosks, etc).
- To provide rights-of-ways to accommodate equipment and future under-grounding of the overhead lines.
- Locate all above ground utility cabinets and kiosks required to service the proposed development within the developments site (see list below for examples). A functional plan showing conceptual locations for such infrastructure shall be included in the development process design review. Please coordinate with the respective private utility companies and the project's lighting and traffic signal consultants to confirm the right of way requirements and the locations for the aboveground structures. If a private utility company does not require an aboveground structure, that company shall confirm this via a letter to be submitted to the City. The following are examples of SRWs that shall be shown in the functional plan and registered prior to SA design approval:

    - BC Hydro Vista - Confirm SRW dimensions with BC Hydro
    - BC Hydro PMT – Approximately 4mW X 5m (deep) – Confirm SRW dimensions with BC Hydro
    - BC Hydro LPT – Approximately 3.5mW X 3.5m (deep) – Confirm SRW dimensions with BC Hydro
    - Street light kiosk – Approximately 2mW X 1.5m (deep)
    - Traffic signal controller cabinet – Approximately 3.2mW X 1.8m (deep)
    - Traffic signal UPS cabinet – Approximately 1.8mW X 2.2m (deep)
    - Shaw cable kiosk – Approximately 1mW X 1m (deep) – show possible location in functional plan. Confirm SRW dimensions with Shaw
    - Telus FDH cabinet - Approximately 1.1mW X 1m (deep) – show possible location in functional plan. Confirm SRW dimensions with Telus

- If required, coordinate with property owners and address the impact of the potential road raising and road widening to the existing single family properties along the north side of Gates Avenue. The developer shall coordinate with the owner(s) of the affected properties the extent of works required in private properties. The developer shall get written consent or permission to work in private property from the owner(s) of the affected lots. Coordination works shall be at the developer's cost and may include but not be limited to the following:

- Provide arborist assessment of the existing trees (e.g., City and privately owned) along the north side of Gates Avenue that may be impacted by the potential road raising and road widening.
- Host community meetings and provide written notices to the individual property owners.
- Provide design/drawings showing the required works inside each property affected by the road raising and widening that may include but not limited to the following:
    - Removal and reinstatement of existing driveways that may require construction of a retaining wall on each side of the reinstated driveways on private property.
    - Landscaping repairs and / or replacement.
- Community notices and design drawings shall be reviewed and approved by staff prior to sending to the affected properties.
- Provide to the City copies of design drawings for each lot (affected by the road raising and widening) signed by the lot owner indicating their acceptance to complete the proposed works. Sign off by the owners of the affected properties is required prior to Servicing Agreement design approval.

General Items:

At the developers cost, the Developer is required to:

- Provide, within the first SA submission, a geotechnical assessment of preload and soil preparation impacts on the existing utilities (e.g., AC watermain at Gates Avenue, etc.) fronting or within the development site and provide mitigation recommendations.
- Enter into, if required, additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering, including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.

Initial: _____

Appendix 5: Park Works

van der Zalm + associates inc

Date prepared:	30-May-19	VDZ File Number:	DP2017-41
Attention:	Jeanette Elmore	DP Application Number:	RZ17-766714
Firm Name:	VDZ + A Consulting Inc.	Project Name:	Gates Avenue Townhouses
Address/Fax:	6911 No. 3 Road, Richmond British Columbia, V6Y 2C1	Prepared by:	Travis Martin
		Checked by:	David Jerke

Re: Cost Estimate for Bonding - Off-site Park

Dear Ms. Elmore,

Please find attached a cost estimate for bonding of the Off-site Park (pertaining to the easet ESA area) as part of the rezoning application RZ17-766714. Key Components of this estimate include:

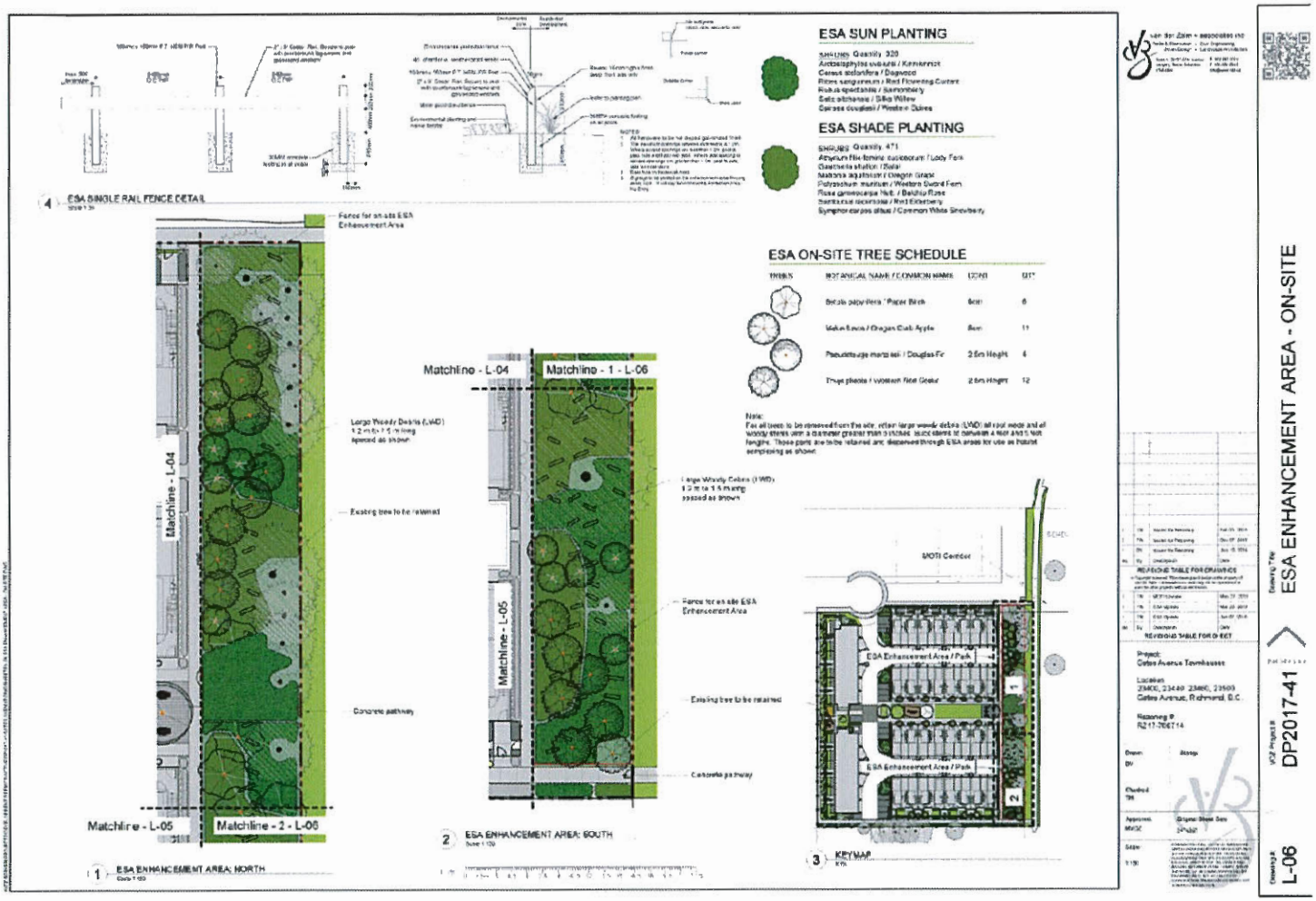
SOFTSCAPE	$22,434.60
IRRIGATION	$5,800.00
FENCES	$13,065.00
OVERALL TOTAL:	$42,824.60

This estimate is for bonding only. This estimate has been prepared for Londscape works only, and does not include civil works, architectural elements, large-scale earthworks and fill, electrical or mechnical works etc. The cost estimate is not to be used for construction cast budgeting purposes or any other use other than for bonding at the development permit stage.

Signature:

Date: 30-May-19

Initial: _____


ESA SUN PLANTING
ESA SHADE PLANTING
ESA ON-SITE TREE SCHEDULE
4 ESA SINGLE RAIL FENCE DETAIL
Fence for on-site ESA Enhancement Area
Matchline - L-04
Matchline - L-05
Matchline - 2 - L-06
Large Woody Debris (LWD)
Existing tree to be retained
Concrete pathway
1 ESA ENHANCEMENT AREA: NORTH
Matchline - 1 - L-06
2 ESA ENHANCEMENT AREA: SOUTH
MOTI Corridor
ESA Enhancement Area / Park
3 KEYMAP
ESA ENHANCEMENT AREA - ON-SITE
DP2017-41
L-06

City of Richmond

Bylaw 9932

Richmond Zoning Bylaw 8500 Amendment Bylaw 9932 (RZ 17-766714) 23400, 23440, 23460 and 28600 Gates Ave. and a Closed Portion of Gates Ave.

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

1. Richmond Zoning Bylaw 8500, as amended, is further amended at Section 5.15 [Affordable Housing] by inserting the following into the table contained in Section 5.15.1(c) regarding Affordable Housing density bonusing provisions after the line for ZT70:

Zone	Sum Per Buildable Square Foot of Permitted **Principal Building**
"ZT86	$8.50"

2. Richmond Zoning Bylaw 8500 is further amended by inserting the following into Section 17 - Site Specific Residential (Town Houses) Zones, in numerical order:

"17.86 Town Housing (ZT86) - Hamilton

17.86.1 Purpose

This **zone** provides for a mixed-use **development** consisting of stacked **town housing** and ground-oriented **town housing** with a maximum **floor area ratio** of 0.40 that may be increased to 1.0 with a **density bonus** that would be used for rezoning applications in order to help achieve the City's affordable housing and **community amenity space** objectives.

17.86.2 Permitted Uses

- **child care**
- **housing, town**

17.86.3 Secondary Uses

- **boarding and lodging**
- **home business**

17.86.4 Permitted Density

1. The maximum **floor area ratio** is 0.40 with a maximum additional 0.10 **floor area ratio** permitted provided that it is entirely used to accommodate **amenity space**.

2. Notwithstanding Section 17.86.4.1, the reference to "0.40" is increased to a higher **density** of "1.0", if at the time **Council** adopts a zoning amendment bylaw to include the **owner's lot** in the ZT86 **zone**, the **owner**:

a) pays $70.50 per square meter of total residential **floor area** into the **Hamilton Area Plan community amenity capital reserve**; and

b) pays into the **affordable housing reserve** the sum specified in Section 5.15 of this bylaw.

17.86.5 Maximum Lot Coverage

1. The maximum **lot coverage** is 45% for **buildings**.

17.86.6 Yards & Setbacks

1. The minimum **setbacks** are:
   a) 4.0 m from the **front lot line**;
   b) 2.0 m from the east **lot line**;
   c) 7.5 m from the west **lot line**; and
   d) 6.0 m from the **rear lot line**.

17.86.7 Maximum Heights

1. The maximum **height** for **principal buildings** is 12.0 m.

2. The maximum **height** for **accessory buildings** and **accessory structures** is 6.0 m.

17.86.8 Subdivision Provisions/Minimum Lot Size

1. The minimum **lot width** is 75.0 m and minimum **lot depth** is 85.0 m.

2. The minimum **lot area** is 7,000 m^2.

17.86.9 Landscaping And Screening

1. **Landscaping** and **screening** shall be provided according to the provisions of Section 6.0.

17.86.10 On-Site Parking And Loading

1. On-site **vehicle** and bicycle parking and loading shall be provided according to the standards set out in Section 7.0 with the exception that up to 67% of the **parking spaces** may be in a **tandem arrangement**.

1.86.11.1 **Other Regulations**

1. A minimum of 75% of the **dwelling units** shall be in a stacked arrangement wherein a portion of one **dwelling unit** is located directly above another **dwelling unit** within a **building.**

2. In addition to the regulations listed above, the General Development Regulations in Section 4.0 and the Specific Use Regulations in Section 5.0 apply."

3. The Zoning Map of the City of Richmond, which accompanies and forms part of Richmond Zoning Bylaw 8500, is amended by repealing the existing zoning designation of the following area and by designating it "Town Housing (ZT86) – Hamilton" and "School & Institutional Use (SI)":

   The area shown cross-hatched on "Schedule A attached to and forming part of Bylaw No. 9932"

4. This Bylaw may be cited as **"Richmond Zoning Bylaw 8500, Amendment Bylaw 9932".**

CITY OF RICHMOND
APPROVED by
APPROVED by Director or Solicitor

FIRST READING _____

A PUBLIC HEARING WAS HELD ON _____

SECOND READING _____

THIRD READING _____

OTHER CONDITIONS SATISFIED _____

MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE APPROVAL _____

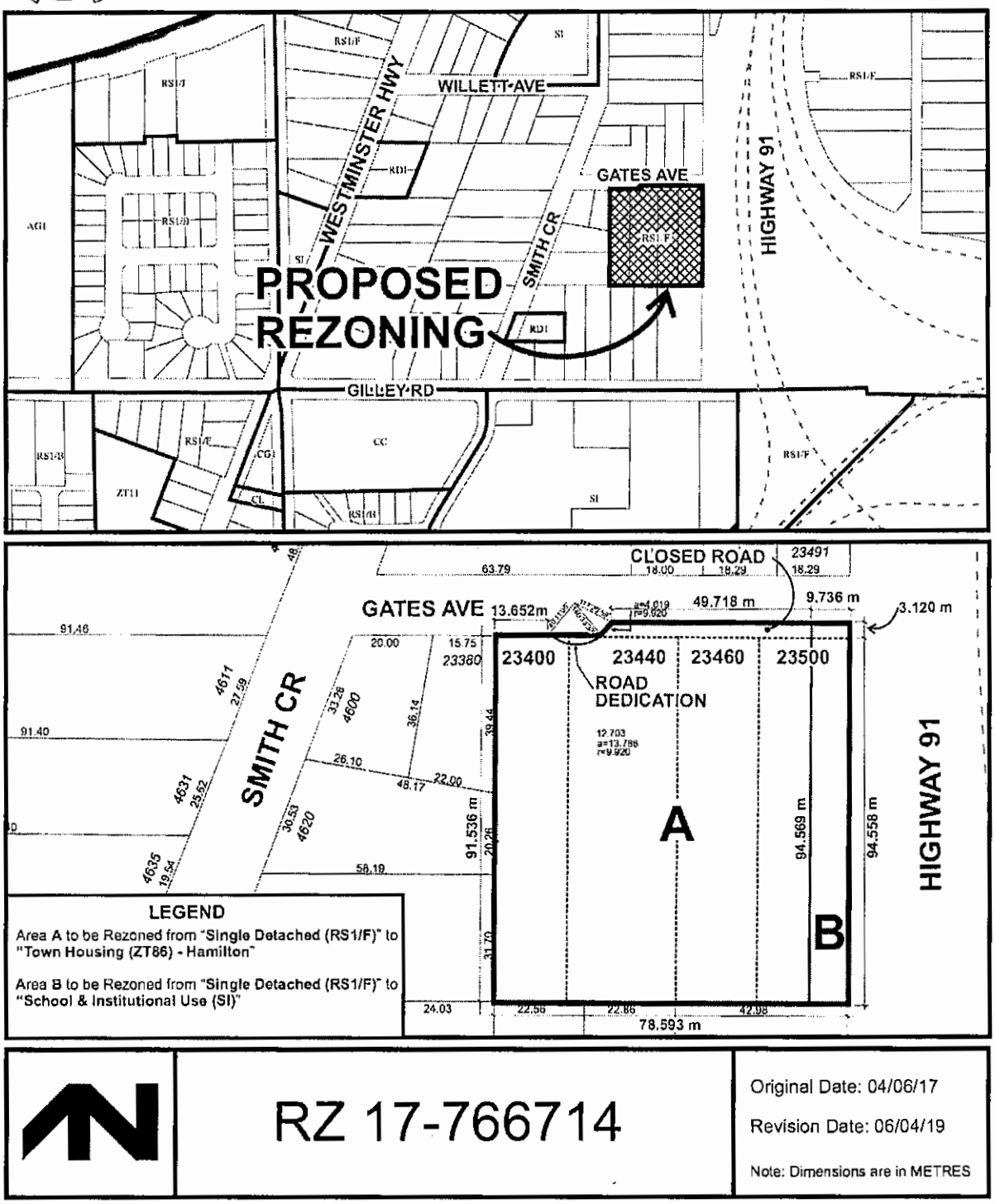
ADOPTED _____

_____ _____

MAYOR CORPORATE OFFICER

"Schedule A attached to and forming part of Bylaw No. 9932"

City of Richmond



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City of Richmond

Bylaw 10011

Richmond Official Community Plan Bylaw 9000 Amendment Bylaw 10011 (RZ 17-766714) 23400, 23440, 23460 and 23500 Gates Avenue and a portion of Gates Avenue

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

1. Richmond Official Community Plan Bylaw 9000, Schedule 2.14 (Hamilton Area Plan) is amended by:

   a) deleting the Circulation Map on page 12-5 in its entirety and replacing it with the new map in Schedule A attached to and forming part of this bylaw; and

   b) deleting the Parks, Public Realm and Open Space Map on page 13-10 in its entirety and replacing it with the new map in Schedule B attached to and forming part of this bylaw.

2. This Bylaw may be cited as **"Richmond Official Community Plan Bylaw 9000, Amendment Bylaw 10011".**

FIRST READING	
PUBLIC HEARING	
SECOND READING	
THIRD READING	
ADOPTED	

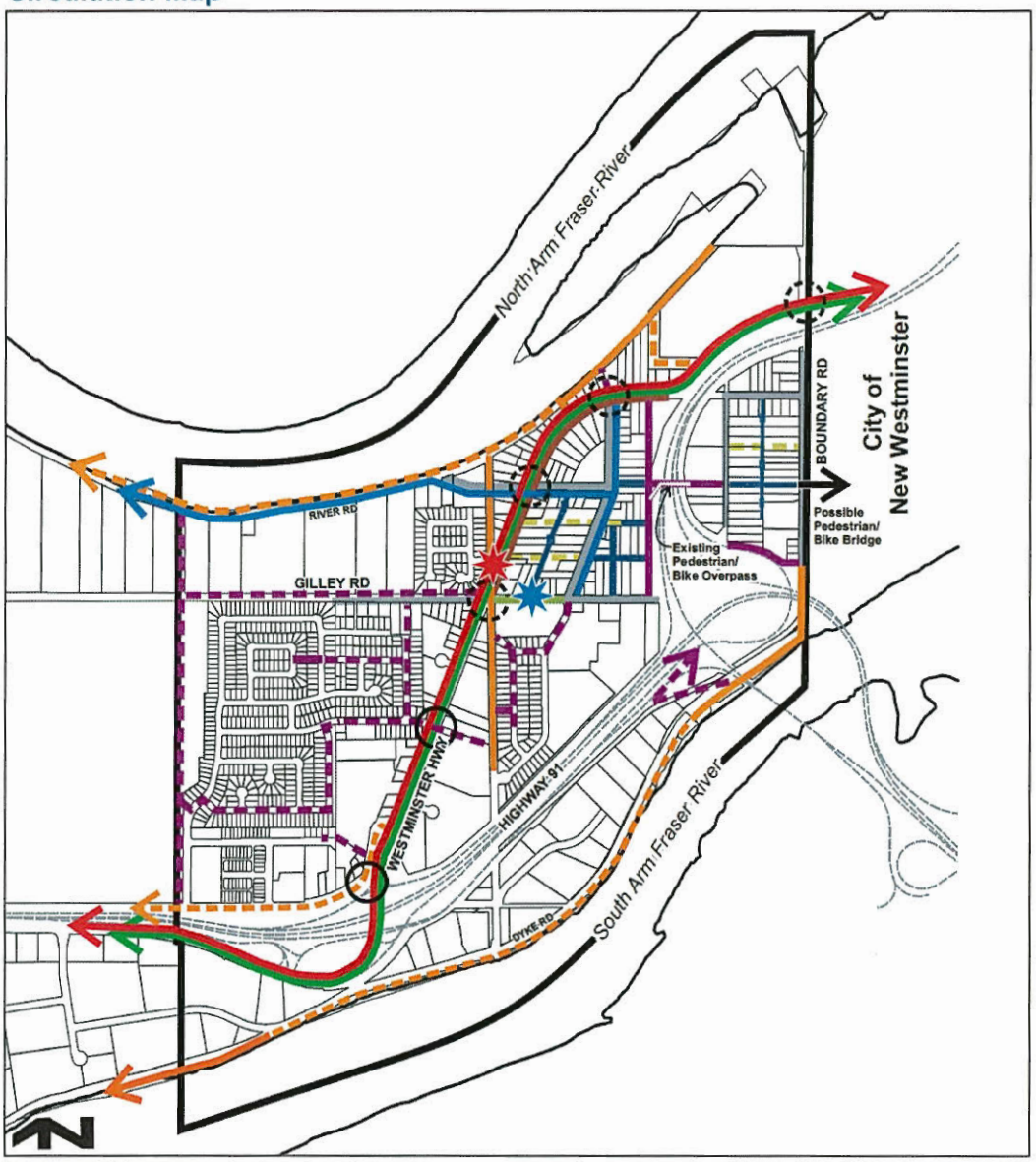
CITY OF RICHMOND
APPROVED by
APPROVED by Manager or Solicitor

MAYOR

CORPORATE OFFICER

Schedule A

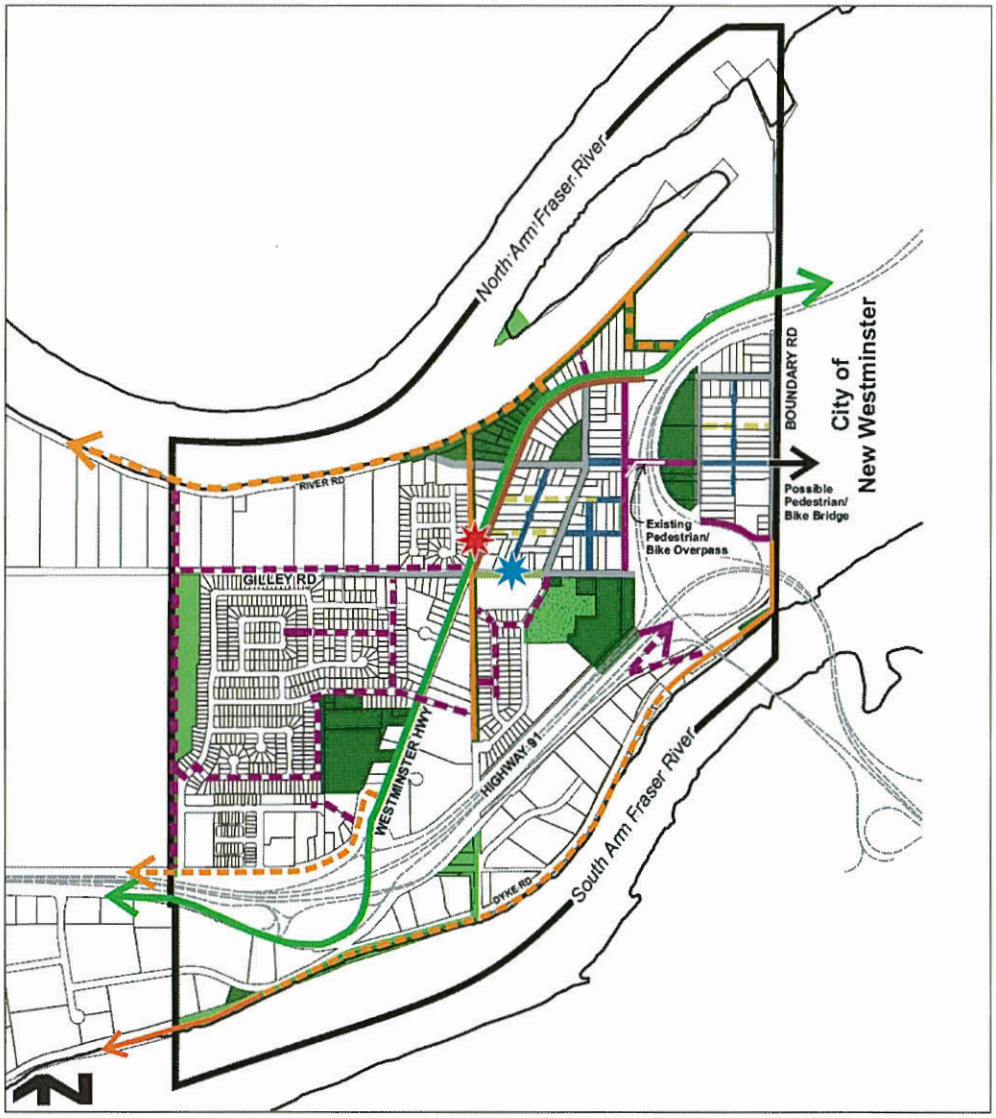
Circulation Map



- Area Plan Boundary
- Existing Major Street Bike Route
- Existing Greenway/Trail
- Future Greenway/Trail
- Existing Neighbourhood Link - enhanced
- Future Neighbourhood Link - unenhanced
- New/Reconstructed Public Streets with Neighbourhood Links
- Future Neighbourhood Links - Strollways
- Future Shared Streets
- Westminster Hwy - Boulevard Treatment
- Gilley High Street
- Major Arterial
- Collector
- Crossing Plaza
- High Street Plaza
- Existing Full Signal
- Proposed Full Signal

Schedule B

Parks, Public Realm and Open Space Map



City of Richmond

Report to Committee

Planning and Development Division

To:	Planning Committee	**Date:**	May 30, 2019
From:	Wayne Craig Director, Development	**File:**	RZ 18-802621
Re:	**Application by Pakland Developments Ltd. for Rezoning at 7571 Bridge Street from the "Single Detached (RS1/F)" Zone to the "Single Detached (ZS14) – South McLennan (City Centre)" Zone**		

Staff Recommendation

That Richmond Zoning Bylaw 8500, Amendment Bylaw 9939, for the rezoning of the western portion of 7571 Bridge Street from the "Single Detached (RS1/F)" zone to the "Single Detached (ZS14) – South McLennan (City Centre)" zone, be introduced and given First Reading.

Wayne Craig
Director, Development
(604-247-4625)

WC:na
Att. 8

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Affordable Housing	☑	

5953724

Staff Report

Origin

Pakland Developments Ltd. has applied to the City of Richmond for permission to rezone the western portion of the property at 7571 Bridge Street from the "Single Detached (RS1/F)" zone to the "Single Detached (ZS14) – South McLennan (City Centre)" zone, to permit a subdivision to create two single-family lots fronting an extension to Armstrong Street and one single-family lot fronting Bridge Street. A location map and aerial photo is provided in Attachment 1. A survey of the subject property and proposed lot configuration is provided in Attachment 2.

This application and two other rezoning applications to the north (7531 and 7551 Bridge Street RZ 10-539727), which have been approved, and to the northwest (7580 Ash Street RZ 16-732500), which has received third reading, are connected to each other by means of a Servicing Agreement and road allocation along Armstrong Street. The required road works associated with all applications identified will facilitate the continuation of Armstrong Street south, with the ultimate goal for the connection of Armstrong Street from Braeden Avenue (to the north) to Keefer Avenue (to the south) as indicated in the McLennan South Area Plan.

Findings of Fact

A Development Application Data Sheet providing details about the development proposal is attached (Attachment 3).

Subject Site Existing Housing Profile

A single-family dwelling is currently under construction on the eastern portion of the subject site and will remain, as it complies with current zoning requirements. A site survey showing the single-family dwelling under construction, road dedication and future property lines is included in Attachment 2.

Surrounding Development

Development immediately surrounding the site is as follows:

To the North: Property zoned "Single Detached (RS1/F)" and "Single Detached (ZS14) – South McLennan (City Centre)" with an approved rezoning and subdivision application to create five single-family lots (RZ 10-539727 and SD 10-539728). The lots are currently vacant; however, Building Permits for 7531 and 7551 Bridge Street are under review by the Building Approvals Department. Current ownership of these properties is the same as the subject property.

To the South: A single-family dwelling on a lot zoned "Single Detached (RS1/F)" fronting Bridge Street.

To the East: Across Bridge Street, single-family dwellings on lots zoned "Single Detached (RS1/F)".

To the West: Single-family dwellings on lots zoned "Single Detached (RS1/F)" fronting Ash Street. A rezoning and subdivision application is currently under review for two lots, 7600 Ash Street and 7620 Ash Street, to create five lots; with two fronting Ash Street and three fronting the new extension of Armstrong Street (RZ 19-853820 and SD 19-853833). A staff report on the proposed rezoning and subdivision will be forwarded to Planning Committee for consideration at a later date.

Related Policies & Studies

Official Community Plan/City Centre Area – McLennan South Sub-Area Plan

The Official Community Plan (OCP) land use designation for the subject property is "Neighbourhood Residential". The City Centre Area – McLennan South Sub-Area Plan land use designation for the subject property is "Residential, Historic Single Family" (Attachment 4). The Plan identifies minimum lot sizes along Bridge Street (minimum 18 m (59 ft.) frontage and 828.0 m^2 (8,913 ft^2) area) and along Armstrong Street (minimum 11.3 m (37 ft.) frontage and 320.0 m^2 (3,444 ft^2) area). The proposed rezoning and subdivision would comply with these designations and lot configuration requirements.

Floodplain Management Implementation Strategy

The proposed redevelopment must meet the requirements of the Richmond Flood Plain Designation and Protection Bylaw 8204. Registration of a flood indemnity covenant on Title is required prior to final adoption of the rezoning bylaw.

Public Consultation

A rezoning sign has been installed on the subject property. Staff have not received any comments from the public about the rezoning application in response to the placement of the rezoning sign on the property.

The applicant has contacted the adjacent property owner to make them aware of the application and to determine if they were interested in rezoning at this time. The applicant has advised staff in writing that the property owner is aware of the proposed rezoning and has no specific objections to the rezoning application as proposed (Attachment 5).

Should the Planning Committee endorse this application and Council grant first reading to Richmond Zoning Bylaw 8500, Amendment Bylaw 9939 (the "Rezoning Bylaw"), the Rezoning Bylaw will be forwarded to a Public Hearing, where any area resident or interested party will have an opportunity to comment. Public notification for the Public Hearing will be provided as per the *Local Government Act*.

Analysis

Proposed Rezoning and Subdivision Plan

The applicant is proposing to rezone the western portion of the subject site with the intention of subdividing 7571 Bridge Street to create two single-family lots, and a remainder lot that would be consolidated with a portion of 7588 Armstrong Street to create a third lot. A 9.0 m wide road dedication for the extension of Armstrong Street is also proposed. The proposed subdivision plan is provided in Attachment 6. In order to subdivide, a rezoning of the western portion of the site to "Single Detached (ZS14) – South McLennan (City Centre)" is required. The proposed rezoning and subdivision is consistent with lot pattern to the north abutting the site.

The applicant has provided a signed and sealed plan from a registered BC Land Surveyor confirming the existing buildings and structures currently under construction on proposed Lot 1 meet the lot size, setback, coverage, and density requirements of the existing "Single Detached (RS1/F)" zoning upon subdivision.

If the subject rezoning is approved, the proposed subdivision would consolidate a portion of the adjacent northern lot (7588 Armstrong Street) as referenced in Attachment 6. The proposed lot along Bridge Street will be approximately 19 m (62 ft.) wide and 877 m^2 (9,440 ft^2) in area and the proposed lots along Armstrong Street will be approximately 11.5 m (38 ft.) wide and 432 m^2 (4,650 ft^2) in area. 7531 and 7551 Bridge Street were previously rezoned and subdivided (RZ 10-539727 and SD 10-539728) in a manner similar to this application.

Transportation and Site Access

Vehicle access to the eastern lot and existing building at 7571 Bridge Street (Proposed Lot 1) is to be from Bridge Street. Vehicle access to the western portion of the site is to be from the extension of Armstrong Street. Prior to subdivision approval for 7571 Bridge Street, the Servicing Agreement SA 11-559046 associated with the adjacent development to the North is to be revised to reflect the additional works that are required to service the proposed development. A legal agreement is to be registered on Title to ensure construction of all road works required as part of this servicing agreement.

The length of the Armstrong Street extension creates a road which is greater than 90 m without a secondary emergency access. Prior to subdivision approval, the applicant will be required to register a restrictive covenant on Title to ensure the proposed new dwellings fronting Armstrong Street (Proposed Lots 2, 3 and 4) will have a fire sprinkling system installed. A Statutory Right-of-Way (SRW) over the driveway of the proposed Lot 4 to allow vehicles to turn around at the dead-end, including a swept-path analysis showing access is functional will also need to be provided prior to subdivision approval. This supersedes the need for an SRW at 7588 Armstrong Street as part of the application at 7531 and 7551 Bridge Street (RZ 10-539727) and therefore, prior to subdivision approval, discharge of Plan #EPP82028 should be completed. The Fire Department has reviewed the proposal and has no other concerns.

Tree Retention and Replacement

A Certified Arborist's Report (the "Report") was submitted by the applicant, which identifies tree species, assesses tree structure and condition, and provides recommendations on tree retention and removal relative to the proposed development. The Report assesses 17 bylaw-sized trees on the subject site and nine trees located off-site at 7551 Bridge Street, 7600 and 7620 Ash Street, and on City-owned property.

City Tree Preservation staff have reviewed the Report, conducted on-site visual tree assessment, and provide the following comments:

- Four Cypress trees (tag# 44, 45, 47 and 48) located in the southwest corner of the site are in fair condition and were considered for retention. City staff and the applicant discussed measures to retain these trees, including changes to the proposed subdivision plan and modifications to the proposed building design. However, these trees are recommended for removal due to the impact of peat excavation required for the proposed building foundation, which would encroach into the critical root zone of the trees, affect site drainage, and alter the hydrology of the soil. These impacts would lead to decline of the trees' health and put the trees at risk of failure. As a result, these trees should be removed and replaced with specimen trees as per Richmond Tree Protection Bylaw No. 8057.
- Eight Birch and Cypress trees on-site (tag# 37, 38, 39, 40, 41, 42, 43, and 46) are in poor condition and suffering from Bronze Birch Borer infestation are recommended to be removed and replaced.
- Five on-site trees located within the Armstrong Street road dedication area (tag#49, 52, 53, 54, and 55) are to be removed. Compensation for the removal of these five trees is not required as Armstrong Street is identified in the Sub-Area Plan.
- Three off-site trees (tag# 17(475), 18 (474), 19(473)) at 7551 Bridge Street are to be retained and protected, as secured through the previous rezoning application for 7531 and 7551 Bridge Street (RZ 10-539727).
- One tree located on City property (tag# 20) and one bush (tag#21) at 7591 Bridge Street are to be retained and protected.
- Four off-site trees (tag# 50, 51, 56(E), and 57(D)) at 7600 and 7620 Ash Street are located within the future Armstrong Street road dedication. These trees will be reviewed through the rezoning application for 7600 and 7620 Ash Street (RZ 19-853820).

Tree Protection

Five trees (tag # 17(475), 18 (474), 19(473), 20, and 21) located off-site are to be retained and protected. Additionally, four trees (tag# 50, 51, 56(E), and 57(D)) will not be impacted by this rezoning application and are to be retained pending the rezoning application at 7600 and 7620 Ash Street. The applicant has provided a Tree Management Plan showing the trees to be retained and the measures taken to protect them during development stage (Attachment 7). Tree protection fencing is required to be installed in accordance with the City's Tree Protection Information Bulletin TREE-03.

To ensure protection of the retained trees, prior to final adoption of the Rezoning Bylaw, the applicant is required to submit to the City:

- A contract with a Certified Arborist for supervision of all works conducted within or in close proximity to tree protection zones; and

- A Tree Survival Security of $5,000 to ensure that one tree (tag#20) on City Boulevard is protected. The survival security will not be released until an acceptable post-construction impact assessment report is received and a landscape inspection has been passed after construction is completed.

- Note: The three off-site protected trees (tag# 17(475), 18 (474), 19(473)) at 7551 Bridge Street have securities already in place as per the rezoning conditions from RZ 10-539727.

Tree Replacement

The applicant wishes to remove 17 on-site trees (tag# 37-49, and 52-55). Five of these trees are located in the required road dedication for Armstrong Street, so compensation is not required. For the remaining 12 trees, the 2:1 replacement ratio would require a total of 24 replacement trees. The applicant has agreed to plant and maintain four replacement trees on each of Proposed Lots 1, 3, and 4, for a total of 12 replacement trees. Three replacement trees on Proposed Lot 2 were secured through the rezoning of 7531 and 7551 Bridge Street, and therefore do not count toward the required replacement trees for the subject rezoning application.

The required replacement trees are to be of the following minimum sizes, based on the size of the trees being removed as per Richmond Tree Protection Bylaw No. 8057.

No. of Replacement Trees	Minimum Caliper of Deciduous Replacement Tree	Minimum Height of Coniferous Replacement Tree
6	8 cm	4 m
6	9 cm	5 m

To satisfy the 2:1 replacement ratio established in the OCP, the applicant will contribute $6,000 to the City's Tree Compensation Fund in lieu of the 12 remaining trees that cannot be accommodated on the subject site after redevelopment.

To ensure that 12 replacement trees are planted on-site at development stage, the applicant is required to submit a Landscaping Security in the amount of $6,000 ($500/tree) prior to final adoption of the Rezoning Bylaw. The Security will not be released until a landscaping inspection has been passed by City staff after construction and landscaping has been completed. The City may retain a portion of the security for a one year maintenance period from the date of the landscape inspection.

Affordable Housing Strategy

The City's Affordable Housing Strategy for single-family rezoning applications received after July 24, 2017, requires a secondary suite on 100% of new lots, or a secondary suite on 50% of

new lots, plus a cash-in-lieu contribution of $4.00/ft^2$ of total buildable area towards the City's Affordable Housing Reserve Fund for the remaining 50% of new lots, or a 100% cash-in-lieu contribution if secondary suites cannot be accommodated.

The newly constructed dwelling on the eastern portion of 7571 Bridge Street does not contain a secondary suite. The applicant will provide a voluntary contribution to the Affordable Housing Reserve Fund based on $4.00/ft^2$ of total buildable area (i.e. $16,332.00). The cash-in-lieu contribution must be submitted prior to final adoption of the Rezoning Bylaw.

On the western portion of 7571 Bridge Street, the applicant proposes to provide a legal secondary suite within each new single-family dwelling. The applicant proposes that each suite will at minimum be a one-bedroom suite of approximately 408 ft^2 or 37.9 m^2. To ensure that the secondary suites are built to the satisfaction of the City in accordance with the City's Affordable Housing Strategy, the applicant is required to enter into a legal agreement registered on Title, stating that no final Building Permit inspection will be granted until the secondary suite is constructed to the satisfaction of the City in accordance with the BC Building Code and Richmond Zoning Bylaw 8500. Registration of this legal agreement is required prior to final adoption of the Rezoning Bylaw.

Site Servicing and Frontage Improvements

Prior to final adoption of the Rezoning Bylaw, the developer is required to provide a 9.0 m wide road dedication along the entire west property line of the subject property representing half of the width for the extension of Armstrong Street.

At the subdivision stage, the developer is required to enter into an amendment to the existing Servicing Agreement (SA 11-559046) for the design and construction of engineering infrastructure and frontage improvements, as described in Attachment 8.

Also at subdivision stage, the developer is required to pay Property Taxes, Development Cost Charges, School Site Acquisition Charge, Address Assignment Fees, and the costs associated with the completion of the design and construction of engineering infrastructure and frontage improvements as described in Attachment 8.

Financial Impact

The rezoning application results in an insignificant Operational Budget Impact (OBI) for off-site City infrastructure (such as roadworks, waterworks, storm sewers, sanitary sewers, street lights, street trees and traffic signals).

Conclusion

The purpose of this rezoning application is to rezone the western portion of the property at 7571 Bridge Street from the "Single Detached (RS1/F)" zone to the "Single Detached (ZS14) – South McLennan (City Centre)" zone, to permit a subdivision to create two single-family lots fronting an extension to Armstrong Street and one single-family lot fronting Bridge Street.

This rezoning application complies with the land use designations and applicable policies contained within the OCP and Area Plan for the subject site.

The list of rezoning considerations is included in Attachment 8, which has been agreed to by the applicant (signed concurrence on file).

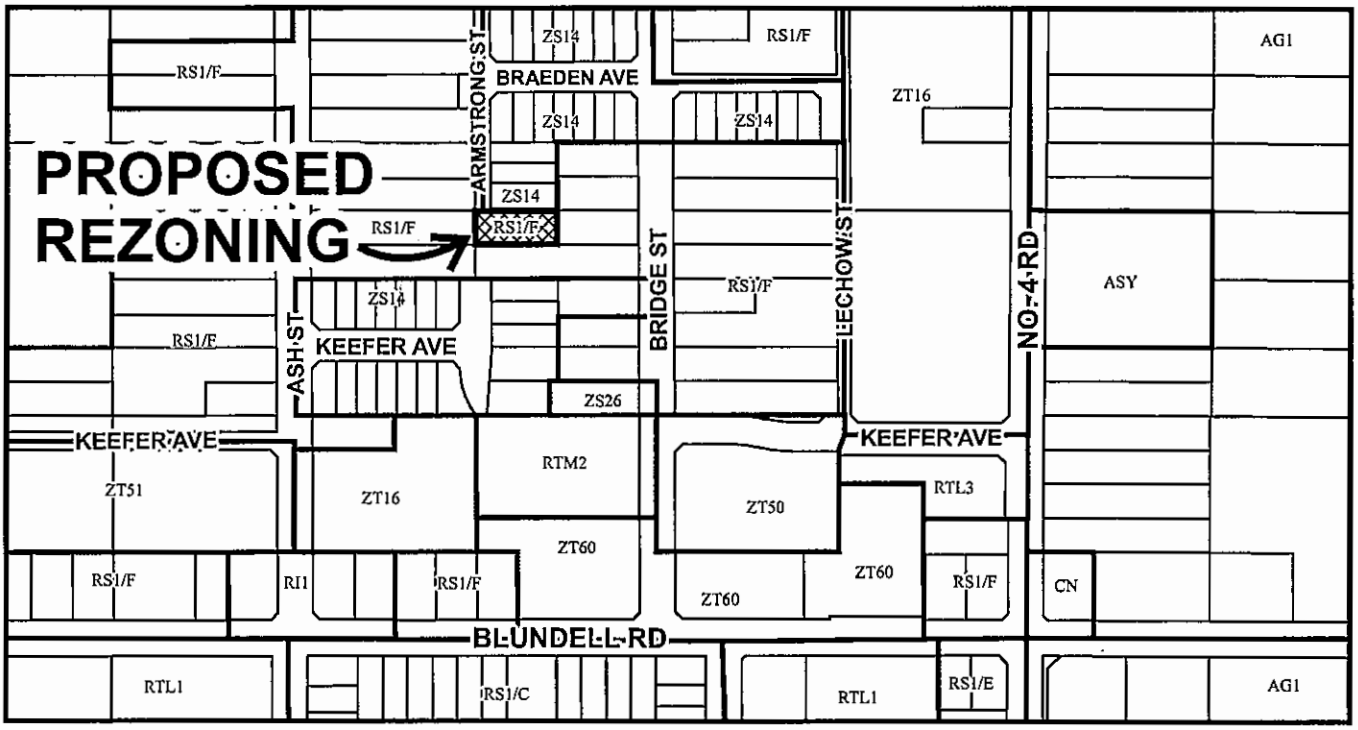
On this basis, it is recommended that Richmond Zoning Bylaw 8500, Amendment Bylaw 9939 be introduced and given first reading.

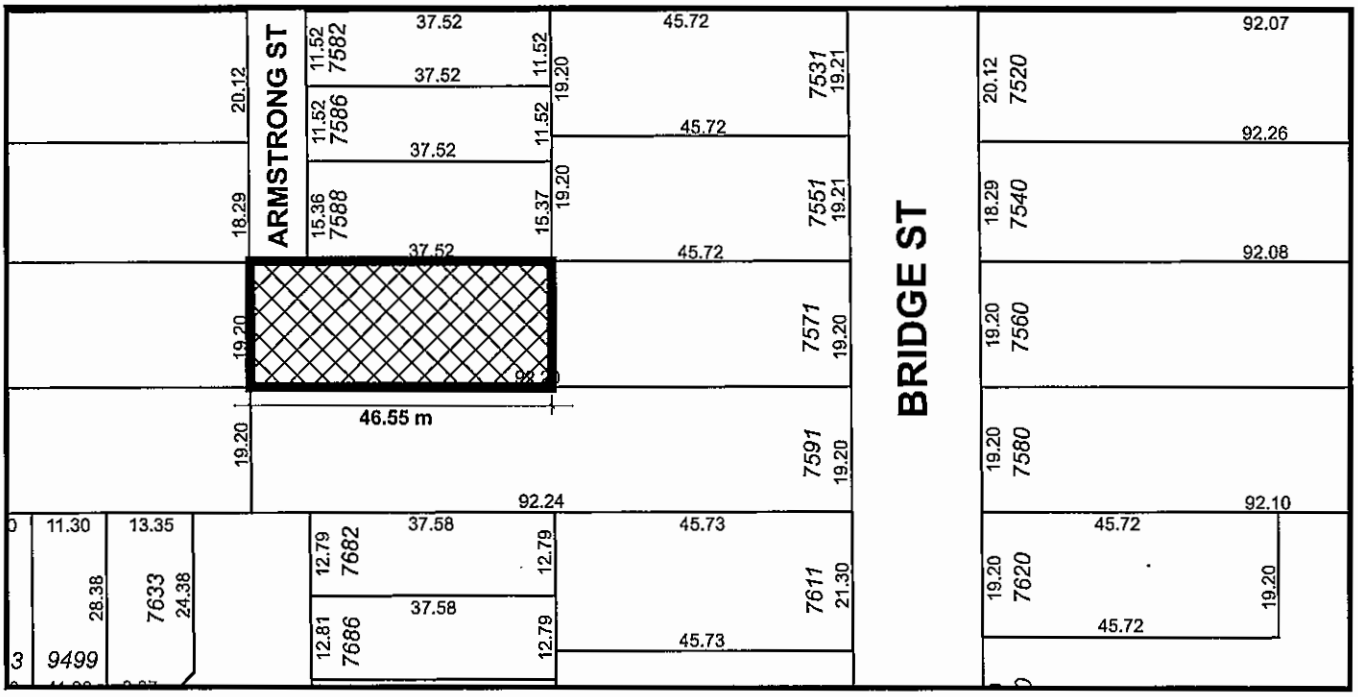
for:
Nathan Andrews
Planning Technician
(604-276-4911)

NA/JR:blg

Attachment 1: Location Map and Aerial Photo
Attachment 2: Site Survey
Attachment 3: Development Application Data Sheet
Attachment 4: City Centre Area – McLennan South Sub-Area Plan Land Use Map
Attachment 5: Letter to the owner of 7591 Bridge Street
Attachment 6: Proposed Subdivision Plan
Attachment 7: Tree Management Plan
Attachment 8: Rezoning Considerations

City of Richmond





RZ 18-802621

Original Date: 09/05/18

Revision Date: 05/06/19

Note: Dimensions are in METRES

City of Richmond

RZ 18-802621

Original Date: 02/13/18

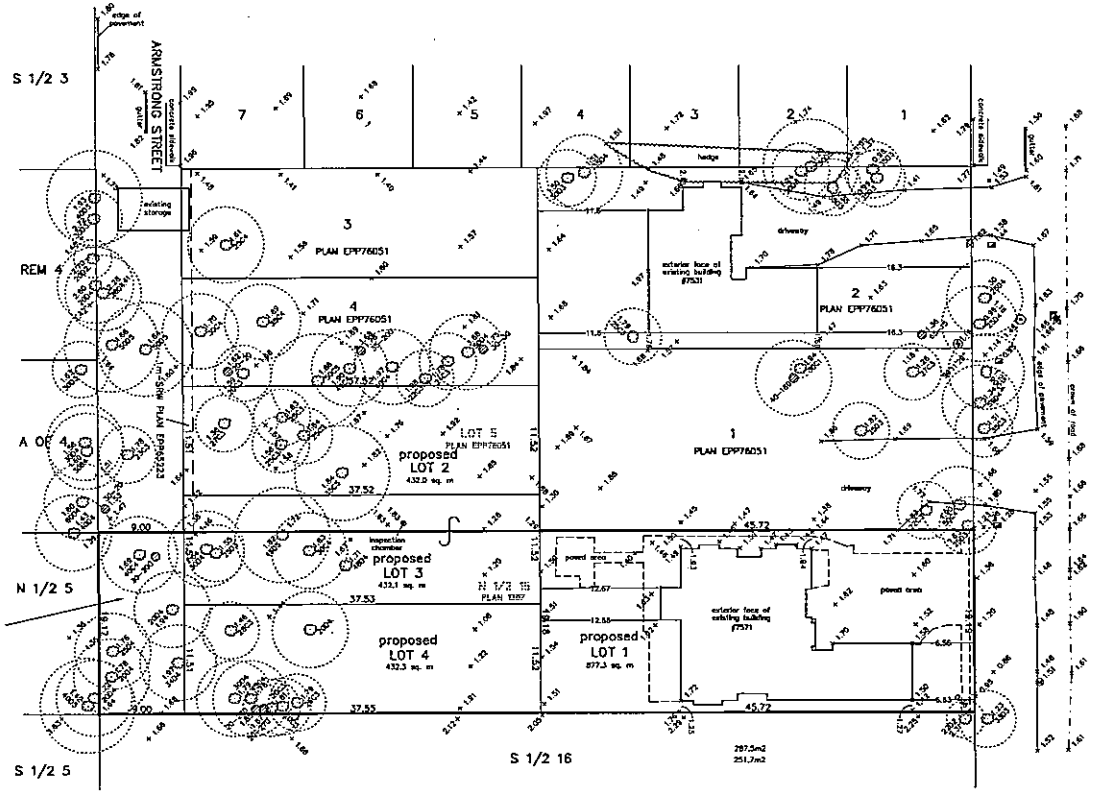
Revision Date: 04/15/19

Note: Dimensions are in METRES

SURVEY PLAN OF LOT NORTH HALF OF LOT 16, PLAN 1207 AND LOT 5, PLAN EPP76051
SECTION 15, BLOCK 4 NORTH, RANGE 6 WEST
NEW WESTMINSTER DISTRICT

SCALE 1 : 250

All distances are in metres.



CNCL - 362

NOTES:

- Lot dimensions are derived from field survey.
- Elevations are based on the Geodetic Datum of Richmond and are derived from HPN#195(GSC#1524) situated at the intersection of No. 5 Road and Granville Avenue. Elevation = 2.35 metres.
- All trees and stumps have been plotted as required.
- All elevations along curb lines are gutter levels.

denotes hydro pole.
denotes catch basin
denotes manhole
denotes water valve
denotes hydrant
denotes tree stump.
height (centimetres)
diameter (centimetres)
denotes tree.
drip line radius (metres)
C=coniferous
D=deciduous
diameter (centimetres)

Proposed Lot 1 – Lot Coverage Details

Category	Area (% of total)
Buildings	287.5 sq. m. (37.8%)
Buildings & Non-porous Surfaces	547.4 sq. m. (72.4%)
Live plant material	329.9 sq. m. (37.8%)

Proposed Lot 1 – Floor Area Ratio Details

Floor	Area
Ground floor (excluding garage)	253.3 sq. m.
Second floor (excluding 10 sq.m and bdge ceiling area)	144.8 sq. m.
Total (max 379.3 sq. m. allowed)	379.3 sq. m.

CIVIC ADDRESS
7571 BRIDGE STREET
RICHMOND, B.C.

ZONING: RS1/F

FSR AND IMPERMEABLE AREA OF PROPOSED LOT 1 ADDED.
DATED THIS 4TH DAY OF MARCH, 2019
CERTIFIED CORRECT.
DATED THIS 27TH DAY OF SEPT., 2017

LOUIS NGAN B.C.L.S.

LNLS METRO VANCOUVER LAND SURVEYORS
1528 KINGSWAY, VANCOUVER, BC, V5N 2R9
T 604.327.1535 WEB WWW.LNLS.CA

FILE: 10579_19TP

ATTACHMENT 2

City of Richmond

Development Application Data Sheet

Development Applications Department

RZ 18-802621 **Attachment 3**

Address: 7571 Bridge Street

Applicant: Pakland Developments Ltd

Planning Area(s): City Centre – McLennan South

	Existing	Proposed
Owner:	0898146 BC Ltd	To be determined
Site Size:	1,774 m^2 (19,095 ft^2)	East Portion: 877.3 m^2 (9,443 ft^2) Approx. West Lots: 432 m^2 (4,650 ft^2) Road Dedication: 172.5 m^2 (1,857 ft^2)
Land Uses:	Single-family residential	No change
OCP Designation:	Neighbourhood Residential	No change
Area Plan Designation:	Residential, Historic Single-Family	No change
Zoning:	Single Detached (RS1/F)	East Portion: Single Detached (RS1/F) West Portion: Single Detached (ZS14) – South McLennan (City Centre)

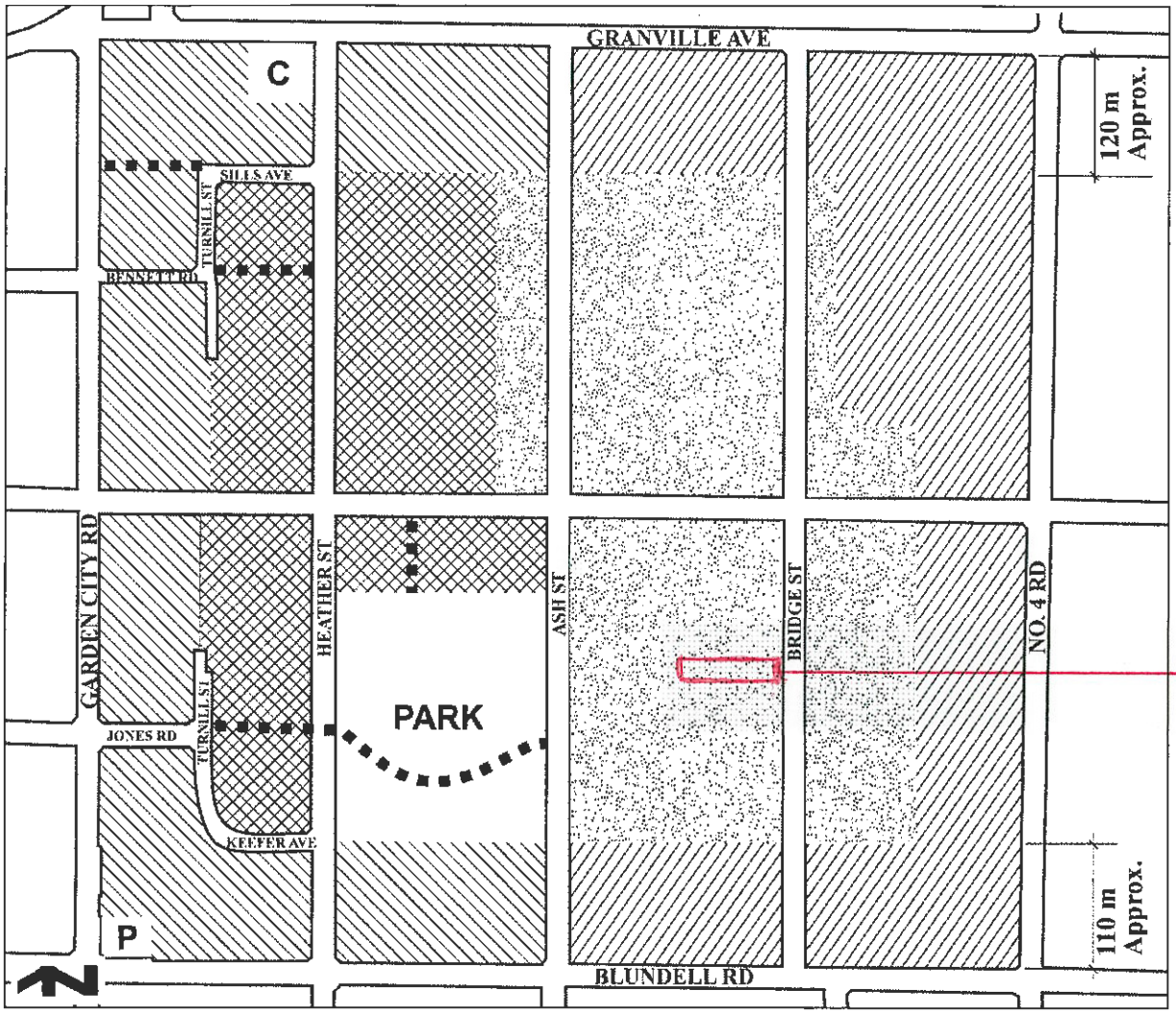
On West Portion of 7571 Bridge Street	Bylaw Requirement Single Detached (ZS14) – South McLennan (City Centre)	Proposed	Variance
Floor Area Ratio:	Max. 0.55 for 464.5 m^2 of lot area + 0.3 for area in excess of 464.5 m^2	Max. 0.55 for 464.5 m^2 of lot area + 0.3 for area in excess of 464.5 m^2	None Permitted
Buildable Floor Area:*	Max. 237.6 m^2 (2,558 ft^2)	Max. 237.6m^2 (2,558 ft^2)	None Permitted
Lot Coverage Building: Non-Porous: Landscaping:	 Max. 45% Max. 70% Min. 25%	 Max. 45% Max. 70% Min. 25%	None
Lot Size:	Min. 320.0 m^2	Approx. for each new lot: 432 m^2	None
Lot Dimensions:	Min. Width: 11.3 m Min. Depth: 24.0 m	Width: 11.5 m Depth: 37.5 m	None
Setbacks:	Front: Min. 6.0 m Rear: Min. 6.0 m Side: Min. 1.2 m	Front: Min. 6.0 m Rear: Min. 6.0 m Side: Min. 1.2 m	None
Height:	Max. 9.0 m	Max. 9.0 m	None

Other: Tree replacement compensation required for loss of significant trees.

* Preliminary estimate; not inclusive of garage; exact building size to be determined through zoning bylaw compliance review at Building Permit stage.

Land Use Map

Bylaw 9106
2015/09/14



Residential, Townhouse up to **3 storeys** over 1 parking level, Triplex, Duplex, Single-Family
0.75 base F.A.R.

Residential, 2 ½ storeys typical (3 storeys maximum) Townhouse, Triplex, Duplex, Single-Family
0.60 base F.A.R.

Residential, 2 ½ storeys typical (3 storeys maximum), predominantly Triplex, Duplex, Single-Family
0.55 base F.A.R.

Residential, Historic Single-Family, **2 ½ storeys** maximum **0.55 base F.A.R.**, Lot size along Bridge and Ash Streets:

- Large-sized lots (e.g. 18 m/59 ft. min. frontage and 550 m^2/ 5,920 ft^2 min. area)

Elsewhere:

- Medium-sized lots (e.g. 11.3 m/ 37 ft. min. frontage and 320 m^2/ 3,444 ft^2 min. area), with access from new roads and General Currie Road;

Provided that the corner lot shall be considered to front the shorter of its two boundaries regardless of the orientation of the dwelling.

Trail/Walkway

C Church

P Neighbourhood Pub

Note: Sills Avenue, Le Chow Street, Keefer Avenue, and Turnill Street are commonly referred to as the "ring road".

To the Owner of 7591 Bridge Street Richmond

May 09. 2019

SUB: To inform you about the Proposed Rezoning of 7571 Bridge Street RZ 18-802621

We the owner/applicant of 7571 Bridge Street has applied to City of Richmond under the above Rezoning file Number for the Rezoning and Subdivision of our property located at 7571 Bridge Street in order to subdivide our back portion of Land to be combined with 7531 & 7551 Bridge Street back portion of land to create 5 new single family lots under ZS14 Zoning with each lot will be approximately 37.5 feet wide and 120 feet deep facing the new extension of Armstrong Street at the West Property Line. Once the Armstrong Street is dedicated build, it will end at your North PL and that will give you an opportunity to subdivide your property to create Two New Single family Lot facing, one facing Bridge Street and the other facing Armstrong Street.

As part of our development, we will be removing most of the trees located at our property and that includes the cypress tree that is leaning at the North Property line over your property.

If you have any question or concern about this proposed development, you can contact City of Richmond at 604-276-4000 and ask for the planner Nathan Andrews and his direct line is 604-247-4911.

You can also contact us for any questions or concern at 604-786-8960 (Khalid Hasan).

Thanks.

Acknowledgement by the owner of 7591 Bridge Street

604-329-2619

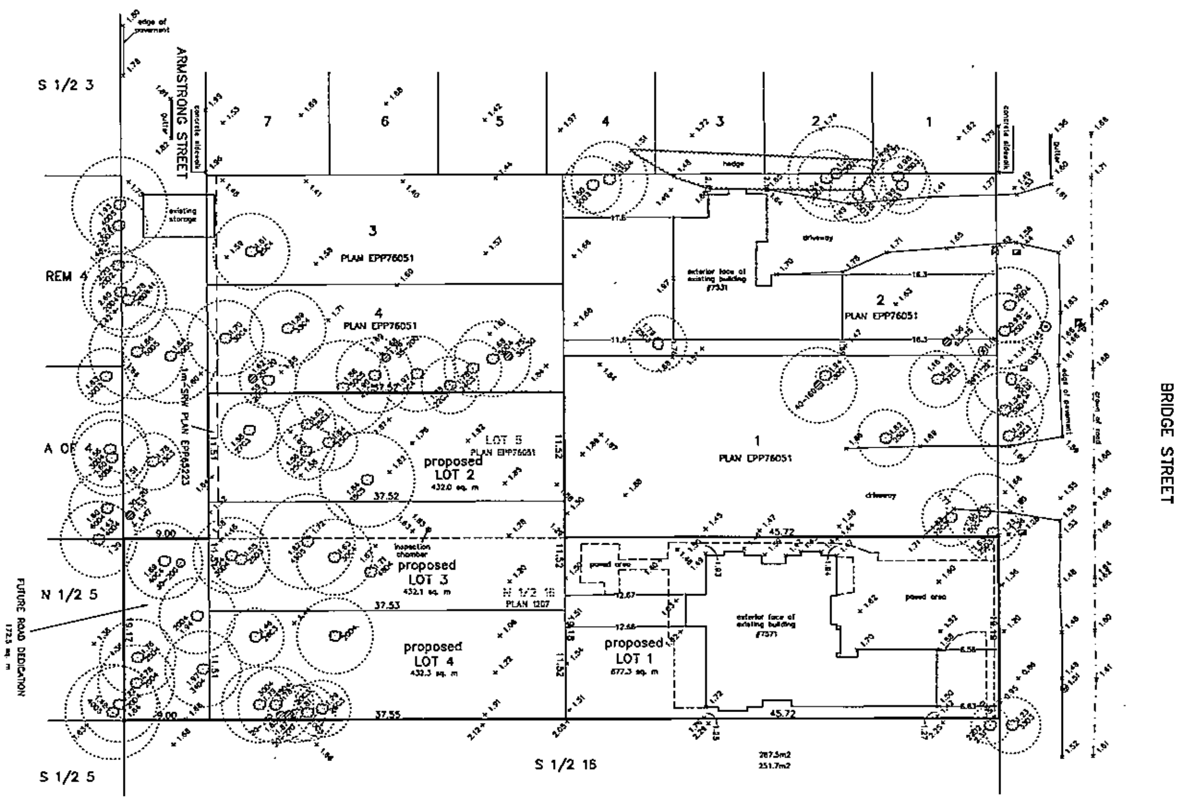
Clifford Oleksiew

ATTACHMENT 6

SURVEY PLAN OF LOT NORTH HALF OF LOT 16, PLAN 1207 AND LOT 5, PLAN EPP76051
SECTION 15, BLOCK 4 NORTH, RANGE 6 WEST
NEW WESTMINSTER DISTRICT

SCALE 1 : 250

All distances are in metres.



NOTES:

- Lot dimensions are derived from field survey.
- Elevations are based on the Geodetic Datum of Richmond and are derived from HPN#190(84H1624) situated at the intersection of No. 5 Road and Granville Avenue. Elevation = 2.35 metres.
- All trees and stumps have been plotted as required.
- All elevations along curb lines are gutter levels.

denotes hydro pole.
denotes catch basin
denotes manhole
denotes water valve
denotes hydrant
denotes tree stump.
8-10 height (centimetres), diameter (centimetres)
denotes tree.
8C10 drip line radius (metres), C=coniferous, D=deciduous, diameter (centimetres)

Proposed Lot 1 - Lot Coverage Details

Category	Area (% of total)
Buildings	287.5 sq. m. (32.8%)
Buildings & Non-porous Surfaces	547.4 sq. m. (62.4%)
Live plant material	329.9 sq. m. (37.6%)

Proposed Lot 1 - Floor Area Ratio Details

Floor	Area
Ground floor (excluding garage)	235.3 sq. m.
Second floor (excluding 10 sq.m and high ceiling areas)	144.0 sq. m.
Total (max 379.3 sq. m. allowed)	379.3 sq. m.

CIVIC ADDRESS
7571 BRIDGE STREET
RICHMOND, B.C.

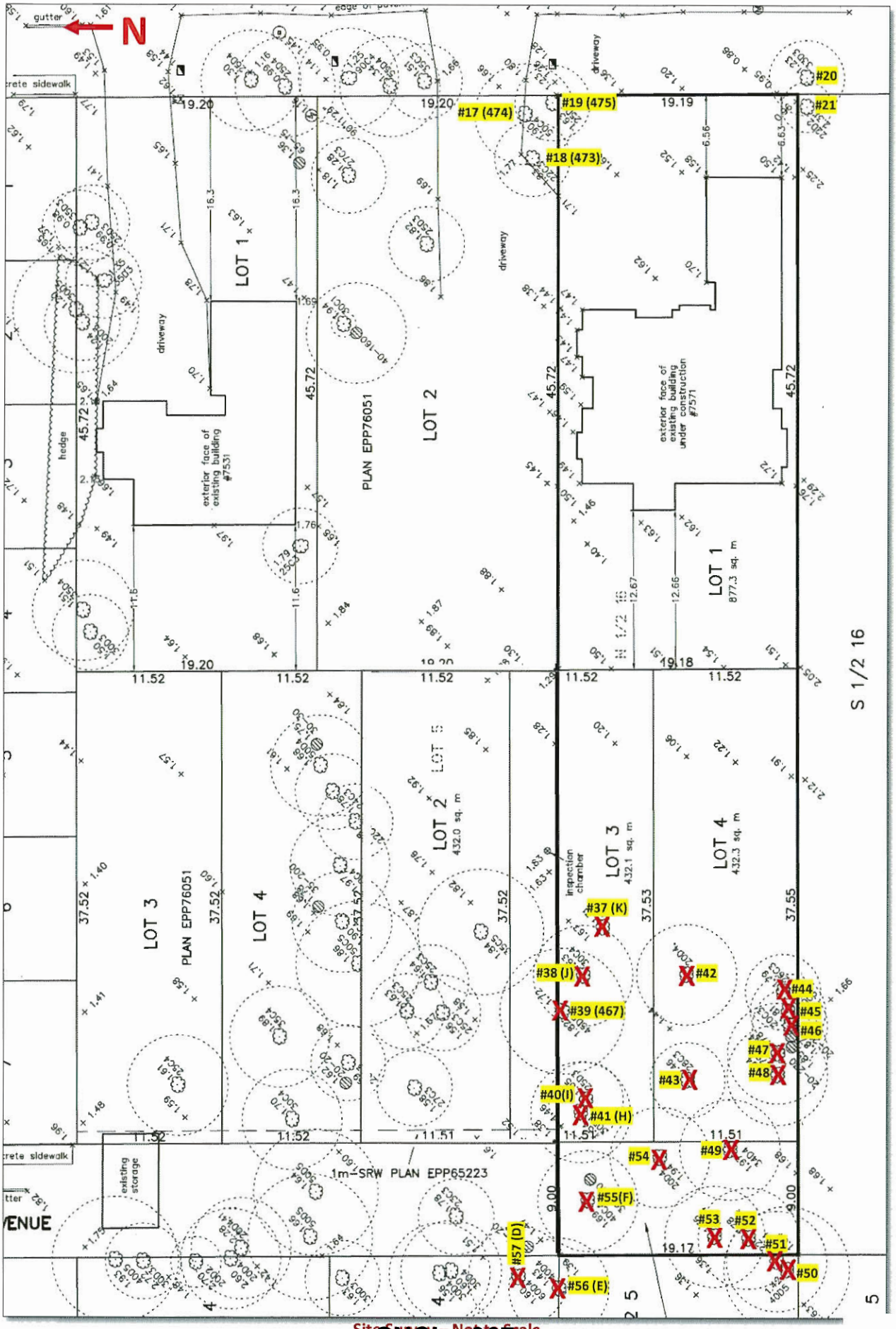
ZONING: RS1/F

FSR AND IMPERMEABLE AREA OF PROPOSED LOT 1 ADDED.
DATED THIS 4TH DAY OF MARCH, 2
CERTIFIED CORRECT.
DATED THIS 27TH DAY OF SEPT., 2

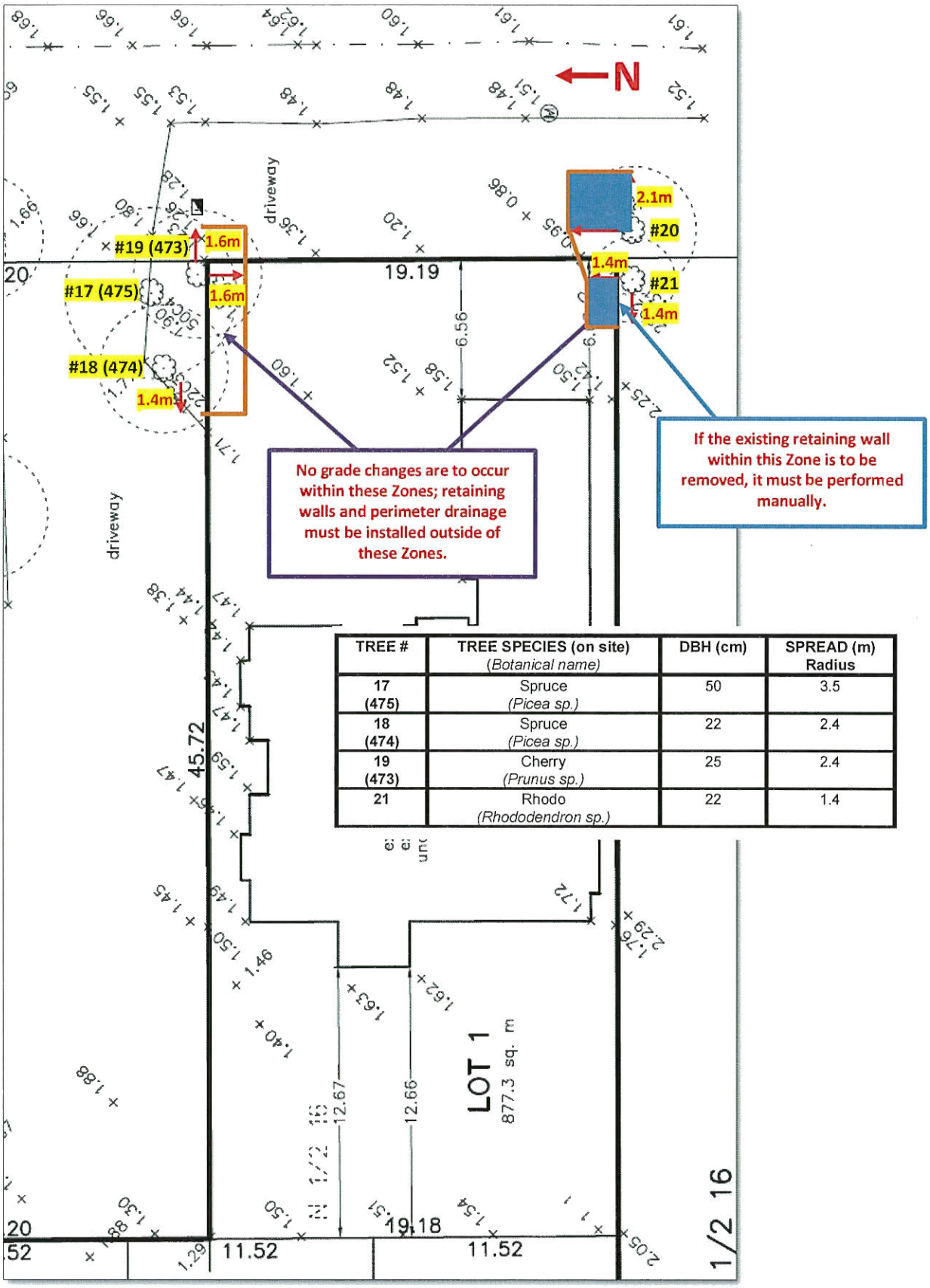
LOUIS NGAN B.C.L.

LNLS METRO VANCOU LAND SURVEYO
1528 KINGSWAY, VANCOUVER, BC, V5N 2R1
T 604.327.1535 WEB WWW.LNLS.CA

FILE: 10579_19TP



Site Survey – Not to Scale



TREE #	TREE SPECIES (on site) (Botanical name)	DBH (cm)	SPREAD (m) Radius
17 (475)	Spruce (Picea sp.)	50	3.5
18 (474)	Spruce (Picea sp.)	22	2.4
19 (473)	Cherry (Prunus sp.)	25	2.4
21	Rhodo (Rhododendron sp.)	22	1.4

7571 Bridge St. Preliminary Front Yard Tree Retention & Removal Plan - Scale 1:250

City of Richmond

Rezoning Considerations

Development Applications Department
6911 No. 3 Road, Richmond, BC V6Y 2C1

Address: 7571 Bridge Street **File No.:** RZ 18-802621

Prior to final adoption of Richmond Zoning Bylaw 8500, Amendment Bylaw 9939, the developer is required to complete the following:

1. Road dedication along the entire west property line measuring 9.0 m wide and 172.5 m^2 in area for the extension of Armstrong Street.
2. Submission of a Landscape Security of $6,000 ($500/tree) to ensure that a minimum of 12 replacement trees are planted and maintained on the proposed development site with the following minimum sizes:

No. of Replacement Trees	Minimum Caliper of Deciduous Replacement Tree	Minimum Height of Coniferous Replacement Tree
6	8 cm	4 m
6	9 cm	5 m

   The security will not be released until a landscaping inspection is passed by City staff. The City may retain a portion of the security for a one-year maintenance period.
3. The City's acceptance of the applicants' voluntary contribution in the amount of $6,000 to the City's Tree Compensation Fund for the planting of replacement trees within the City, in-lieu of planting the remaining 12 required replacement trees on-site ($500 per tree).
4. Submission of a Contract entered into between the applicant and a Certified Arborist for supervision of any on-site works conducted within the tree protection zone of the trees to be retained. The Contract should include the scope of work to be undertaken, including: the proposed number of site monitoring inspections, and a provision for the Arborist to submit a post-construction assessment report to the City for review.
5. Submission of a Tree Survival Security to the City in the amount of $5,000 for the one tree on City property to be retained. The survival security will not be released until an acceptable post-construction impact assessment report is received and a landscape inspection has been passed after construction is completed. The City may retain a portion of the security for a one-year monitoring period.
6. Installation of appropriate tree protection fencing around all trees to be retained as part of the development prior to any construction activities, including building demolition, occurring on-site.
7. Registration of a flood indemnity covenant on Title.
8. Registration of a legal agreement on Title ensuring that prior to Subdivision approval, the road works associated with the amended Servicing Agreement (SA 11-559046) for both the subject property and the adjacent development to the north (7531 and 7551 Bridge Street) are completed.
9. Registration of a legal agreement on Title to ensure that no final Building Permit inspection is granted until a secondary suite is constructed on the proposed western lots with a minimum of one-bedroom secondary suites on each lot and be a minimum of 408 ft^2 or 37.9 m^2. Moreover, the inclusion of the suites will be to the satisfaction of the City in accordance with the BC Building Code and the City's Zoning Bylaw.
10. The City's acceptance of the applicant's voluntary contribution of $4.00 per buildable square foot of the single-family developments (i.e. $16,332.00) to the City's Affordable Housing Reserve Fund.

Prior to Subdivision* Approval, the developer is required to complete the following:

1. Registration of a legal agreement on Title to ensure the proposed dwellings on Armstrong Street have a fire sprinkling system installed (the length of the Armstrong Street extension creates a road which is greater than 90 m without a secondary emergency access).

Initial: _____

2. Payment of the current year's property taxes, Development Cost Charges, School Site Acquisition Charge, Address Assignment Fees, and the costs associated with the completion of the design and construction of engineering infrastructure and frontage improvements.
3. Granting of a statutory right-of-way (PROP) over the driveway of the proposed Lot 4 to allow vehicles to turn around at the dead-end, including a swept-path analysis showing access is functional.
4. Discharge of statutory right-of-way (PROP) EPP82028 over the driveway of the current 7588 Armstrong Street.
5. Enter into a Servicing Agreement* for the design and construction of engineering infrastructure and frontage improvements, including (but not limited to) the following:

Note: The proposed development is adjacent to another proposed development at 7531 Bridge Street and 7551 Bridge Street (RZ10-539727 and SA11-559046). The security bond for the servicing agreement works is in place and the design is approved in principle. The proposed development (7571 Bridge Street) is to be serviced via the same servicing agreement. As a condition for 7571 Bridge Street development's rezoning application approval, SA11-559046 is to be revised to reflect the additional works that are required to service the proposed development. The security bond shall also be amended to be based on the revised Servicing Agreement which reflects the increased scope of work. This document specifies the additions and amendments that are required to be made to the existing SA11-559046.

Water Works:

- Using the OCP Model, there is 251.0 L/s and 243.0 L/s of water available at a 20 psi residual at the Bridge St frontage and Armstrong St frontage, respectively. Based on your proposed development, your site requires a minimum fire flow of 95 L/s.

The Developer is required to:

- Submit a Fire Underwriter Survey (FUS) or International Organization for Standardization (ISO) fire flow calculations to confirm the development has adequate fire flow for onsite fire protection. Calculations must be signed and sealed by a Professional Engineer and be based on Building Permit Stage and Building designs.
- Install approximately 20m of new 200mm PVC watermain along the lot's Armstrong Street frontage, up to the south property line of 7571 Bridge St, in addition to the approximately 40m of proposed watermain shown in the approved SA11-559046 drawings. Complete with a new fire hydrant and blow-off located at the south property line.
- Install a new 25mm water service connection off of the new watermain on Armstrong Street complete with meter and meter box for each of the two future lots.
- Retain the existing 25mm water service connection at the Bridge Street frontage.

At Developer's cost, the City is to:

- Perform all tie-ins for proposed works to existing City infrastructure.

Storm Sewer Works:

The Developer is required to:

- Install approximately 20m of new 600mm storm sewer along the lot's Armstrong Street frontage, up to the south property line of 7571 Bridge Street, in addition to the approximately 72m of proposed storm sewer shown in the approved SA11-559046 drawings. Complete with a new manhole at the south property line.
- Install a new storm service connection for each of the two subdivided lots for 7571 Bridge Street that are fronting Armstrong Street. The newly installed manhole may serve as the inspection chamber provided hydraulic requirements are met.
- Retain the existing storm service connection at the Bridge Street frontage.

At Developer's cost, the City is to:

- Perform all tie-ins for proposed works to existing City infrastructure.

Sanitary Sewer Works:

The Developer is required to:

- Install approximately 20m of new sanitary sewer along the lot's Armstrong Street frontage, up to the south property line of 7571 Bridge Street, in addition to the approximately 73m of proposed sanitary sewer shown in the approved SA11-559046 drawings. Complete with a new manhole at the south property line.
- Install a new sanitary service connection for each of the two subdivided lots for 7571 Bridge Street that are fronting Armstrong Street; complete with inspection chamber.
- Retain the existing sanitary service connection at the Bridge Street frontage.

At Developer's cost, the City is to:

- Perform all tie-ins for proposed works to existing City infrastructure.

Frontage Improvements:

The Developer is required to:

- Coordinate with BC Hydro, Telus and other private communication service providers:
  - To underground Hydro service lines.
  - When relocating/modifying any of the existing power poles and/or guy wires within the property frontages.
  - To determine if above ground structures are required and coordinate their locations (e.g. Vista, PMT, LPT, Shaw cabinets, Telus Kiosks, etc).
- Provide Type 1 decorative luminaire poles with Zed 10G-100W-HPS lights along the development's new Armstrong Street frontage.
- Complete the following frontage improvements to Bridge Street as per Transportation's requirements:
  - Pair driveways to optimize on-street parking spaces in the future, if possible.
  - The road cross-section and other offsite works should be designed to match those in SA11-559046.
  - The new sidewalk and boulevard are to transition to meet the existing frontage treatments to the south of the subject site with appropriate tapers.
- Complete the following frontage improvements to Armstrong Street as per Transportation's requirements:
  - Between RZ18-802621 and RZ10-539727, the applicant's proposal creates a total of five new lots on Armstrong Street. This will require revisions to the previously approved road works in SA11-59046, as the conditions on Armstrong Street have changed significantly:
    - The additional lots will generate increased traffic volume on Armstrong Street
    - Armstrong Street is being extended further south, while still being a dead-end
    - Armstrong Street cannot be fully opened until the surrounding lots provide lane dedications, and the timing of any other subdivision of these lots is uncertain.
  - Along the western portion of 7571 Bridge Street and along the frontage of 7582, 7586, and 7588 Armstrong Street, provide a functional road design for the interim half-road condition, including:
    - A local half-road with a pavement width of 6.0m, complete with temporary curb and gutter.
    - A 1.5 m wide concrete sidewalk next to the new property line.
    - A grass boulevard over the remaining width between the sidewalk and the east curb of Armstrong Street.
    - Temporary driveway letdowns for each lot; locate driveways to optimize on-street parking spaces in the future, if possible.
    - A statutory right-of-way (PROP) over the driveway of the proposed Lot 4 to allow vehicles to turn around at the dead-end, including a swept-path analysis showing access is functional (this supersedes the need for a SRW at 7588 Armstrong Street)
    - All above ground third party utilities (e.g. hydro/telephone kiosks) must not be placed within any frontage works area including sidewalk and boulevard. A Statutory Right-of-Way (SRW) within the subject site is to be secured for the placement of this equipment.

- Along the frontages of 7582, 7586, and 7588 Armstrong Street and the western portion of 7571 Bridge Street, provide a functional road design for the ultimate condition, as shown in drawing 5599046-11-05.
- Interim and ultimate road designs must be reviewed and approved by Fire Response and Environmental Services staff.
- Occupancy for the proposed Lots 3 and 4 should not be granted until all access-related road works on Armstrong Street are complete.
- Unless otherwise specified, all road works should be designed as per bylaw, TAC Standards and the City's Engineering Design Specifications.
- The scope of work for the interim road works will be confirmed once a functional road plan is submitted. A cost estimate for the ultimate roadworks across the entire west PL of the site including the modified works to the north is required to be submitted to Engineering for review and approval. Engineering is to determine how the amount of funds for the future roadworks and how the funds are to be collected, held and the timing for implementing and releasing the contribution.

General Items:

The Developer is required to:

- Enter into, if required, additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering, including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.
- Provide additional land dedication as required by Transportation's rezoning considerations.

Prior to Building Permit* Issuance, the developer must complete the following requirements:

1. Submission of a Construction Parking and Traffic Management Plan to the Transportation Department. Management Plan shall include location for parking for services, deliveries, workers, loading, application for any lane closures, and proper construction traffic controls as per Traffic Control Manual for works on Roadways (by Ministry of Transportation) and MMCD Traffic Regulation Section 01570.
2. Obtain a Building Permit (BP) for any construction hoarding. If construction hoarding is required to temporarily occupy a public street, the air space above a public street, or any part thereof, additional City approvals and associated fees may be required as part of the Building Permit. For additional information, contact the Building Approvals Department at 604-276-4285.

Note:

* This requires a separate application.

- Where the Director of Development deems appropriate, the preceding agreements are to be drawn not only as personal covenants of the property owner but also as covenants pursuant to Section 219 of the Land Title Act.

  All agreements to be registered in the Land Title Office shall have priority over all such liens, charges and encumbrances as is considered advisable by the Director of Development. All agreements to be registered in the Land Title Office shall, unless the Director of Development determines otherwise, be fully registered in the Land Title Office prior to enactment of the appropriate bylaw.

  The preceding agreements shall provide security to the City including indemnities, warranties, equitable/rent charges, letters of credit and withholding permits, as deemed necessary or advisable by the Director of Development. All agreements shall be in a form and content satisfactory to the Director of Development.

- Additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering may be required including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.

Initial: _____

- Applicants for all City Permits are required to comply at all times with the conditions of the Provincial *Wildlife Act* and Federal *Migratory Birds Convention Act*, which contain prohibitions on the removal or disturbance of both birds and their nests. Issuance of Municipal permits does not give an individual authority to contravene these legislations. The City of Richmond recommends that where significant trees or vegetation exists on site, the services of a Qualified Environmental Professional (QEP) be secured to perform a survey and ensure that development activities are in compliance with all relevant legislation.

Signed

Date

City of Richmond

Bylaw 9939

Richmond Zoning Bylaw 8500
Amendment Bylaw 9939 (RZ 18-802621)
7571 Bridge Street

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

1. The Zoning Map of the City of Richmond, which accompanies and forms part of Richmond Zoning Bylaw 8500, is amended by repealing the existing zoning designation of the following area and by designating it **"SINGLE DETACHED (ZS14) – SOUTH MCLENNAN (CITY CENTRE)"**

The area shown as cross-hatched on "Schedule A" attached to and forming part of Bylaw No. 9939.

2. This Bylaw may be cited as **"Richmond Zoning Bylaw 8500, Amendment Bylaw 9939".**

FIRST READING	
A PUBLIC HEARING WAS HELD ON	
SECOND READING	
THIRD READING	
OTHER CONDITIONS SATISFIED	
ADOPTED	

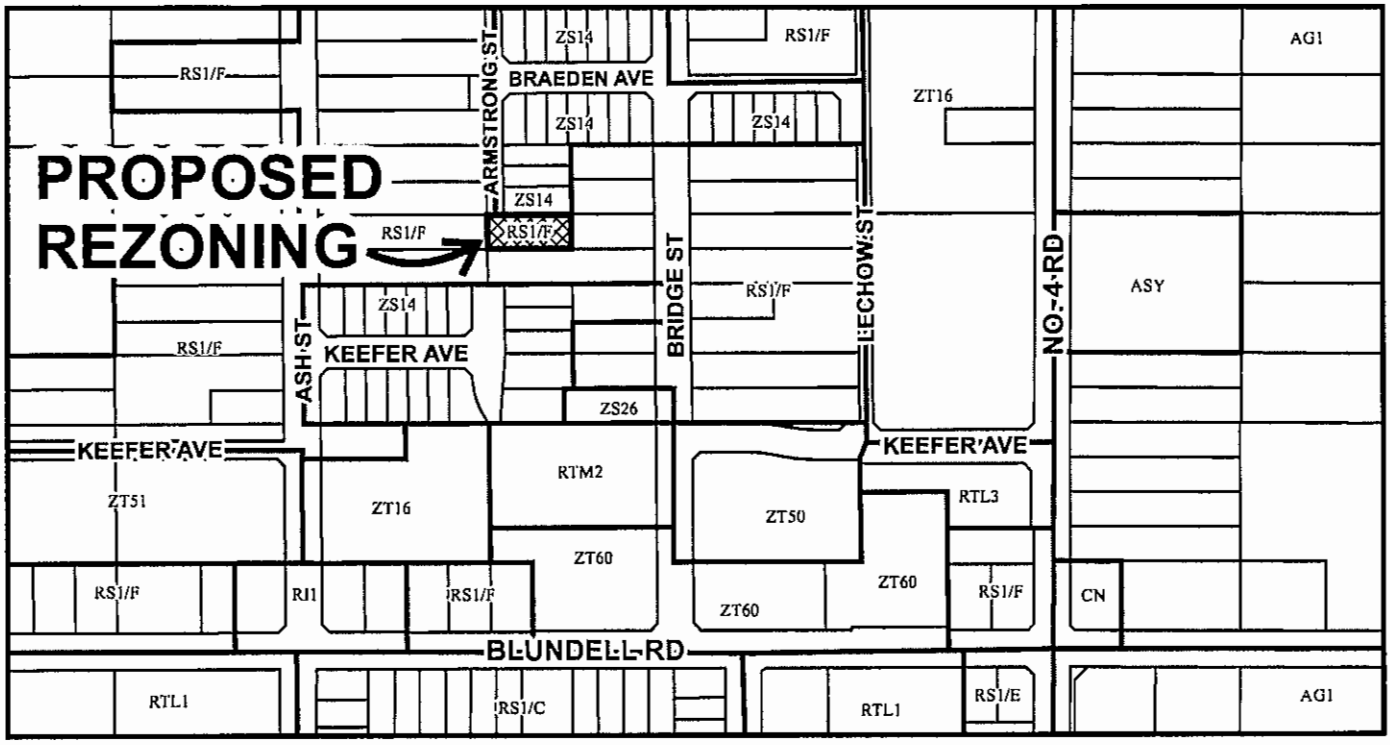
CITY OF RICHMOND
APPROVED by
APPROVED by Director or Solicitor

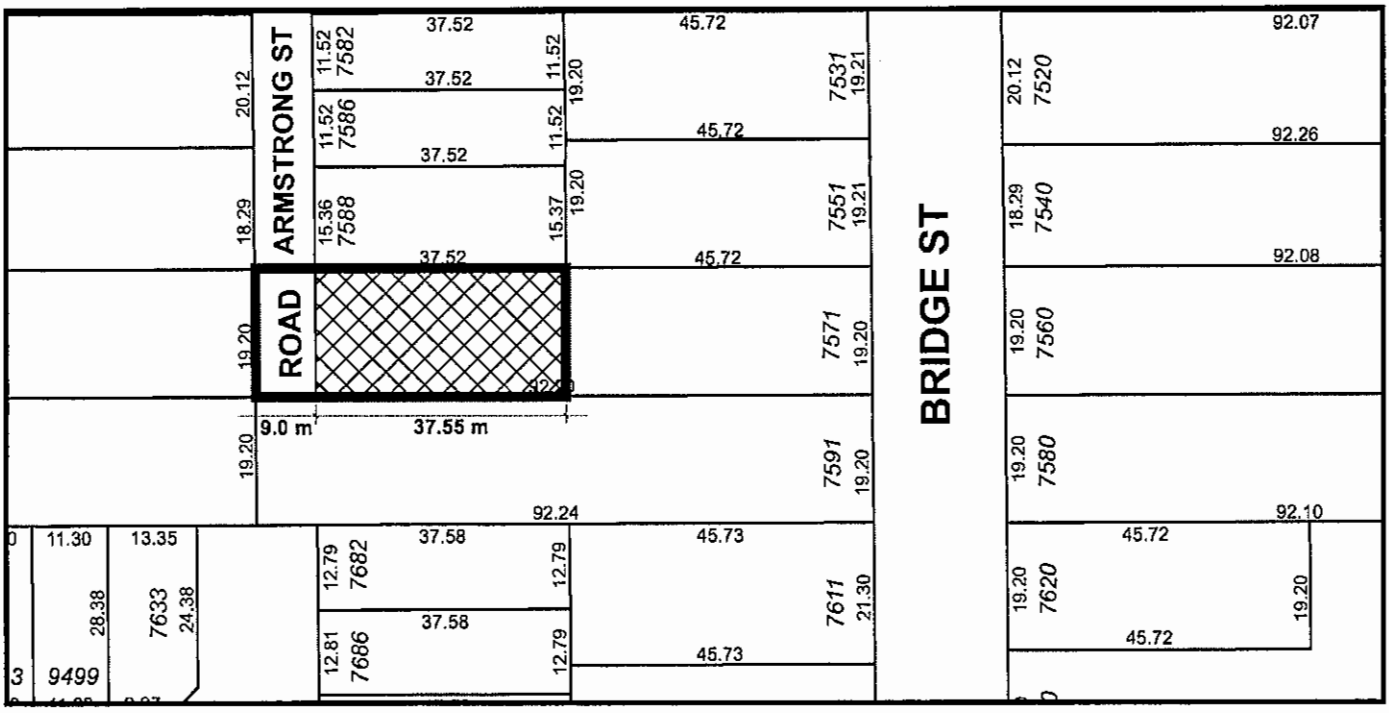
MAYOR

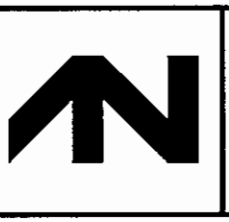
CORPORATE OFFICER

"Schedule A" attached to and forming part of Bylaw No. 9939

City of Richmond







RZ 18-802621

Original Date: 09/05/18

Revision Date:

Note: Dimensions are in METRES

City of Richmond

Report to Committee

To:	Planning Committee	**Date:**	June 3, 2019
From:	Wayne Craig Director, Development	**File:**	RZ 18-824565
Re:	**Application by SNC Lavalin Inc. for Rezoning of portions of 12700 and 12800 Rice Mill Road, 12280 and 12300 No. 5 Road from Agricultural (AG1) and Light Industrial (IL) to a Site Specific Zone**		

Staff Recommendation

That Richmond Zoning Bylaw 8500, Amendment Bylaw 9940 to create the "BC Ferries Fleet Maintenance and Moorage (ZI14)" zone, and to:

1) Rezone 12300 No. 5 Road and 12800 Rice Mill Road from "Light Industrial (IL)" to "BC Ferries Fleet Maintenance and Moorage (ZI14)" and;

2) Rezone a portion of 12280 No. 5 Road and 12700 Rice Mill Road from "Agricultural (AG1) and Light Industrial (IL)" to "BC Ferries Fleet Maintenance and Moorage (ZI14)";

be introduced and given first reading.

Wayne Craig
Director, Development

WC:db
Att. 8

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Engineering	☑	
Sustainability	☑	

Staff Report

Origin

SNC Lavalin Inc., on behalf of BC Ferry Services Inc. (BC Ferries), has applied to the City of Richmond for permission to rezone a portion of 12700 and 12800 Rice Mill Road, 12280 and 12300 No. 5 Road from Light Industrial (IL) and Agricultural (AG1) to a new site specific zone "BC Ferries Fleet Maintenance and Moorage (ZI14)" in order to allow for the phased upgrading of BC Ferries Fleet Maintenance Unit (FMU) located in the Shellmont Planning Area between No. 5 Road and Highway 99 (Attachment 1). The site will be consolidated into one parcel bisected by the existing CN Rail line which runs through the property.

The redevelopment project is intended to replace ageing infrastructure, improve the efficiency of the operation, implement flood protection measures for the site, and generally ensure that the facility meets the long-term demands of the BC Ferries fleet. This application represents the first two phases of a longer term planned upgrade of the BC Ferries Fleet Maintenance site.

BC Ferries was transformed from a Provincial Crown Corporation into an independent commercial operation in April, 2003. As a result of this transformation, BC Ferries is required to seek municipal approvals which previously it was not obligated to do. The nature and extent of the proposed redevelopment have necessitated the request for rezoning of a portion of the site to bring the land use designations into line with the use of the site.

Findings of Fact

BC Ferries Fleet Maintenance Unit (FMU) site is generally located south of Rice Mill Road between No. 5 Road and the Highway 99 right of way and is centered around the Deas Basin where the ferry vessels moor while being repaired and serviced. Some outdoor storage occurs on lands immediately to the west of the basin and there is an existing small office building and staff parking lot at the northeast corner of the site, but the majority of the land side active fleet maintenance operations occur east of the basin and south of the CN Rail corridor which bisects the site. That area contains more than 20 larger buildings and numerous smaller structures that support BC Ferries on-going maintenance operations providing parts storage, mechanical workshops, paint shops, fabrication areas, office space and staff amenities, etc. The site is a secured facility with 24 hour security provided in accordance with Federal regulations.

The foreshore area of the site and the vegetated forest stands in the northwest corner of the site north of the CN Rail corridor are designated in the City's Official Community Plan (OCP) as Environmentally Sensitive Areas (ESA). Riparian Management Areas (RMA) have been designated along the south side of Rice Mill Road and along the MOTI slough just east of the site. (Attachment 2, Plan # q).

Surrounding Development

Surrounding Development is as follows:

To the North:	An 8.26 ha (20.41 acre) Agriculture (AG1) zoned vacant parcel at 12751 Rice Mill Road owned by the City and the 1.67 ha (4.13 acre) model airplane park at 12851 Rice Mill Road. The airplane park is also zoned Agriculture (AG1). The watercourse along the south side of Rice Mill Road is designated as a Riparian Management Area (RMA).
To the East:	A Ministry of Transportation and Infrastructure (MOTI) right-of-way containing the access road to the BC Ferries site, Highway 99 and the beginning of the George Massey Tunnel. A drainage watercourse that runs along Highway 99 just east of the BC Ferries site is designated as a 15 m Riparian Management Area (RMA).
To the South:	The Fraser River. The foreshore area of the Fraser River is designated as an Environmentally Sensitive Area.
To the West:	Five "Agricultural (AG1)" and two "Light Industrial (IL)" zoned parcels lie between BC Ferries property and No. 5 Rd. Only the south-west portion of BC Ferries' property abuts No. 5 Rd. The five agricultural parcels range in area between 1,335 m^2 (0.33 ac) and 6,677 m^2 (1.65 ac). All of these agricultural lots are outside of the Agricultural Land Reserve. The two light industrial parcels are 1,780 m^2 and 2,266 m^2 (0.44 ac and 0.56 ac) in area respectively.

A CN Rail right-of-way bisects the site curving around, and just north of, the Deas Basin.

Development Information

The proposed rezoning will apply to only the portion of the BC Ferries owned lands south of the CN Rail corridor (i.e. the Deas Basin and lands on both sides of the basin as shown in Attachment 1). BC Ferries lands north of the CN Rail corridor will retain their current zoning. The rationale for the partial rezoning is primarily to focus on the active area of the site.

This redevelopment project involves a two phased redevelopment of the FMU facility spread over a period of approximately five years (2019-2024). The scope of work generally includes:

- Demolition of a number of existing buildings;
- Site preparation and services;
- Construction of new consolidated industrial buildings;
- Raising portions of the site by approximately 0.55+/- m to adjust for anticipated climate change induced sea level rise;
- Supplying and installing a new basin crane with up to 50 ton capacity;
- Constructing marine foundations and a loading pier for the basin crane;
- Upgrading of utility connections (e.g. water, sanitary, etc.);
- Providing compensation and enhancement for Environmentally Sensitive Area (ESA) and Riparian Management Area (RMA) impacts; and
- Building an advanced section of the dike network planned for the facility.

The two phases of redevelopment will result in the construction of approximately 15,502.0 m^2 (166,862 ft^2) of new building construction and the retention of approximately 6,209.5 m^2 (66,838.5 ft^2) of existing buildings. Each development phase will be coordinated with increases in the site grades intended to mitigate flood risk.

Although the majority of the works will occur in the south-east area of the site south of the CN Rail line, some utility upgrades will also occur along Rice Mill Road and through portions of the lands north of the CN Rail to accommodate pipe upgrades. An overview of the utility works is provided in the "Analysis" section of this report.

Conceptual Development Plans are provided in Attachment 2 and a Development Application Data Sheet providing technical details about the development proposal is provided in Attachment 4.

In addition to the conceptual plan set submission, SNC Lavalin has undertaken and submitted a number of technical studies (listing provided in Attachment 6) in support of its Rezoning application. Each of these submissions have been reviewed by staff and comments on key aspects from the documents are included in the "Related Policies & Studies" and "Analysis" sections below.

Related Policies & Studies

Official Community Plan

BC Ferries FMU site is designated for "Industrial" land use in the Official Community Plan (OCP).

BC Ferries current and proposed future use of the FMU site is principally industrial use oriented to marine vessel repair and maintenance. The proposed uses are compliant with the OCP's "Industrial" designation.

Portions of the site are also designated as Environmentally Sensitive Areas (ESA). This is discussed further in the following section.

Environmentally Sensitive Areas and Riparian Management Areas

Portions of the site along the waterfront and in the northwest corner of the site north of the CN Rail right-of-way are designated in the City's Official Community Plan (OCP) as Environmentally Sensitive Areas (ESA). The area paralleling the southern edge of Rice Mill Road is designated as a 5 m wide Riparian Management Area (RMA). As required by the City's OCP, SNC Lavalin, on behalf of BC Ferries, has submitted a separate Development Permit application (DP 18-824566) to address potential impacts to the ESA and RMA designated areas as a result of the proposed development. A description of the proposed ESA impacts and compensation/enhancement is provided in the "Analysis" section of this report. The proposed compensation plan will create a net gain of over 2:1 in functional habitat, improving poor to low quality habitat within the industrial site.

BC Ferries Agriculturally Zoned Parcels

As noted earlier, portions of the BC Ferries properties are zoned "Agricultural (AG1)", however, none of the properties involved are within the BC Agricultural Land Reserve. The Agricultural zoning is a remnant from when the area was farmed prior to the Massey Tunnel construction. The zoning was not updated when BC Ferries acquired the site as they were originally a Provincial Crown operation and not subject to Municipal land use jurisdiction. Under the current application only those portions of the agriculturally zoned lands south of the CN Rail corridor are proposed to be rezoned.

Floodplain Management Implementation Strategy

The operational portions of the BC Ferries site will lie outside the City's diking system. Under the City's Flood Plain Designation and Protection Bylaw No. 8204 developments outside the dike system would typically be required to meet the Flood Construction Level (FCL) of 4.35 m GSC. The proponent is seeking a site-specific exemption on the basis of an engineer prepared flood protection plan which would see portions of the site raised in coordination with the site's redevelopment and the establishment of Statutory Right-of-Ways for current and future dike construction across portions of the BC Ferries site. BC Ferries Floodplain Management response and the City Engineering staff's analysis are discussed in more detail in the "Analysis" section of this report.

Fisheries and Oceans Canada (DFO)

As the proposed redevelopment will involve in-water works to accommodate a tower crane, stormwater outfall replacement and pier installation, a review was undertaken by the Federal Department of Fisheries and Oceans (DFO). On the basis of their assessment, DFO has issued a letter of advice to BC Ferries (Attachment 7) with a series of recommended measures such as working within instream timing windows, use of an Environmental Monitor, installation of silt curtains, pile installation via vibratory hammer instead of impact pile driving, etc. Subject to BC Ferries implementing these measures, DFO concluded that the project would not result in serious harm to fish or prohibited effects on listed aquatic species at risk. Authorization under the Fisheries Act or a permit under the Species at Risk Act would therefore not be required.

NAV Canada

NAV Canada reviewed the proposed works and subsequently issued a letter to BC Ferries (dated October 25, 2018) advising that "they have no objection to the project as submitted".

Transport Canada

Transport Canada has reviewed the proposed development plans and determined that "the work is not likely to substantially interfere with navigation". On the basis of their review and subject to adherence to five terms and conditions relating to the quality of construction, lighting, removal of piles and prohibitions to obstruction of navigation aids/navigation, Transport Canada has issued their permission to proceed.

BC Ministry of Transportation and Infrastructure (MOTI) Review

Correspondence from the Ministry of Transportation and Infrastructure (MOTI) was received on February 11, 2019 advising that the Ministry has no objection to the proposed rezoning.

BC Ministry of Environment Review

A site profile and a remediation plan were submitted to the Ministry of Environment & Climate Change Strategy by BC Ferries and SNC Lavalin. Their submission noted that all contamination at, and migrating from, the site has been delineated and outlined a remediation plan that would be coordinated with the site's redevelopment.

The Ministry has issued a release letter (dated October 29, 2018) indicating that the site profile was satisfactory and that they have accepted the proposed remediation plan. The Ministry's letter states that "pursuant to the Local Government Act (section 557(2)(e)), that the City of Richmond may approve the zoning and development permit application under this section because the Director has received and accepted a notice of independent remediation with respect to the site". The Ministry's release applies to the entire BC Ferries site, not just to the area to be rezoned.

Analysis

Transportation and Site Access

A Traffic Impact Study (TIS – report dated December 6, 2018) was prepared and submitted by SNC Lavalin. The intent of the report was to:

- Determine the current level of traffic to the site and whether the site's traffic can be accommodated in surrounding roads with future growth;
- Review the parking requirements;
- Review site accessibility by alternate modes;
- Establish improvements needed to accommodate traffic as required.

The report notes that during peak season the facility employs a workforce of approximately 200 staff consisting of 140 BC Ferries employees and 60 contractor employees with the peak season running from early September to early May. The site typically operates with two shifts during that period and only one shift during non-peak season. The report also indicates that BC Ferries does not anticipate any increase in the number of workers at the site after it has been redeveloped.

The TIS conclusions are that the site's operation and associated traffic can be accommodated with no additional off-site upgrades required. Rice Mill Road was found to be adequate for pedestrian and cyclist travel. The development will provide on-site showers, change rooms and bike parking/lockers to encourage more bicycle commuting as recommended in the TIS.

The development will provide approximately 257 parking spaces, including 5 accessible spaces, 7 medium and 4 large loading bays, 42 Class 1 and 42 Class 2 bicycle spaces. Each of these provisions meet, or exceed, the current Zoning Bylaw No. 8500 requirements.

Transportation staff advise that the findings and recommendations provided by the TIS are supportable and that no new signal, intersection or road upgrades are required as a result of the proposed development.

Access to the site is, and will continue to be, provided through permit with the Ministry of Transportation and Infrastructure (MOTI) through an access permit (MOTI 2016-04984) issued November 21, 2016 providing for the installation, operation maintenance access via the roadway along the east side of the site that connects to Rice Mill Road.

Submission of a construction parking and traffic management plan to the Transportation Division is required prior to the issuance of a Building Permit (this requirement is included in the Rezoning Considerations in Attachment 8).

Engineering Review – Utilities and Site Servicing

The proposed redevelopment will require the consolidation of all the properties and the installation or upgrading of various services and utilities to service the site. Retained buildings are being reviewed through Building Approvals for BC Building Code equivalencies with some internal upgrading measures being made through separate building permit applications as necessary. A requirement for consolidation of the lots prior to Rezoning adoption is included in the Rezoning Considerations (Attachment 8).

The site's overall redevelopment will require a separate Servicing Agreement in order to provide the necessary works and services needed to support the development as proposed. A summary of site servicing requirements, as determined by Engineering, includes the following:

- Upgrading of approximately 680 m of watermain along Rice Mill Road;
- Installation of fire hydrants along Rice Mill Road per City spacing requirements;
- Establishing a right of way for a new water meter;
- Fill and abandon the storm sewer culverts at the entrance on Rice Mill Road;
- Upgrading the sanitary sewer works within the City right-of-way at No. 5 Road;
- Entering into a license agreement for the encroachment of the privately owned sanitary forcemain into the City road right-of-way;
- Undergrounding of overhead service lines (hydro, Telus, other); and
- Provision of approximately 1,010 m of dike and dike right-of-way through the development site with the physical dike construction to occur, through legal agreements, in three segments each with different timing and criteria:

    i) Segment 1, located roughly in the east half of the site, will be constructed by the proponent to elevation 4.7 m in the future when needed for flood protection. The timing of constructing this segment will be determined by the City;
    ii) Segment 2, located roughly in the centre of the site, will be constructed by the proponent to an interim elevation of 4.0 m through this development's Servicing Agreement, then raised in the future by the proponent to elevation 4.7 m when needed

for flood protection. The timing of raising this segment from 4.0 m to 4.7 m will be determined by the City;

iii) Segment 3, located roughly on the west half of the site, will be constructed by the proponent to elevation 4.7 m through this development's servicing agreement.

iv) In the future, Segments 1, 2, and 3 will be raised to elevation 5.5 m (separately from this development). The rights-of-ways secured through this development will provide adequate space for the future 5.5 m dike.

The Rezoning Considerations (Attachment 8) include a requirement for registration of a statutory right-of-way covering the entire dike alignment prior to Bylaw adoption. This SRW shall begin at the NE corner of the bay and shall connect to the existing dike at the southern extent of Rice Mill Road, as shown on Appendix (1) attached to the Servicing Agreement requirements in Attachment 8. The width of this SRW, will be determined through the servicing agreement and shall be sufficient to fit a standard City dike with erosion protection.

Tree Retention and Replacement

The applicant has submitted a Certified Arborist's Report which identifies on-site and off-site tree species, assesses tree structure and condition, and provides recommendations on tree retention and removal relative to the proposed development. The Report assesses 82 bylaw-sized trees that will be impacted on the subject site. No street trees or trees on neighbouring properties will be impacted by the proposed redevelopment.

The City's Tree Preservation Coordinator has reviewed the Arborist's Report and supports the Arborist's findings, with the following comments:

- 22 trees impacted by sanitary line (tag# 443-459, 462-466)
- 59 trees impacted by new dike (tag# 1-56, 898,899 and 900)
- 1 tree conflicts with on-site functions (tag# 600)
- A total of 82 trees impacted by the development and noted to be removed.
- Provide tree protection as per City of Richmond Tree Protection Information Bulletin Tree-03.
- Replacement trees should be specified at 2:1 ratio as per the OCP.
- The applicant proposes to plant 70 replacement trees. 94 trees cash-in-lieu ($47,000).

The Tree Management Plan provided in Attachment 3 shows the locations of the trees proposed for removal.

Engineering staff note that the proposed sanitary line will be a private system which cannot be located within Rice Mill Road. The proponent worked with staff to propose an alternative alignment along an internal gravel pathway and thereby minimize the tree impacts to the extent possible.

Tree Replacement

The applicant wishes to remove 82 on-site trees. The 2:1 replacement ratio would require a total of 164 replacement trees. The applicant has agreed to plant 70 trees on site. The required

replacement trees are to be of the following minimum sizes, based on the size of the trees being removed as per Tree Protection Bylaw No. 8057.

No. of Replacement Trees	Minimum Caliper of Deciduous Replacement Tree	Minimum Height of Coniferous Replacement Tree
24	6 cm	3.5 m
46	8 cm	4 m

To satisfy the 2:1 replacement ratio established in the OCP, the applicant will contribute $47,000 to the City's Tree Compensation Fund in lieu of the remaining 94 trees that cannot be accommodated on the subject property after redevelopment.

Tree Protection

No trees on neighbouring properties will be impacted by the proposed development however protective fencing will be required along portions of the foreshore area. The applicant has submitted a tree protection plan showing the trees to be retained and the measures taken to protect them during development stage (Attachment 3, Plans # w-x: "Tree Management Plan Drawings"). To ensure that the trees identified for retention are protected at development stage, the applicant is required to complete the following items:

- Prior to final adoption of the rezoning bylaw, submission to the City of a contract with a Certified Arborist for the supervision of all works conducted within or in close proximity to tree protection zones. The contract must include the scope of work required, the number of proposed monitoring inspections at specified stages of construction, any special measures required to ensure tree protection, and a provision for the arborist to submit a post-construction impact assessment to the City for review.
- Prior to demolition of the existing dwelling on the subject site, installation of tree protection fencing around all trees to be retained. Tree protection fencing must be installed to City standard in accordance with the City's Tree Protection Information Bulletin Tree-03 prior to any works being conducted on-site, and remain in place until construction and landscaping on-site is completed.

Environmental Review

Environmentally Sensitive Area (ESA) Detailed Assessment

Three ESAs have been designated on site (Attachment 2, Plan #q: "City of Richmond Environmentally Sensitive Areas and Riparian Management Areas"):

- 6.80 ha (16.8 ac) located north of the CN rail line, classified as "Upland Forest" and "Old Fields and Shrublands";
- 3.38 ha (8.35 ac) located within the 30 m (98.4 ft.) above high water mark of the Fraser River, classified as "Shoreline"; and
- 3.34 (8.25 ac) ha located 30 m (98.4 ft.) below high water mark of the Fraser River, classified as "Intertidal";

The ESA north of the CN rail line is designated as a "site", as opposed to a "hub", in the Ecological Network Management Plan in recognition of the ecological services that this area provides.

Proposed Impacts to ESA

Within the area north of the CN Rail, impacts to the "Upland Forest" and "Old Fields and Shrublands" ESA will result from the installation of a new sanitary sewer line. The area of impact is estimated as 1,134 m^2 (12,206 ft^2) by SNC Lavalin based on a working width of 4 m (to accommodate a 1.2 m wide trench).

Within the main BC Ferries work site, impacts to the "Shoreline" and "Intertidal" ESA are estimated as 1,514 m^2 (16,297 ft^2) by SNC Lavalin as follows:

- 1,252 m^2 (13,476 ft^2) within the Shoreline ESA for the buildings, roads and diking which impact permeable or vegetated areas within the site. Redevelopment of Shoreline ESA areas that are already impacted by buildings or roads are not considered to impact the ESA;
- 10 m^2 (107.6 ft^2) within the Intertidal ESA; and
- 252 m^2 (2,713 ft^2) within the Intertidal ESA to permit construction of the new access pier, trestle and tower crane.

(Attachment 2, Plan #r: "Area in ESA SH-5 and IT-5 Impacted by the Proposed Development").

Total impacts to all ESA areas is estimated to be 2,648 m^2 (28,503 ft^2). Detailed information from the biophysical inventory and wildlife survey assessments will be provided through the Development Permit review (DP 18-824566).

Tree Inventory within the ESA

The arborist report submitted by Diamond Head Consulting identified 22 trees proposed to be removed within the ESA due to conflicts with the proposed sanitary alignment (tag# 443-459, 462-466).

18 Bylaw-sized trees were inventoried within the areas of Shoreline and Intertidal ESA. Of these only one tree is proposed to be removed within the Shoreline ESA (Tree tag # 600) as it would interfere with the clear working area of the future crane operations.

Tree replacements for the 23 trees removed from the ESA are proposed to be replaced through 45 new tree installations within the proposed compensation area north of the CN Rail line and an additional 25 new trees along the shoreline ESA adjacent to the Fraser River resulting in a better than 2 for 1 replacement. The tree removals and replacements are included in Attachment 3 (Plans # w-x: "Tree Management Plan Drawings").

Mitigation Measures

To minimize impacts to the ESA, the new sanitary sewer line is proposed to be aligned within a gravel pathway and cleared area on the site. Fencing will be installed to limit access outside of the working width, and the disturbed ground will be re-seeded with native grasses and wildflowers post-development.

Proposed Compensation and Landscape Restoration

Total ESA disturbance across the site is calculated at 2,648 m^2 (28,503 ft^2) with total compensation of 6,251 m^2 (67,285 ft^2) resulting in a net gain of 2.36:1 (Attachment 2, Plan # v, "Habitat Balance Sheet").

The proposed compensation plan will result in a net-gain of functional habitat within the ESA with no net loss of total ESA designated on site. The establishment of native shrubs and herbaceous vegetation throughout the enhancement areas, with pockets of trees to provide canopy, will create moderate to high quality habitat, restore ecological function and promote biodiversity within the ESA. Preliminary plans are provided in Attachment 2. Detailed plans will be included in the Development Permit review (DP 18-824566).

Monitoring and Maintenance

To ensure that the proposed enhancements have the best chance of survival and that invasive species are controlled, monitoring, maintenance and annual reporting by a Qualified Environmental Professional (QEP) will occur for 5 years following installation of the landscape restoration plan. Reports will be provided to the City.

Securities acceptable to the Director of Development will be sought through the Development Permit review to ensure the landscape restoration including plants, soil, irrigation and the five year monitoring program; tree installations within the ESA; installation of tree and ESA protection fencing. Registration of legal agreements to ensure protection and retention of ESA on private land will also be required through the Development Permit review.

Riparian Management Areas

There are two Riparian Management Areas (RMAs) designated at the perimeter of the site, consisting of a 5 m RMA associated with a watercourse along the south side of Rice Mill Road and a 15 m RMA associated with the slough located to the east of the site. The two watercourses do not connect, but an RMA designated watercourse on the north side of Rice Mill Road does connect to the slough to the east.

5 m RMA

The 5 m (16.4 ft.) RMA is associated with a drainage watercourse that is daylighted for approximately 550 m (1,805 ft.) and connects to the City's drainage system to the west. The south bank is vegetated with grasses, Himalayan blackberry, black cottonwood and small shrubs such as red-osier dogwood. The north bank adjacent Rice Mill Road is grass on gravel, which is regularly mowed by the City. No fish were present within the RMA.

Impacts to the RMA will result from excavation of a 1.2 m trench for a new water line, which will be restricted to the impervious/disturbed area of the RMA. Total disturbance is calculated as 695 m^2 (7,481 ft^2). The exact alignment of the waterline will be subject to review by Engineering through the required Servicing Agreement.

Proposed Compensation and RMA Restoration

In addition to hydroseeding the area that will be disturbed during installation of the water main, restoration is proposed in the form of removal of two undersized and dormant 300 mm diameter corrugated steel culverts. Habitat value and ecological function will be improved within the 5 m RMA when the 54 m^2 that is currently occupied with redundant culverts is converted to a vegetated, open watercourse. After the culverts are removed, the ditch geometry will be restored

covering areas of 30 m² and 24 m². The watercourse will be hydroseeded to promote ground cover within the watercourse.

Mitigation Measures

Prior to any works being taken in this area, a site-specific Erosion and Sediment Control Plan must be submitted to the City and approved by the Environmental Manager. City of Richmond Environment Department staff will conduct a site visit to inspect the installed mitigation measures, prior to giving leave to commence with construction.

Works are to be completed in accordance with the City of Richmond's Riparian Management Areas Bulletin INFO-23, the approved Construction Environmental Management Plan, and the site-specific Erosion and Sediment Control Plan. Culvert removal will proceed in accordance with requirements under the Water Sustainability Act and Standards and Best Practices for Instream Works. Disturbed areas will be re-vegetated with a native riparian seed mix in accordance with the Riparian Area Regulation Re-vegetation Guidelines.

The mitigation measures have been added to the Servicing Agreement requirements attached to the Rezoning Considerations (Attachment 8- "Sustainability").

15 m RMA

The 15 m (49.2 ft.) RMA is associated with an off-site watercourse that drains south through a pump station to the Fraser River. No impacts are anticipated to the 15 m RMA as a result of the proposed BC Ferries development.

Flood Construction Elevation

Under the City's Flood Plain Designation and Protection Bylaw No. 8204 the required flood construction elevation for developments outside the City's dikes is 4.35 m GSC. Due to the operational necessity of needing to keep their infrastructure closer to the average water level, BC Ferries propose to build the two phases of development associated with this application so that their building slab elevations are at 3.85 m GSC. Land grades associated with each phase will be raised from the current elevations of approximately 3.2 m GSC to support these slab heights. BC Ferries long term flood strategy is to raise the site grades as necessary to correspond to sea level rise and as future buildings are replaced.

The City's Engineering Department has indicated that the City will permit the minimum Flood Construction Level for the site to be 3.85 m with the understanding that the owner and applicant accept all risks associated with flooding due to construction outside of the City's dike. The owner will be solely responsible for flood protection on their site. The owner/applicant will also be responsible for confirming that the proposed strategy addresses any provincial flood protection requirements with the provincial Inspector of Dikes, prior to rezoning adoption.

The Rezoning Considerations (Attachment 8) include a requirement for registration of a legal agreement establishing a minimum Flood Construction Elevation of 3.85 m GSC for all new buildings constructed after May 1, 2019. The Considerations also include a requirement for the owner/applicant to submit written confirmation from the provincial Inspector of Dikes, acceptable to the City's Director of Engineering, that the proposed strategy to incrementally raise

the subject site and structures in the future, as needed for flood protection, is acceptable to the Provincial Dike Authority. The confirmation from the Provincial Inspector of Dikes is required prior to Rezoning adoption.

Built Form and Architectural Character

BC Ferries new facilities will be constructed in two phases with the first phase including a machine shop, weld shop, life safety appliance shop, covered storage, a tower crane and supporting access pier. The second phase will include an outfitting trades building with two covered storage areas.

The industrial buildings will be one, two or three storey structures varying in height with the machine shop being the tallest at approximately 22.2 m (73 ft. measured from top of slab) and the outfitting trades building being approximately 13.7 m (45 ft. measured from top of slab).

The building exteriors are anticipated to consist of prefinished insulated metal panels painted "regal white" with curtain wall glazing and spandrel glass panels. Panelized translucent skylights will be incorporated into the machine shop building. Each building will include identification signage.

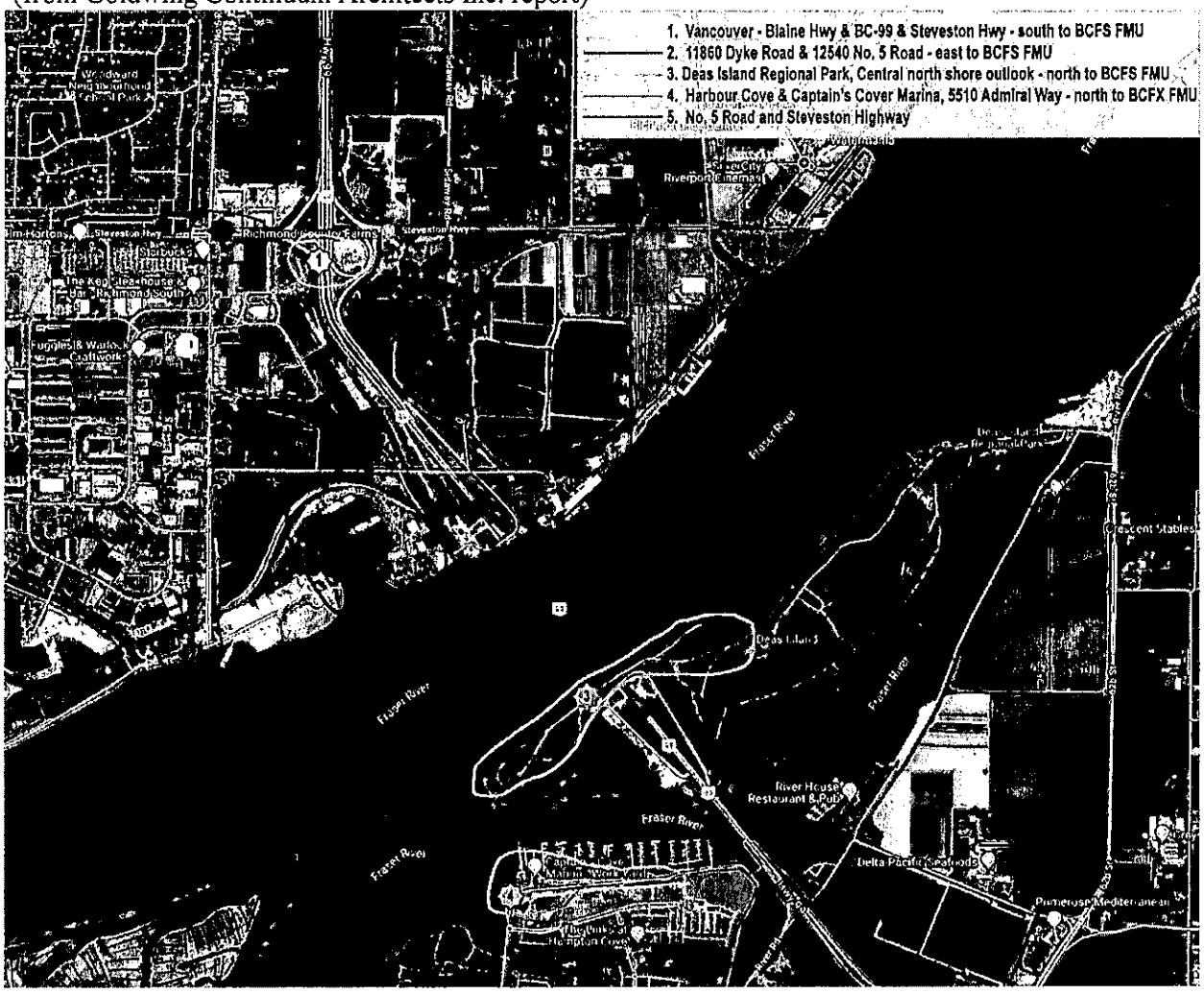
An 11.5m (38 ft.) wide steel and concrete pier with supporting pile structures will extend more than 70 m (230 ft.) into the Deas basin. A new sheet pile wall will be installed where the pier meets the land. The tower crane will be located at the end of the pier within the Deas Basin. The preliminary design accommodates a maximum crane height of 84 m (276 ft.) with a reach of approximately 96 m (315 ft.). The actual crane design which will be refined as the project moves forward. The crane will be of steel construction.

Visual Impact Assessment

A visual impact assessment report prepared by Goldwing Continuum Architects Inc (dated August 9, 2018) was reviewed and supported by Environment Sustainability staff. The purpose of the assessment was to determine the overall visual impact of the development, specifically the proposed tower crane, from nearby viewpoints. The impacts were assessed from five strategic visual sensitivity areas (circled areas on the diagram) and five viewpoint areas as listed below and numbered on the diagram.

1. BC Highway 99 and Transit Stop west side of Highway 99 south of Steveston Highway
2. Intersection of No 5 Road at 11860 Dyke Road, Richmond
3. Deas Island Regional Park - Pedestrian Pathway along south bank of the Fraser River
4. Harbour Cove & Captain's Cove Marina – 5510 Admiral Way, Delta
5. No. 5 Road and Steveston Highway, Richmond

Visual Impact Assessment Sensitivity and Viewpoint Locations
(from Goldwing Continuum Architects Inc. report)



The assessment concludes that the visual impact is considered low to medium for the Deas Island Regional Park (location 3) and the No. 5 Road and Steveston Highway (location 5) locations with the upper portion of the tower crane expected to be visible. The visual impact for all three remaining locations (locations 1, 2 and 4) is considered low with existing landscape vegetation and the new facilities helping to mitigate the overall visual impact.

The assessment notes that the visual impact of the proposed tower crane will vary depending upon factors such as the viewing distance, number and type of viewers and duration and angle of view of the crane. But notes that existing communication and hydro transmission towers in the area will have a greater impact than the crane.

Existing Legal Encumbrances

Several legal encumbrances exist on Title that will need to be addressed as part of the proposed development. The encumbrances are as follows:

- An earlier dike right-of-way was established over portions of the BC Ferries site in 1981 (RD144951 with reference to plan NWD 59814). The right-of-way does not entirely align with the dike alignment proposed for the current development and will need to be discharged after the new right-of-way has been registered on title. The Rezoning Considerations (Attachment 8) include a requirement for the discharge of RD144951 after the replacement dike right-of-way has been registered on title.

- A statutory right-of-way in favour of BC Hydro runs across portions of the BC Ferries site to accommodate an array of high voltage power lines. The location of the right-of-way carries restrictions over the type and height of vegetation that can be planted within the area controlled by the agreement. Compensation areas have been located to avoid conflicts with BC Hydro's right-of-way.

- A statutory right-of-way in favour of the Greater Vancouver Water District (GVWD – aka Metro Vancouver) crosses through BC Ferries' site protecting a main water line leading to Delta. The applicant has been working in coordination with the GVWD and the City regarding the proposed dike alignment and intersections with the GVWD's water main. The Servicing Agreement requirements in the Rezoning Considerations (Attachment 8) include a requirement for BC Ferries to submit to the City confirmation of the GVWD's acceptance of the encroachment of the proposed dike and associated improvements into the GVWD water line right-of-way. The confirmation will be required as part of the Servicing Agreement.

Fire Prevention

Preliminary reviews of fire hydrant locations, access route widths, capacity of internal roadways to support fire vehicles and truck turning radii were undertaken by the Fire Department. A Construction Fire Safety plan submitted by the proponent has been reviewed and accepted by the Fire Department. BC Ferries have indicated that they do not plan to store fuel for the ferries at the Terminal.

Garbage and Recycling

A preliminary Waste Management Overlay Plan (WMOP) has been prepared and submitted by the applicant (plan dated December 12, 2018) indicating that sufficient waste collection and sorting facilities can be accommodated at the site. The plan provides for sorting of 11 different types of waste materials including compost, paper, glass, plastics, wood, metals, hazardous waste and asbestos. Sorting stations are located in several areas of the site associated with work areas where the different waste materials would be generated. Each location provides appropriate loading space for garbage/recycling collection. City Garbage and Recycling staff have reviewed and signed off on the proposed WMOP plan.

Public Art

Based on buildable floor area for the new construction of approximately 15,502 m^2 (166,862 ft^2) industrial floor area, the recommended public art contribution based on Administrative Guidelines of $0.24/SF (2018 rate) is approximately $40,047.00. BC Ferries has agreed to make the contribution all at once. The Rezoning Considerations (Attachment 8) includes the requirement for the contribution the Richmond's Public Art Reserve prior to Bylaw adoption.

Site Specific Zoning

Because of the nature of the uses on the site and the foreshore topography considerations, a new site specific zone, "BC Ferries Fleet Maintenance and Moorage (ZI14)", was prepared for this development application.

The proposed site specific zone includes a range of permitted uses tailored to the site's ongoing operations as well as some broad industrial uses. The uses have been reviewed by BC Ferries. The zone also accommodates the calculation of building heights measured from top of slab rather than average finished grade as is typical within Zoning Bylaw No. 8500 and it provides for building heights in excess of the Zoning Bylaw's current 12 m (39.37 ft.) height standard in the industrial zoning schedules (see discussion under "Building Height Measurement" for more details). Finally it accommodates the installation of a single tower crane of up to 84 m GSC in height which is essential to BC Ferries future operations.

Building Height Measurement:
Under the City's Zoning Bylaw No. 8500, building height is typically measured from the average grade of the site not from the building slab elevations. BC Ferries site, however, includes the Deas basin, an area of submerged fee simple lands which would skew the calculation of the average site grade creating a flood construction elevation (FCL) that would be below the site's existing grade level.

The second building height consideration is that BC Ferries is proposing to place their building slabs at 3.85 GSC and raise grades over time as buildings are replaced.

Given these considerations, the site-specific zoning for the subject site accommodates the measurement of building heights from the slab elevation rather than the average grade of the site. The site specific zoning also restricts the maximum building height to the lesser of 22.2 m as measured from top of slab or a maximum building height of 26.6 GSC (approximately 4.35 GSC + 22.2 m). This allows BC Ferries to raise to the grades for future buildings up to City's current FCL of 4.35 m GSC (the City's current minimum FCL for sites outside the dike system) while at the same time restricting the maximum building height to 22.2 m.

Sustainability Features

Both design and operational measures are being incorporated into the development to address efficiency and sustainability. A list of the proposed sustainability features proposed for the site is provided in Attachment 5.

Development Permit Review

The proposed development will undergo a separate design review via Development Permit application (DP 18-824566). Specific issues to be addressed through the review will include:

- Assessing compliance with the Official Community Plan Development Permit Guidelines.
- Verify setbacks, building heights and overall compliance with the Site Specific zoning;
- A review of the proposed exterior materials and colours;
- A review of vehicle parking spaces to ensure compliance with the parking requirements in the Zoning bylaw No. 8500;
- Review detailed landscaping species selections, sizes and quantities;
- Confirm habitat compensation requirements for ESA/RMA are addressed;
- Establish legal agreements to ensure appropriate monitoring and survival;
- Confirm plans reflect minimum flood construction elevations; and
- Confirm building setbacks from the dike right-of-ways.

Financial Impact or Economic Impact

As a result of the proposed development, the City will take ownership of developer contributed assets such as roadworks, waterworks, storm sewers, sanitary sewers, and dikes. The anticipated operating budget impact for the ongoing maintenance of these assets is estimated to be $254,000; this will be considered as part of the 2020 Operating budget.

Conclusion

SNC Lavalin's application on behalf of BC Ferries for permission to rezone a portion of 12700 and 12800 Rice Mill Road, 12280 and 12300 No. 5 Road from Light Industrial (IL) and Agricultural (AG1) to a new site specific zone "BC Ferries Fleet Maintenance and Moorage (ZI14)" in order to allow for the phased upgrading of BC Ferries Fleet Maintenance Unit (FMU) has undergone an extensive technical review addressing issues such as new dike alignment and construction, environmental impact mitigation and compensation, utility servicing, visual impact assessment and archaeological reviews. A custom site specific zoning schedule has been prepared to address the particulars of the site and the proposed uses anticipated.

On the basis of its technical review, staff recommend that Richmond Zoning Bylaw 8500, Amendment Bylaw 9940 to create the "BC Ferries Fleet Maintenance and Moorage (ZI14)" zone, and to:

1) Rezone 12300 No. 5 Road and 12800 Rice Mill Road from "Light Industrial (IL)" to "BC Ferries Fleet Maintenance and Moorage (ZI14)" and;

2) Rezone a portion of 12280 No. 5 Road and 12700 Rice Mill Road from "Agricultural (AG1) and Light Industrial (IL)" to "BC Ferries Fleet Maintenance and Moorage (ZI14)";

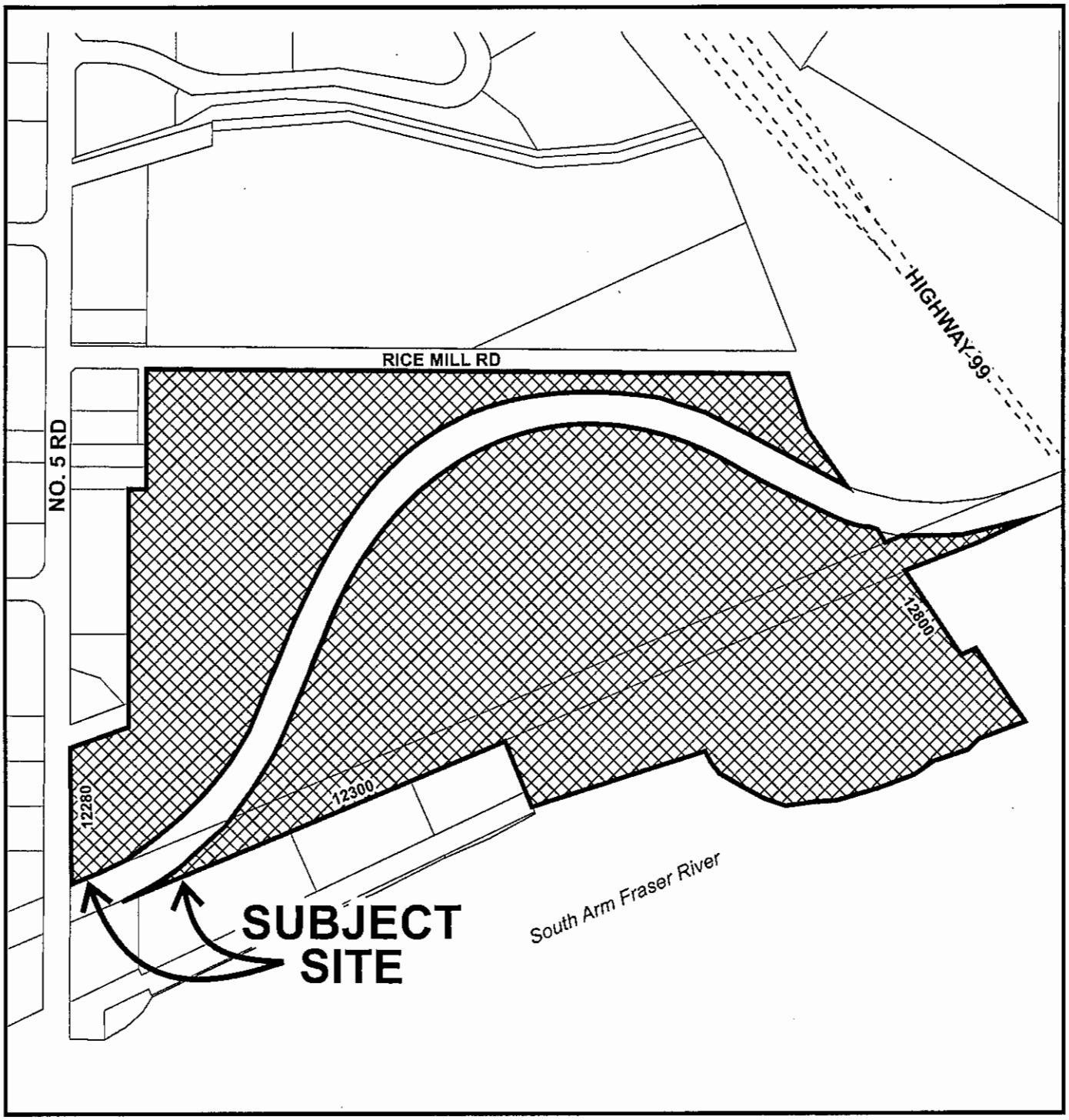
be introduced and given first reading.

David Brownlee
Planner 2

DCB:rg

Attachment 1: Location Map and Area to be Rezoned
Attachment 2: Conceptual Development Plans
Attachment 3: Tree Management Plan
Attachment 4: Development Application Data Sheet
Attachment 5: Proposed Sustainability Features
Attachment 6: Technical Studies Submitted
Attachment 7: DFO Letter of Advice
Attachment 8: Rezoning Considerations

City of Richmond



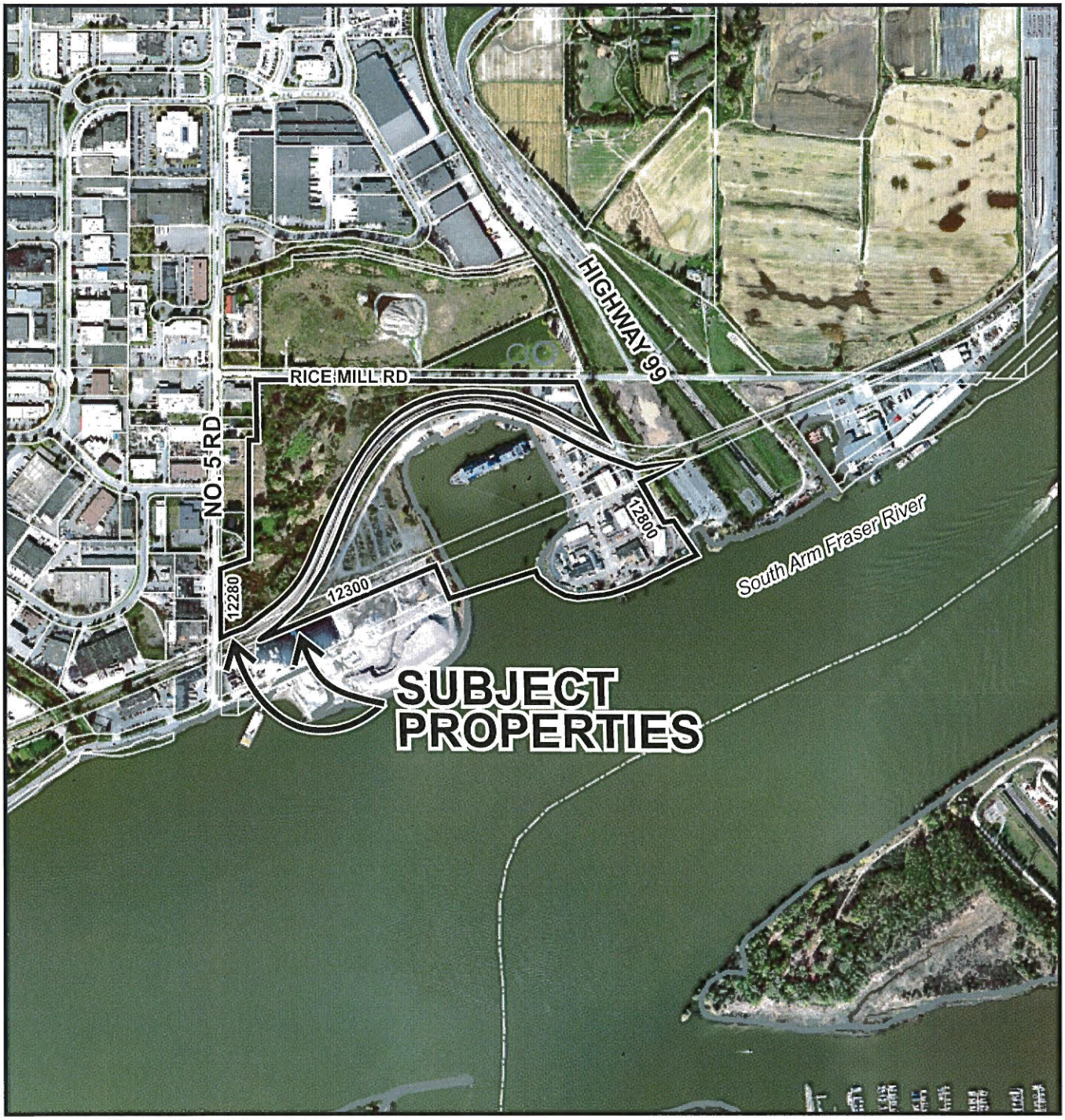
RZ 18-824565

Original Date: 04/23/19

Revision Date:

Note: Dimensions are in METRES

City of
Richmond



RZ 18-824565

Original Date: 08/17/18

Revision Date:

Note: Dimensions are in METRES

City of
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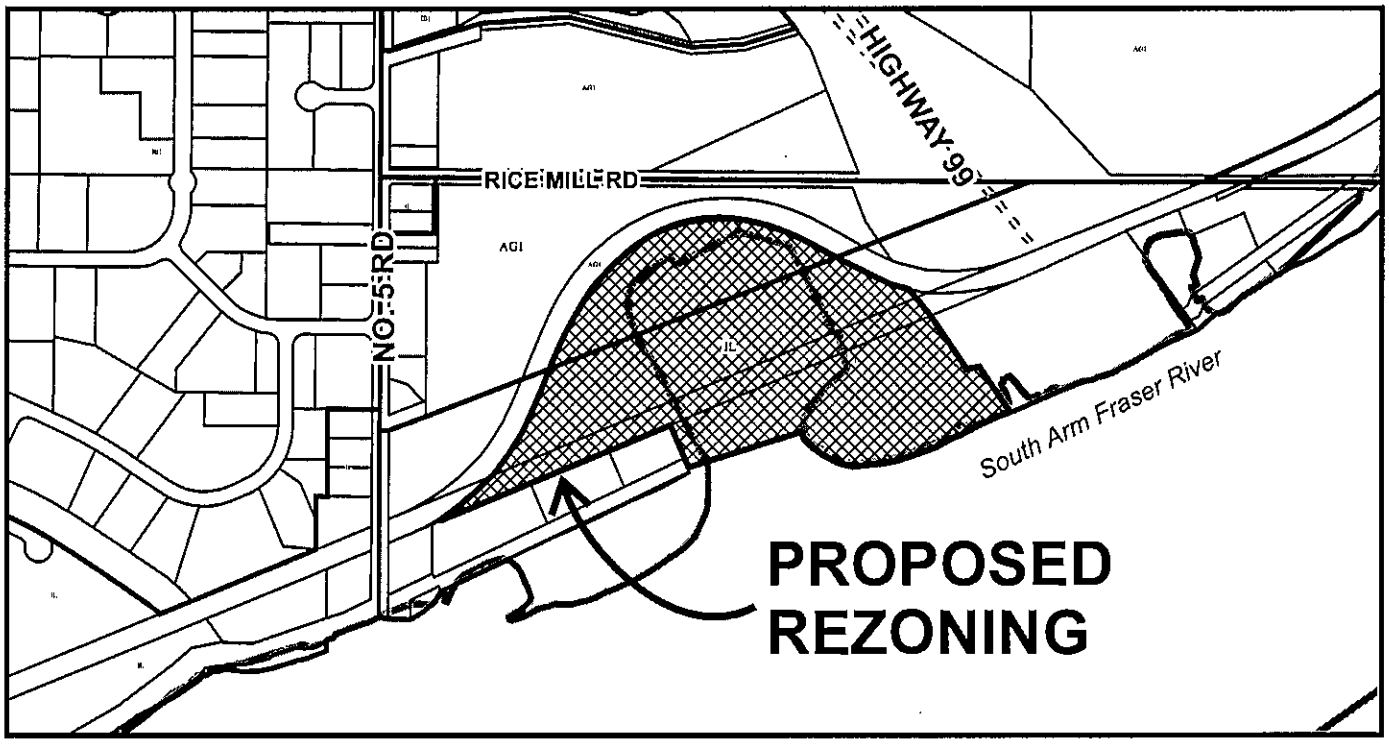
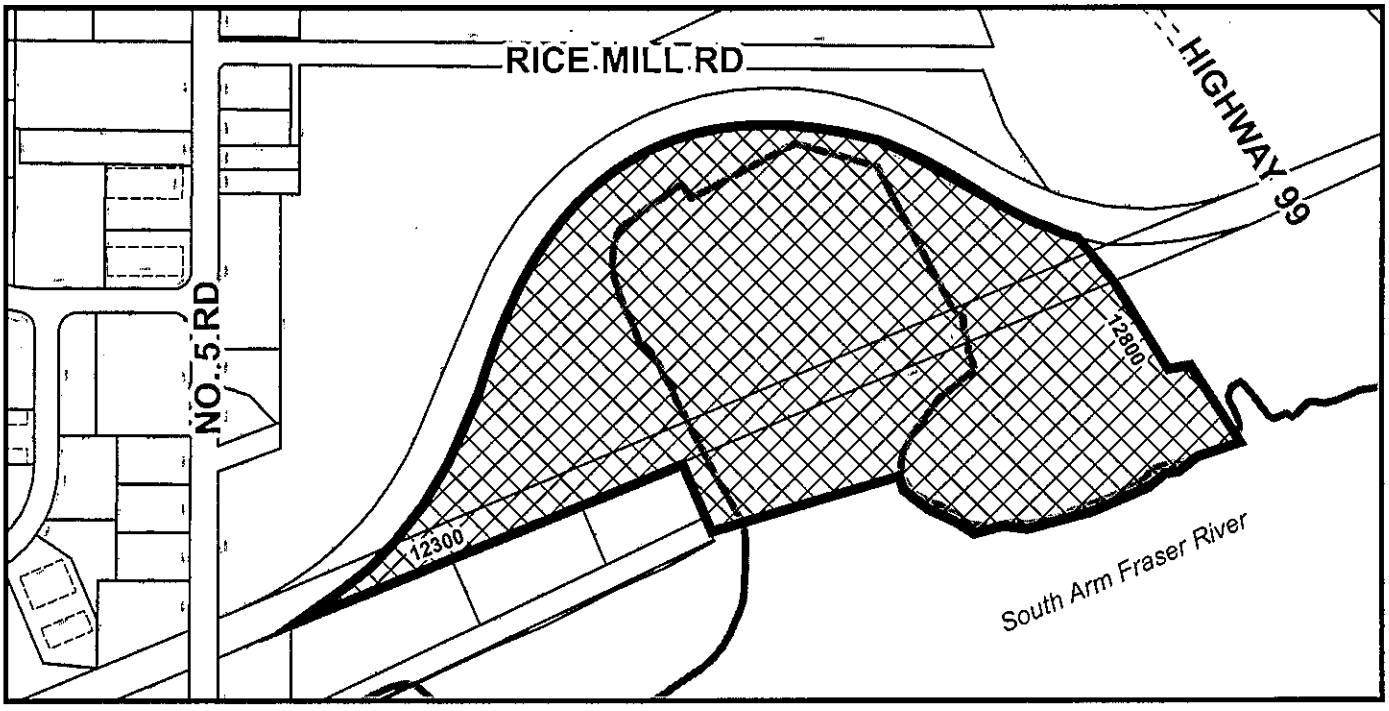




RZ 18-824565

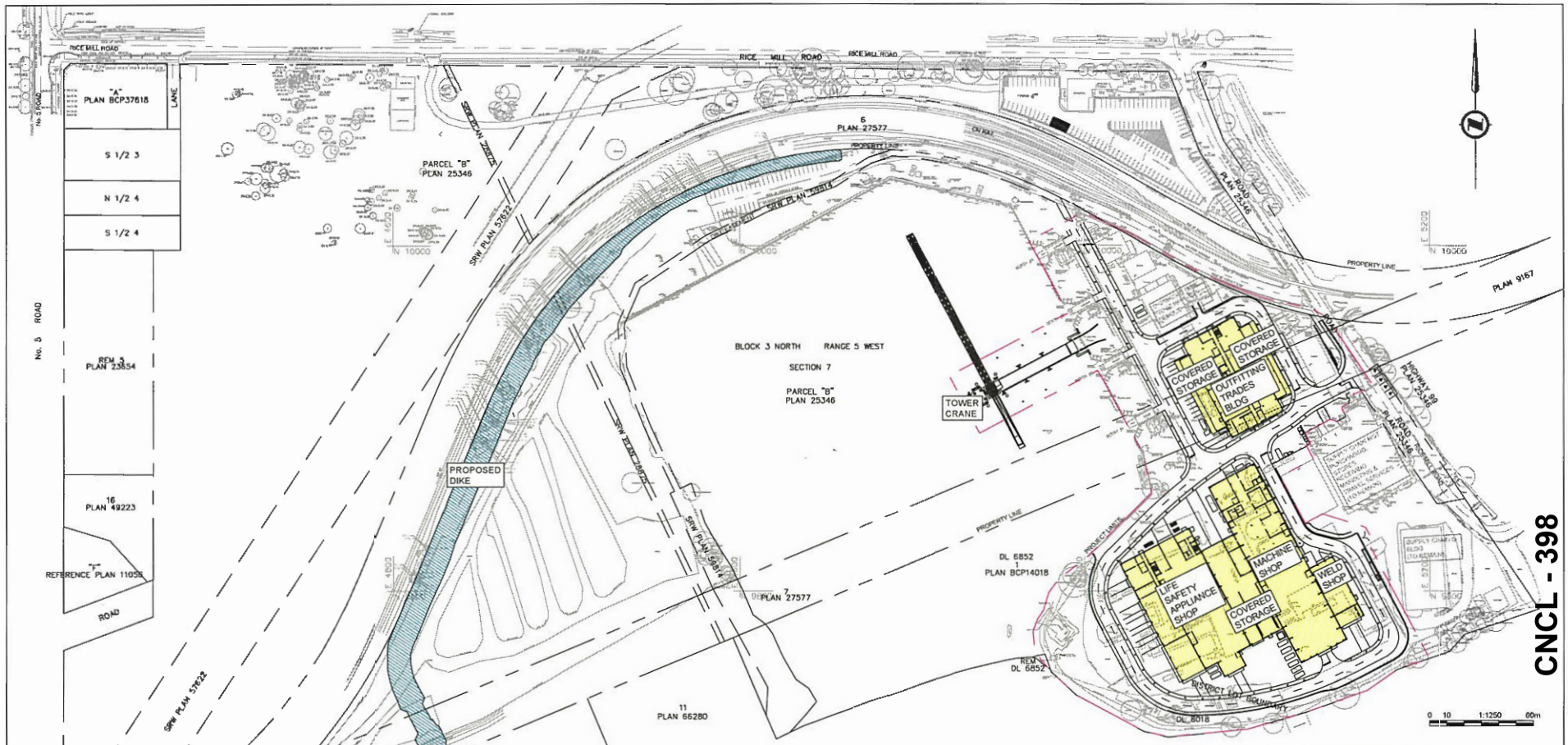
Original Date: 06/20/18

Revision Date: 09/28/18

Note: Dimensions are in METRES

Conceptual Development Plans - Index

	Document:	Plan No.
1	Site Plan	a
2	Construction Phasing Plan	b
3	Building Elevation drawings	c-f
4	Basin Crane drawings	g-i
5	Grading Plan	j
6	Parking Plan	k-o
7	Waste Management Overlay Drawing	p
8	Environmentally Sensitive Areas and Riparian Management Areas	q
9	AREA in ESA SH-5 and IT-5 Impacted by the Proposed Development	r
10	Landscape Plan drawings	s-u
11	Habitat Balance Sheet	v



CNCL - 398

LEGAL DESCRIPTION:

(a) LOT 1 SECTION 7 BLOCK 3 NORTH RANGE 5 WEST AND DISTRICT LOTS 6852 AND 6018 GROUP 1 NEW WESTMINSTER DISTRICT PLAN BCP 14018

(b) PARCEL "B" SECTION 7 BLOCK 3 NORTH RANGE 5 NEW WESTMINSTER DISTRICT PLAN 25346

(c) LOT 7 SECTIONS 7 AND 8 BLOCK 3 NORTH RANGE 5 NEW WESTMINSTER DISTRICT PLAN 27577

CIVIC ADDRESS:

(a) 12800 RICE MILL ROAD, RICHMOND, BC
(b) 12280 NO. 5 ROAD / 12700 RICE MILL ROAD, RICHMOND, BC
(c) 12300 NO.5 ROAD, RICHMOND, BC

ZONE: AGRICULTURAL (AG1) AND LIGHT INDUSTRIAL (IL)

SETBACKS:	REQUIRED	PROVIDED
FRONT YARD (EAST PL)	3.0 m	0.0 m
SIDE YARD	0.0 m	3.0 m
REAR YARD	0.0 m	3.0 m

MAXIMUM ALLOWABLE HEIGHT:

HEIGHT PROPOSED - CRANE 84.0 m
HEIGHT PROPOSED - BUILDING (MAX., MEASURED FROM SLAB) 22.168 m

SITE AREA: 245,065.5 m²

FLOOR AREA RATIO:

SITE AREA(m²)	245,065.5
MAX FAR ALLOWABLE	1.0
FAR PROPOSED	0.1
TOTAL ALLOWABLE FLOOR AREA (m²)	245065.5

FLOOR AREA PROPOSED-NEW CONSTRUCTION (m²):

OUTFITTING BUILDING		
MAIN FLOOR	2061.0	
SECOND FLOOR	2061.0	
SUB-TOTAL	4122.0	
MACHINE SHOP BUILDING		
MAIN FLOOR	4235.0	
SECOND FLOOR	1153.0	
THIRD FLOOR	1153.0	
SUB-TOTAL	6541.0	
LIFE SAFETY BUILDING		
MAIN FLOOR	3242.0	
COVERED STORAGE	1127.0	
SECOND FLOOR	470.0	
SUB-TOTAL	4839.0	
SUB-TOTAL FLOOR AREA PROPOSED - NEW CONSTRUCTION		15502.0

EXISTING FLOOR AREA RETAINED (m²):

SUPPLY CHAIN MANAGEMENT BUILDING A		
MAIN FLOOR	2030.7	
MEZZANINE	776.0	
SUPPLY CHAIN MANAGEMENT BUILDING B	630.0	
SUPPLY CHAIN MANAGEMENT BUILDING G	1035.0	
HEAVY SHOP BUILDING	458.5	
ELECTRICAL / PAINT SHOP BUILDING	478.0	
SIGN SHOP BUILDING	192.0	
LUNCHROOM/LOCKER BUILDING	210.0	
TRANSFORMER BUILDING	36.0	
GUARDHOUSE	11.5	
PMO OFFICE	351.8	
SUB-TOTAL-EXISTING FLOOR AREA RETAINED		6209.5
TOTAL FLOOR AREA NEW CONSTRUCTION + RETAINED		21711.5

SITE COVERAGE:

SITE AREA (m²)	245,065.5	
LOT COVERAGE	REQUIRED	PROPOSED
BUILDING	50%	7.1%
NON-POUROUS SURFACES		14.3%
TOTAL MAX		21.4%

SITE COVERAGE PROPOSED (m²):

NEW BUILDING CONSTRUCTION		
OUTFITTING BUILDING	2913.0	
MACHINE SHOP BUILDING	4235.0	
LIFE SAFETY BUILDING	4702.0	
SUB-TOTAL SITE COVERAGE NEW BUILDING CONSTRUCTION		11850.0
EXISTING BUILDINGS RETAINED		
SUPPLY CHAIN MANAGEMENT BUILDING A	2030.7	
SUPPLY CHAIN MANAGEMENT BUILDING B	653.5	
SUPPLY CHAIN MANAGEMENT BUILDING G	1109.9	
HEAVY SHOP BUILDING	466.2	
ELECTRICAL / PAINT SHOP BUILDING	512.2	
SIGN SHOP BUILDING	191.8	
LUNCHROOM/LOCKER BUILDING	214.2	
TRANSFORMER BUILDING	35.4	
GUARDHOUSE	11.5	
PMO OFFICE	351.8	
SUB-TOTAL SITE COVERAGE EXISTING BUILDINGS RETAINED		5517.3
TOTAL SITE COVERAGE BUILDINGS		17367.3
NON-POROUS SURFACES (m²)		
NEW NON-POROUS SURFACE	17100.0	
EXISTING RETAINED NON-POROUS SURFACES	17918.2	
TOTAL SITE COVERAGE - NON-POROUS SURFACE	35018.2	

PARKING, LOADING, BICYCLE SPACE:

	REQUIRED	PROVIDED
PARKING STALLS	218 / 5 ACCESSIBLE	257 / 5 ACCESSIBLE
LOADING BAY	5 MEDIUM / 4 LARGE	7 MEDIUM / 4 LARGE
BICYCLE	41 RACKS / 41 LOCKERS	41 RACKS / 41 LOCKERS

PARKING:
VEHICLE PARKING — 1 SPACE PER 100 SM FLOOR AREA = 21,711.5/100 = 217.11
VEHICLE PARKING REQUIRED — 218.00
ACCESSIBLE PARKING — =218*0.02 =4.36
ACCESSIBLE PARKING REQUIRED — 5.00

LOADING:
MEDIUM LOADING SPACES — 1 SPACE FOR 1860 SM + 1 SPACE FOR EACH ADDITIONAL 5000 SM = 1 SPACE + ((21711.5-1860)/5000) = 4.970294
MEDIUM LOADING SPACES REQUIRED — 5
LARGE LOADING SPACES — 1 SPACE FOR 1860 SM OR MORE IS 1 SPACE PER 5000 SM =((21711.5 - 1860)/5000) = 3.97
LARGE LOADING SPACES REQUIRED — 4

BICYCLE PARKING:
CLASS 1 & CLASS 2 BICYCLE SPACES — 0.27 SPACES PER 100 SM FLOOR AREA GREATER THAN 100 SM =0.27 *((20564.5 - 100)/100) = 41.58
CLASS 1 — CLASS 1 BICYCLE PARKING 42
CLASS 2 — CLASS 2 BICYCLE PARKING 42

E			
D			
C			
B			
A	ISSUED FOR CITY OF RICHMOND REVIEW	19/03/06	SSD
REVISIONS		Y/M/D	BY

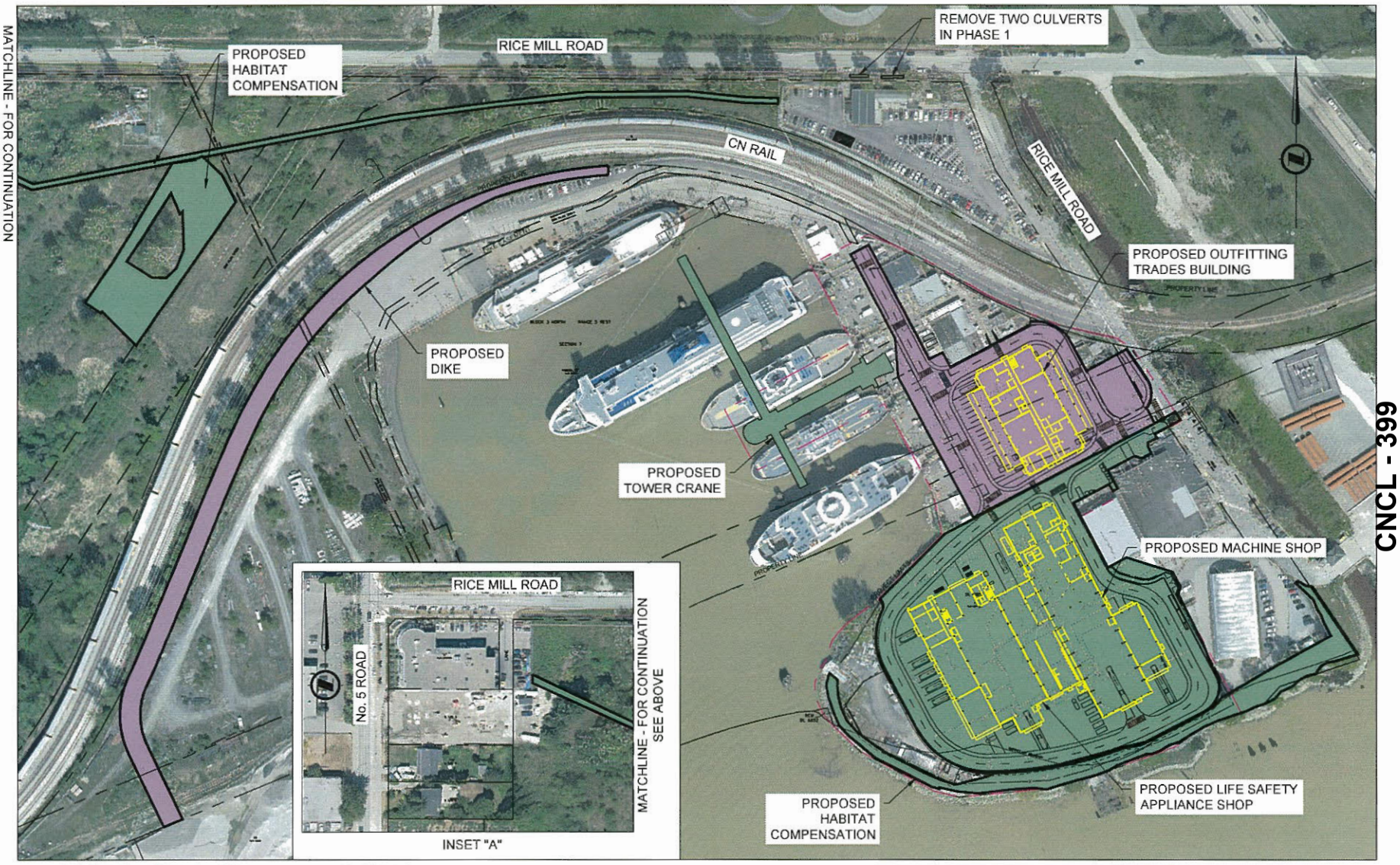
SNC·LAVALIN
SNCL Project Number: 694092

REVIEWED FOR USE IN CONSTRUCTION
DRAWN BY A. AFANASEVA DESIGN BY A. AFANASEVA
DATE 19/03/06 CHECKED BY S.S.DEEPAK/F.VASCHIDI
FILE No. 14-350 SCALE 1:1250 FULL SIZE (A1)

BCFerries
British Columbia Ferry Services Inc.

FLEET MAINTENANCE UNIT (FMU)
90960
FMU DEVELOPMENT PROJECT
OVERALL SITE
GENERAL ARRANGEMENT
DRAWING No.: 14-350-C0020 A
CANCEL PRINTS BEARING EARLIER REVISION

Plan # a



CNCL - 399

E			
D			
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B			
A	ISSUED FOR XXXXXX	19/02/21	SSD
	REVISIONS	YMD	BY

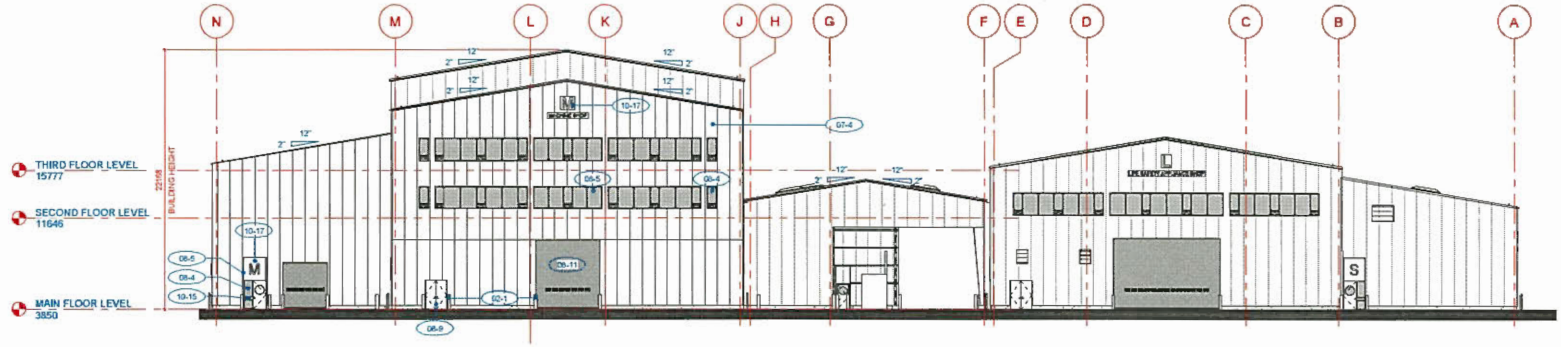
SNC·LAVALIN
SNCL Project Number: 654392

REVIEWED FOR USE IN CONSTRUCTION:
DRAWN BY: D. LIU DESIGN BY: X. XXXXX
DATE: 19/02/21 CHECKED BY: X. XXXXX
FILE No.: 14-350 SCALE: 1:1000 FULL SIZE

BCFerries
British Columbia Ferry Services Inc.

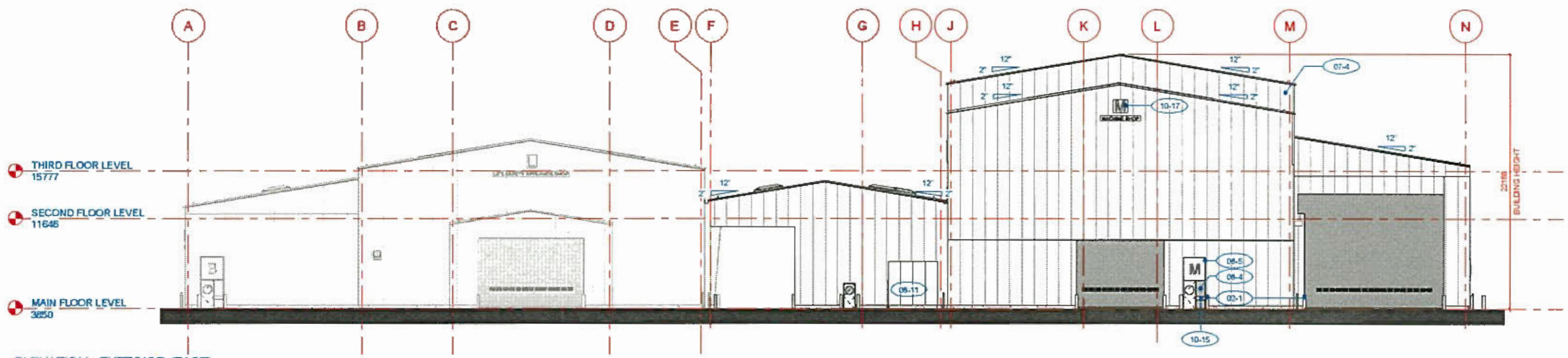
FLEET MAINTENANCE UNIT (FMU)
90980
FMU DEVELOPMENT PROJECT
OVERALL SITE
CONSTRUCTION PHASE PLAN
DRAWING No.: 14-350-DK-C9001 A
CANCEL PRINTS BEARING EARLIER REVISION

Plan #b



ELEVATION - EXTERIOR (WEST)

1 : 200



ELEVATION - EXTERIOR (EAST)

1 : 200

0m 4m 8m 12m 16m 20m

SCALE 1:200

No.	DESCRIPTION
02-1	219mm DIAMETER X 6mm THICK WALL CONCRETE FILLED STEEL BOLLARD, COMPLETE WITH HIGH DENSITY POLYETHELENE PLASTIC POST GUARD (SAFETY YELLOW WITH RED REFLECTIVE STRIPES, MANUFACTURER SUREGUARD OR APPROVED ALTERNATE). CAST BOLLARD IN CONCRETE BASE (REFER TO STRUCTURAL). EXPOSE 1220mm OF BOLLARD ABOVE FINISHED GRADE
07-4	PREFINISHED INSULATED METAL PANEL (22 GAUGE BOTH SURFACES), WALLS: KINGSPAN KS MICRO-RIB OR MF 'FIRE RATED HF' MICRO-RIB WHERE REQUIRED TO BE FIRE RATED (THICKNESS AS REQUIRED FOR RATING) - COMPLETE WITH KINGSPAN EXTRUSIONS. ROOFS: KINGSPAN KINGZIP PANELS. METAL FINISH COLOR: 'REGAL WHITE' - REFER TO CONSTRUCTION ASSEMBLIES AND SPECIFICATIONS
08-4	CURTAIN WALL GLAZING WITH ALUMINUM FRAMES AND OPERABLES - REFER TO WINDOW AND DOOR ELEVATIONS, AND SPECIFICATIONS
08-5	CURTAIN WALL FRAME FINISH TO MATCH BUILDING METAL PANEL - - REFER TO WINDOW AND DOOR ELEVATIONS, AND SPECIFICATIONS
08-9	WELDED PRESSED STEEL DOOR FRAME COMPLETE WITH TEMPERED GLAZED LITES AND ETCHED SIGNAGE TO GLAZING - REFER TO DOOR SCHEDULE & SPECIFICATIONS
08-11	PAINTED INSULATED STEEL OVERHEAD ROLLUP DOOR - REFER TO DOOR SCHEDULE. PROVIDE STEEL MEMBER BACKING FOR SUPPORT AS REQUIRED BY DOOR MANUFACTURER
10-15	WAY-FINDING PANEL SET INTO CURTAIN WALL. REFER TO WINDOW AND DOOR ELEVATIONS AND SPECIFICATIONS
10-17	SIGNAGE CABINET / SPANDREL PANEL WITH INSULATED BACK PANEL BEHIND (REFER TO ELEVATIONS FOR OVERALL DIM.) - 75MM THICK, ROUTED AND PUSH THRU ACRYLIC LETTERS C/W TRANSLUCENT BLUE VINYL ON THE FACE, CABINET COLOR TO MATCH BUILDING METAL PANEL COLOR

ALL ELEVATIONS ARE GEODETIC

#	Description	Y/M/D

PROFESSIONAL SEAL

BOLDWING CONTINUUM ARCHITECTS INC.

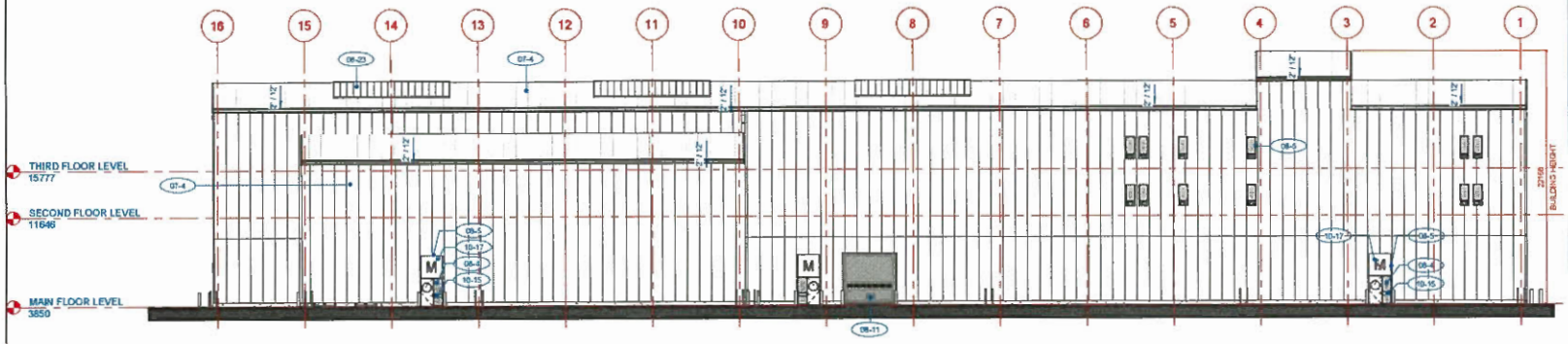
SNC·LAVALIN

APPROVED FOR USE IN CONSTRUCTION: N/A @ THIS TIME
DRAWN BY: A.B. DESIGN BY: A.B., S.B.
DATE: 3/29/2019 8:21:00 AM CHECKED BY: A.B., S.B.
FILE No.: 14-350- SCALE: 1 : 200
BCAI File No.: 21507 PAGE SIZE: A1 (210 x 297)

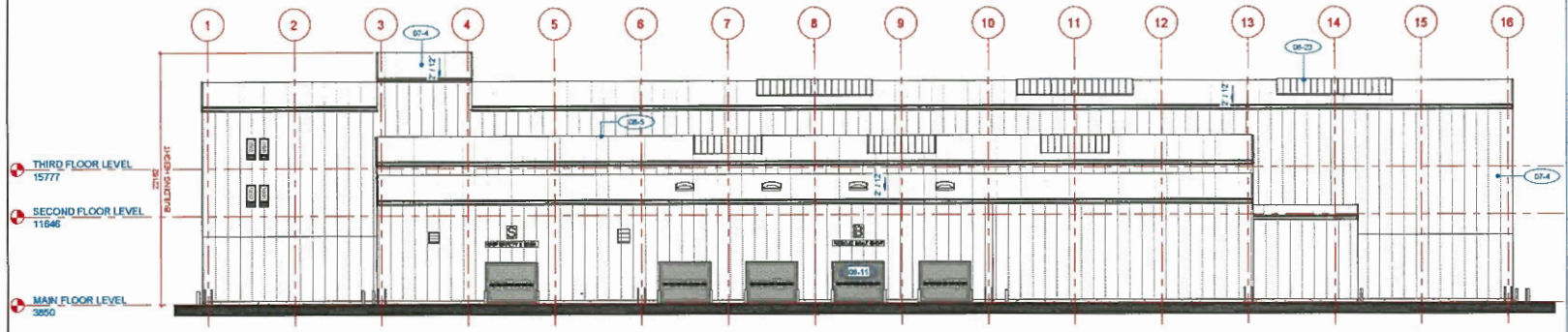
BCFerries
British Columbia Ferry Services Inc.

FLEET MAINTENANCE UNIT (FMU)
90980
FMU DEVELOPMENT PROJECT
MACHINE SHOP
MACHINE SHOP & LIFE SAFETY SHOP ELEVATIONS
DRAWING No.: 14-350-A-01

Plan #C



ELEVATION - EXTERIOR (NORTH)



ELEVATION - EXTERIOR (SOUTH)

No.	DESCRIPTION
07-4	PREFINISHED INSULATED METAL PANEL (22 GAUGE BOTH SURFACES), WALLS: KINGSPAN KS MICRO-RIB OR MF 'FIRE RATED HF' MICRO-RIB WHERE REQUIRED TO BE FIRE RATED (THICKNESS AS REQUIRED FOR RATING) - COMPLETE WITH KINGSPAN EXTRUSIONS. ROOFS: KINGSPAN KINGZIP PANELS. METAL FINISH COLOR: 'REGAL WHITE' - REFER TO CONSTRUCTION ASSEMBLIES AND SPECIFICATIONS
08-4	CURTAIN WALL GLAZING WITH ALUMINUM FRAMES AND OPERABLES - REFER TO WINDOW AND DOOR ELEVATIONS, AND SPECIFICATIONS
08-5	CURTAIN WALL FRAME FINISH TO MATCH BUILDING METAL PANEL - - REFER TO WINDOW AND DOOR ELEVATIONS, AND SPECIFICATIONS
08-11	PAINTED INSULATED STEEL OVERHEAD ROLLUP DOOR - REFER TO DOOR SCHEDULE. PROVIDE STEEL MEMBER BACKING FOR SUPPORT AS REQUIRED BY DOOR MANUFACTURER
08-23	CPI DAYLIGHTING QUADWALL PANELIZED TRANSLUCENT SKYLIGHT 100mm SYSTEM, COLOR: '1CE WHITE MATTE'. EXTERIOR PANELS 10mm HONEYCOMB C/W 82mm POLYCARBONATE BATTENS. INTERIOR PANELS 8mm HONEYCOMB, INSTALL ON ROOF CURBS WITH ANY REQUIRED SUBFRAME PURLINS, MANUFACTURER L CURBS OR APPROVED ALTERNATE. REFER TO DETAILS AND SPECIFICATIONS
10-15	WAY-FINDING PANEL SET INTO CURTAIN WALL. REFER TO WINDOW AND DOOR ELEVATIONS AND SPECIFICATIONS
10-17	SIGNAGE CABINET / SPANDREL PANEL WITH INSULATED BACK PANEL BEHIND (REFER TO ELEVATIONS FOR OVERALL DIM.) - 75MM THICK, ROUTED AND PUSH THRU ACRYLIC LETTERS C/W TRANSLUCENT BLUE VINYL ON THE FACE. CABINET COLOR TO MATCH BUILDING METAL PANEL COLOR

0m 4m 8m 12m 16m 20m

SCALE 1:200

ALL ELEVATIONS ARE GEODETIC

CNCL - 401

#	Description	Y/M/D

PROFESSIONAL SEAL

BOLDWING CONTINUUM ARCHITECTS INC.

SNC·LAVALIN

AP PROVED FOR USE IN CONSTRUCTION: N/A @ THIS TIME

DRAWN BY: A.B. DESIGN BY: A.B., S.B.

DATE: 3/29/2019 8:21:19 AM CHECKED BY: A.B., S.B.

FILE No.: 14-350- SCALE: 1 : 200

BCAI File No.: 21507 PAGE SIZE: A1 (210 x 297)

BCFerries

British Columbia Ferry Services Inc.

FLEET MAINTENANCE UNIT (FMU)

80650

FMU DEVELOPMENT PROJECT

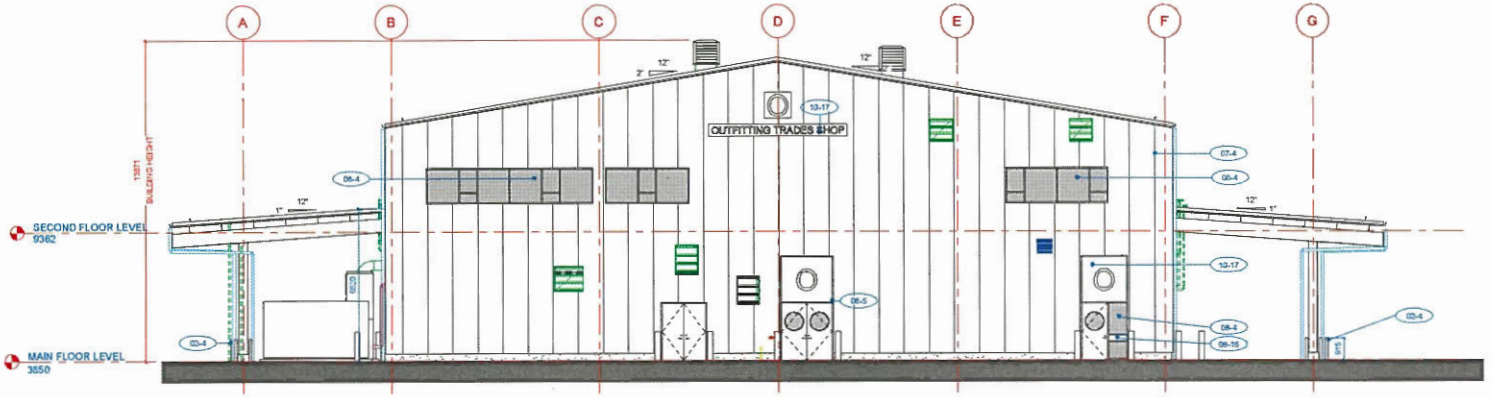
MACHINE SHOP

MACHINE SHOP & LIFE SAFETY SHOP ELEVATIONS

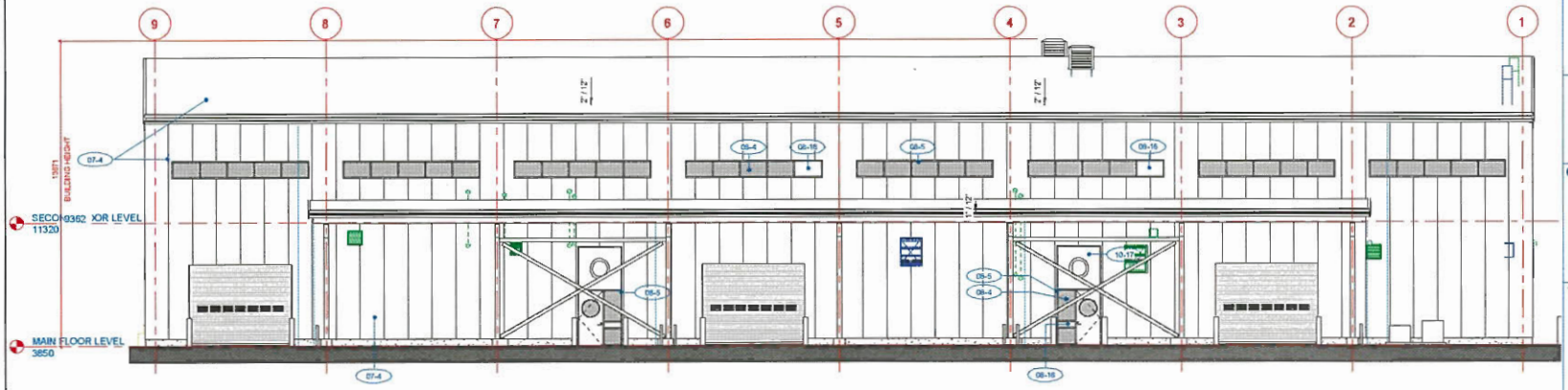
DRAWING No.: 14-350-A-02

CANCEL PRINTS BEARING EARLIER REVISION

Plan # d



ELEVATIONS - EXTERIOR (EAST)
1 : 100



ELEVATION - EXTERIOR (NORTH)
1 : 100

0m 2m 4m 6m 8m 10m

SCALE 1:100

No.	DESCRIPTION
02-4	2135mm LONG, 100mm DIAMETER X 6mm THICK WALL, CONCRETE FILLED STEEL BOLLARD, COMPLETE WITH HIGH DENSITY POLYETHELENE PLASTIC POST GUARD (SAFETY YELLOW WITH RED REFLECTIVE STRIPES, MANUFACTURER SUREGUARD OR APPROVED ALTERNATE). CAST BOLLARD IN CONCRETE BASE (MINIMUM OF 450mm DIAMETER). EXPOSE 914mm OF BOLLARD ABOVE FINISHED GRADE
07-4	PREFINISHED INSULATED METAL PANEL (22 GAUGE BOTH SURFACES). WALLS: KINGSPAN KS MICRO-RIB OR MF 'FIRE RATED HF' MICRO-RIB WHERE REQUIRED TO BE FIRE RATED (THICKNESS AS REQUIRED FOR RATING) - COMPLETE WITH KINGSPAN EXTRUSIONS. ROOFS: KINGSPAN KINGZIP PANELS. METAL FINISH COLOR: 'REGAL WHITE' - REFER TO CONSTRUCTION ASSEMBLIES AND SPECIFICATIONS
08-4	CURTAIN WALL GLAZING WITH ALUMINUM FRAMES AND OPERABLES - REFER TO WINDOW AND DOOR ELEVATIONS, AND SPECIFICATIONS
08-5	CURTAIN WALL FRAME FINISH TO MATCH BUILDING METAL PANEL - - REFER TO WINDOW AND DOOR ELEVATIONS, AND SPECIFICATIONS
08-16	ALUMINUM CURTAINWALL WINDOWS WITH SPANDREL GLASS PANEL: EXTERIOR LITE TO MATCH OPACI-COAT-300, COLOR:'LIGHT WHITE' #0-0186, WITH INSULATED BACK PAN, MINIMUM R12
10-17	SIGNAGE CABINET / SPANDREL PANEL WITH INSULATED BACK PANEL BEHIND (REFER TO ELEVATIONS FOR OVERALL DIM.) - 75MM THICK, ROUTED AND PUSH THRU ACRYLIC LETTERS C/W TRANSLUCENT BLUE VINYL ON THE FACE, CABINET COLOR TO MATCH BUILDING METAL PANEL COLOR

ALL ELEVATIONS ARE GEODETIC

CNCL - 402

#	Description	Y/M/D

PROFESSIONAL SEAL

BOLDWING CONTINUUM ARCHITECTS INC.

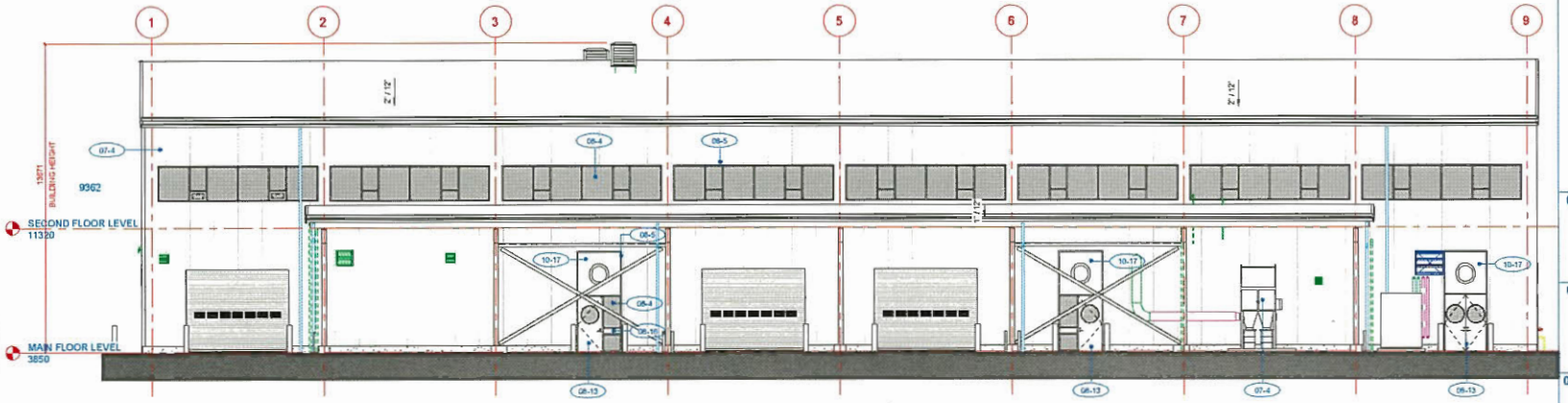
SNC·LAVALIN

APPROVED FOR USE IN CONSTRUCTION: N/A @ THIS TIME
DRAWN BY: A.B. DESIGN BY: A.B., S.B.
DATE: 3/29/2019 8:22:11 AM CHECKED BY: A.B., S.B.
FILE No.: 14-350- SCALE: 1 : 100
BCAI File No.: 21507 PAGE SIZE: A1 (210 x 297)

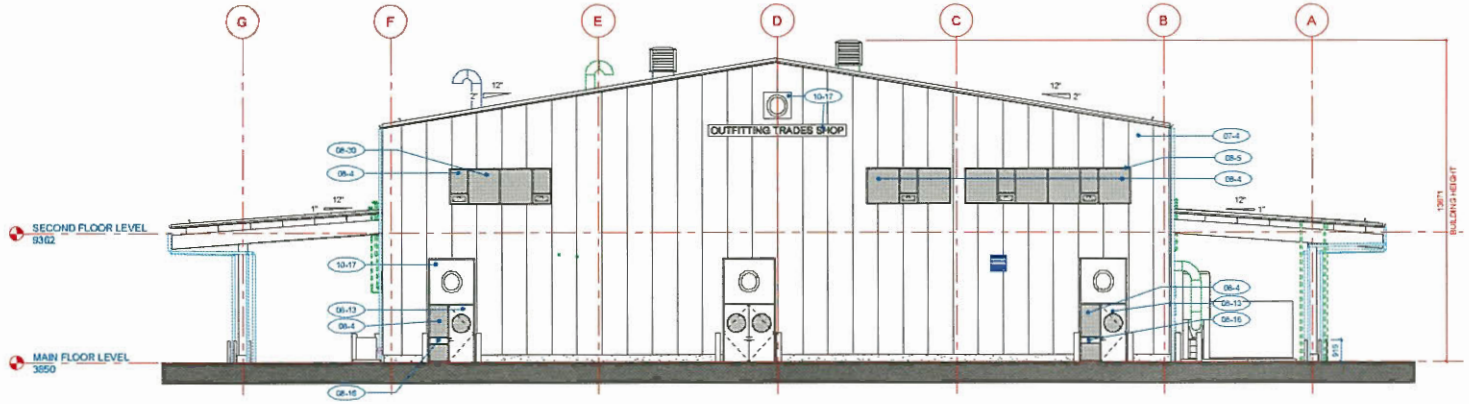
BCFerries
British Columbia Ferry Services Inc.

FLEET MAINTENANCE UNIT (FMU)
FMU DEVELOPMENT PROJECT
OUTFITTING TRADES BUILDING
OUTFITTING TRADES EXTERIOR ELEVATIONS
DRAWING No.: 14-350-A-01

Plan B e



ELEVATION - EXTERIOR (SOUTH)



ELEVATION - EXTERIOR (WEST)

No.	DESCRIPTION
07-4	PREFINISHED INSULATED METAL PANEL (22 GAUGE BOTH SURFACES), WALLS: KINGSPAN KS MICRO-RIB OR MF 'FIRE RATED HF' MICRO-RIB WHERE REQUIRED TO BE FIRE RATED (THICKNESS AS REQUIRED FOR RATING) - COMPLETE WITH KINGSPAN EXTRUSIONS. ROOFS: KINGSPAN KINGZIP PANELS. METAL FINISH COLOR: 'REGAL WHITE' - REFER TO CONSTRUCTION ASSEMBLIES AND SPECIFICATIONS
08-4	CURTAIN WALL GLAZING WITH ALUMINUM FRAMES AND OPERABLES - REFER TO WINDOW AND DOOR ELEVATIONS, AND SPECIFICATIONS
08-5	CURTAIN WALL FRAME FINISH TO MATCH BUILDING METAL PANEL - - REFER TO WINDOW AND DOOR ELEVATIONS, AND SPECIFICATIONS
08-13	PAINTED INSULATED HOLLOW METAL DOOR WITH OCCULI - REFER TO SPECIFICATIONS
08-16	ALUMINUM CURTAINWALL WINDOWS WITH SPANDREL GLASS PANEL EXTERIOR LITE TO MATCH OPACI-COAT-300, COLOR:'LIGHT WHITE' #0-0186, WITH INSULATED BACK PAN, MINIMUM R12
08-30	GLAZED UNITS, INTERNAL FRAMES OF THIS WINDOW TO BE REMOVABLE FOR INSTALLATION OF OWNER SUPPLIED EQUIPMENT
10-17	SIGNAGE CABINET / SPANDREL PANEL WITH INSULATED BACK PANEL BEHIND (REFER TO ELEVATIONS FOR OVERALL DIM.) - 75MM THICK, ROUTED AND PUSH THRU ACRYLIC LETTERS C/W TRANSLUCENT BLUE VINYL ON THE FACE, CABINET COLOR TO MATCH BUILDING METAL PANEL COLOR

CNCL - 403

0m 2m 4m 6m 8m 10m

SCALE 1:100

ALL ELEVATIONS ARE GEODETIC

#	Description	Y/M/D

PROFESSIONAL SEAL

BOLDWING CONTINUUM ARCHITECTS INC.

SNC·LAVALIN

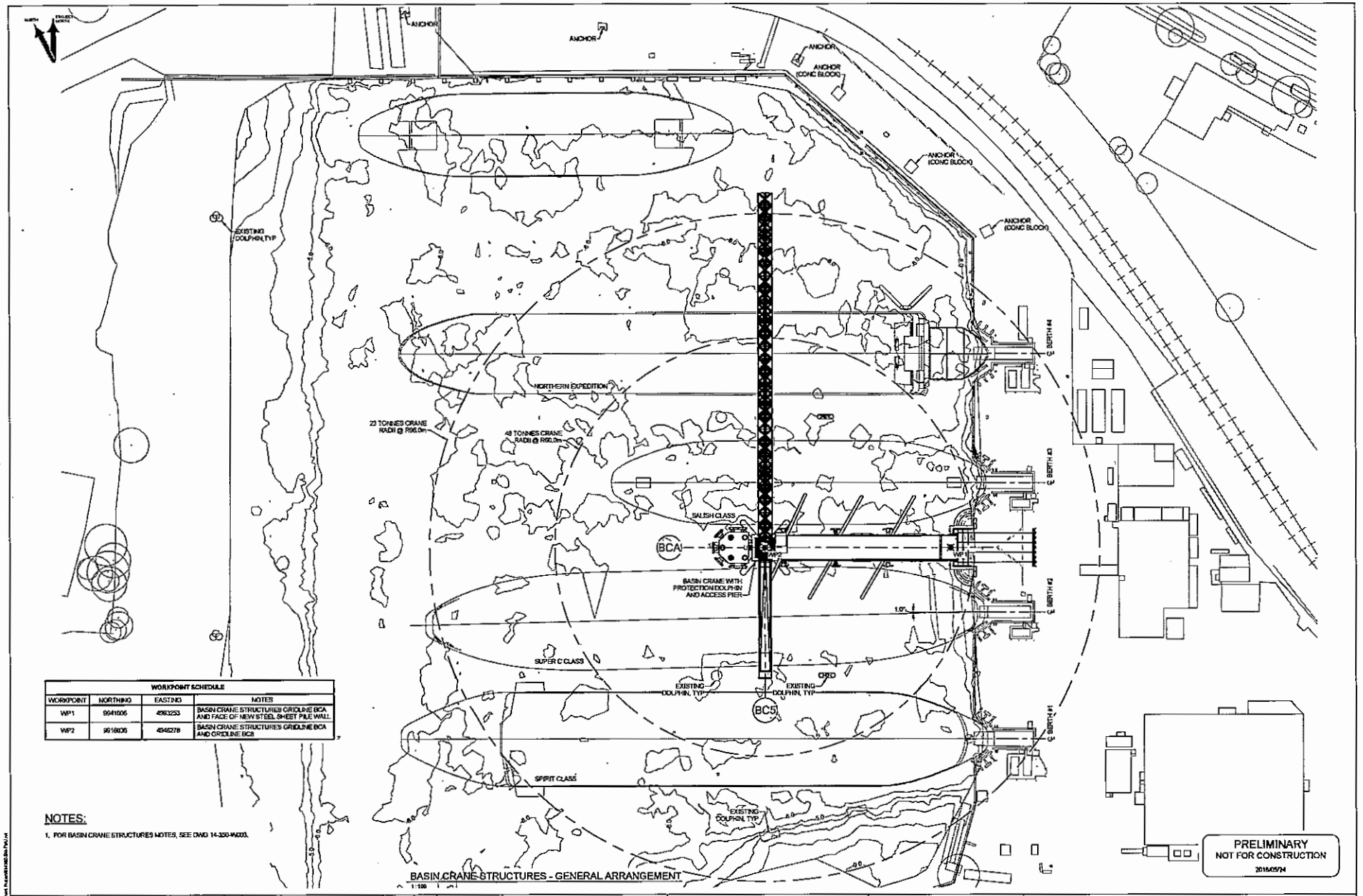
APPROVED FOR USE IN CONSTRUCTION: N/A @ THIS TIME
DRAWN BY: A.B. DESIGN BY: A.B., S.B.
DATE: 3/29/2019 8:22:21 AM CHECKED BY: A.B., S.B.
FILE No.: 14-350- SCALE: 1 : 100
BCAI File No.: 21597 PAGE SIZE: A1 (210 x 297)

BCFerries
British Columbia Ferry Services Inc.

FLEET MAINTENANCE UNIT (FMU)
90560
FMU DEVELOPMENT PROJECT
OUTFITTING TRADES BUILDING
OUTFITTING TRADES EXTERIOR ELEVATIONS
DRAWING No.: 14-350-A-02

Plan # f

CNCL - 404



WORKPOINT SCHEDULE			
WORKPOINT	NORTHING	EASTING	NOTES
WP1	9941606	4983253	BASIN CRANE STRUCTURES GRIDLINE BC4, AND FACE OF NEW STEEL SHEET PILE WALL
WP2	9916806	4945278	BASIN CRANE STRUCTURES GRIDLINE BC4 AND GRIDLINE BC5

NOTES:

1. FOR BASIN CRANE STRUCTURES NOTES, SEE DWG 14-350-W003.

BASIN CRANE STRUCTURES - GENERAL ARRANGEMENT

1:500

PRELIMINARY
NOT FOR CONSTRUCTION
2018/05/24

REVISIONS				REVISIONS			
E				K			
D				J			
C				H			
B	ISSUED FOR TENDER (IFT)	19/02/01		G			
A	ISSUED FOR 70% CLIENT REVIEW	18/06/15		F			

SNC·LAVALIN

SNC Project Number: 654102

REVIEWED FOR USE IN CONSTRUCTION

DRAWN BY: R. MARTIN | DESIGN BY: P. DEVLIN

DATE: 2018/05/24 | CHECKED BY: D. WEI

FILE No.: 14-350 | SCALE: 1 : 500

PAGE SIZE: A1 (841x594mm)

BCFerries
British Columbia Ferry Services Inc.

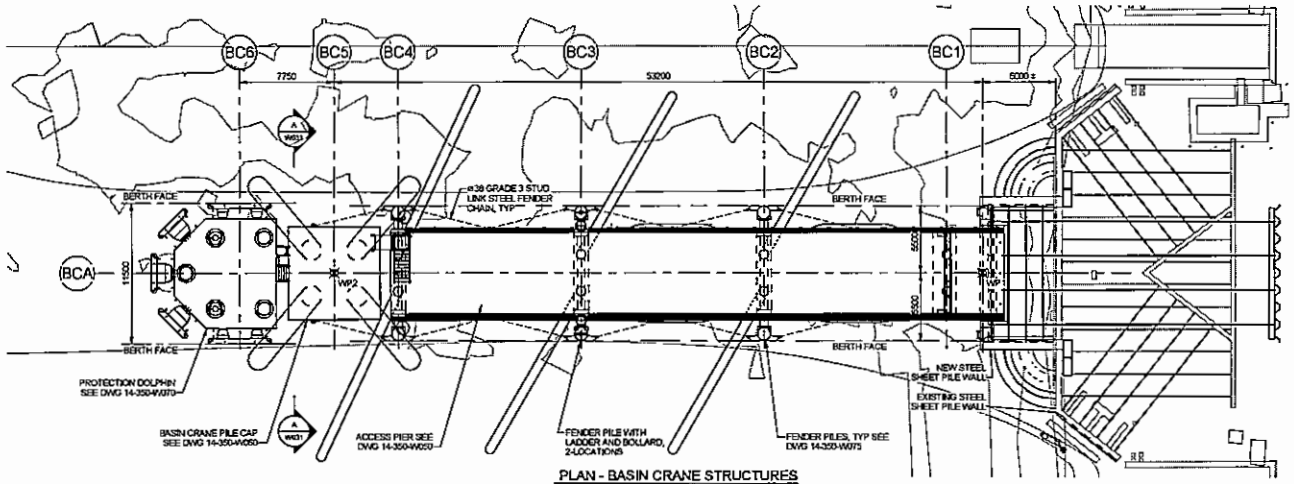
FLEET MAINTENANCE UNIT (FMU)

FMU DEVELOPMENT PROJECT
BASIN CRANE STRUCTURES

GENERAL ARRANGEMENT | DRAWING No.: 14-350-W004 | B

Plan # 9

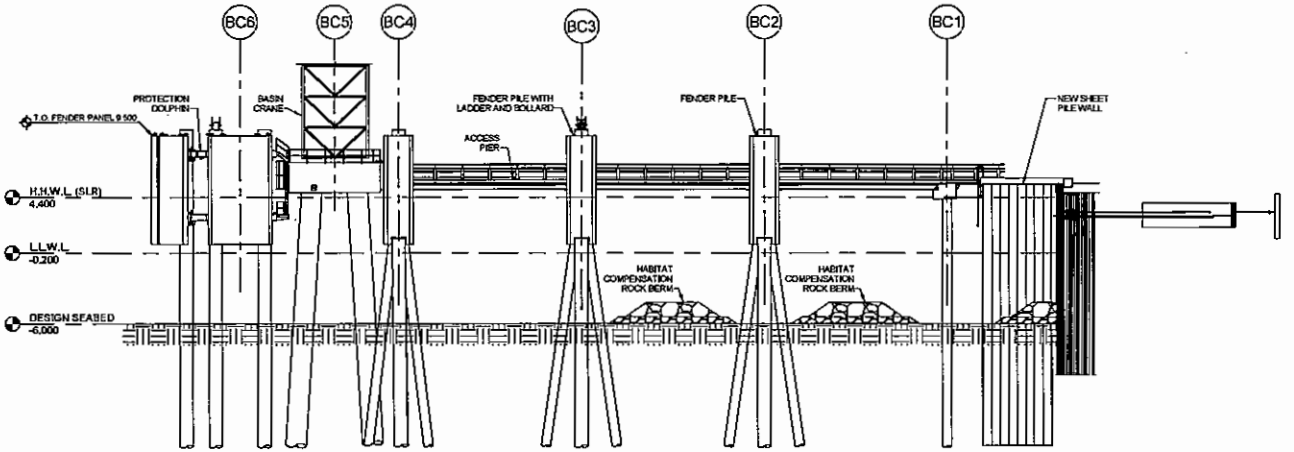
CNCL - 405



PLAN - BASIN CRANE STRUCTURES

1:200

NOTE: BASIN CRANE NOT SHOWN FOR CLARITY.



ELEVATION - BASIN CRANE STRUCTURES

1:200

NOTES:

1. FOR BASIN CRANE STRUCTURES NOTES, SEE DWG 14-350-W003.
2. FOR WORKPOINT COORDINATES, SEE DWG 14-350-W004.

PRELIMINARY
NOT FOR CONSTRUCTION
2018/05/12

REVISIONS				REVISIONS			
E				K			
D				J			
C				H			
B	ISSUED FOR TENDER (IFT)	19/02/01		G			
A	ISSUED FOR 70% CLIENT REVIEW	18/05/10		F			

SNC·LAVALIN
SNC Project Number: 654352

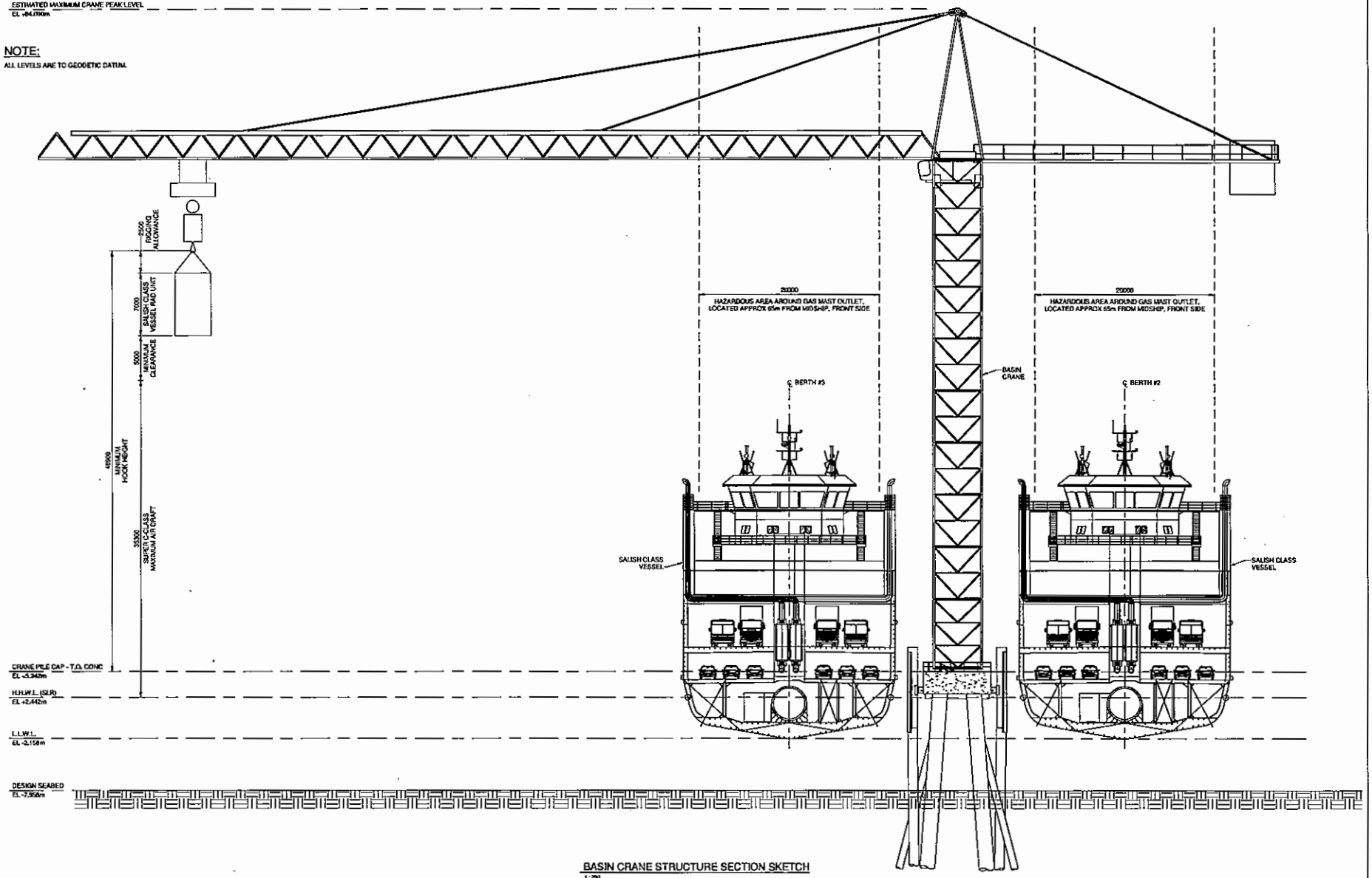
REVIEWED FOR USE IN CONSTRUCTION
DRAWN BY: R. MARTIN
DESIGN BY: Q. WEI
DATE: 2018/05/12
CHECKED BY: P. DEVLIN
FILE No.: 14-350
SCALE: 1 : 200
PAGE SIZE: A1 (841x594mm)

BCFerries
British Columbia Ferry Services Inc.

FLEET MAINTENANCE UNIT (FMU)
FMU DEVELOPMENT PROJECT
BASIN CRANE STRUCTURES
PLAN AND ELEVATION
DRAWING No.: 14-350-W030 B
CANCEL PRINTS BEARING EARLIER ISSUE #

Plan # h

CNCL - 406



BASIN CRANE STRUCTURE SECTION SKETCH
1 : 250

E			
D			
C			
B	ISSUED FOR INFORMATION	2019/04/16	PD
A	ISSUED FOR REVIEW	2019/03/12	
REVISIONS		YEAR	BY

SNC·LAVALIN
SNCL Project Number: 654352

REVIEWED FOR USE IN CONSTRUCTION:
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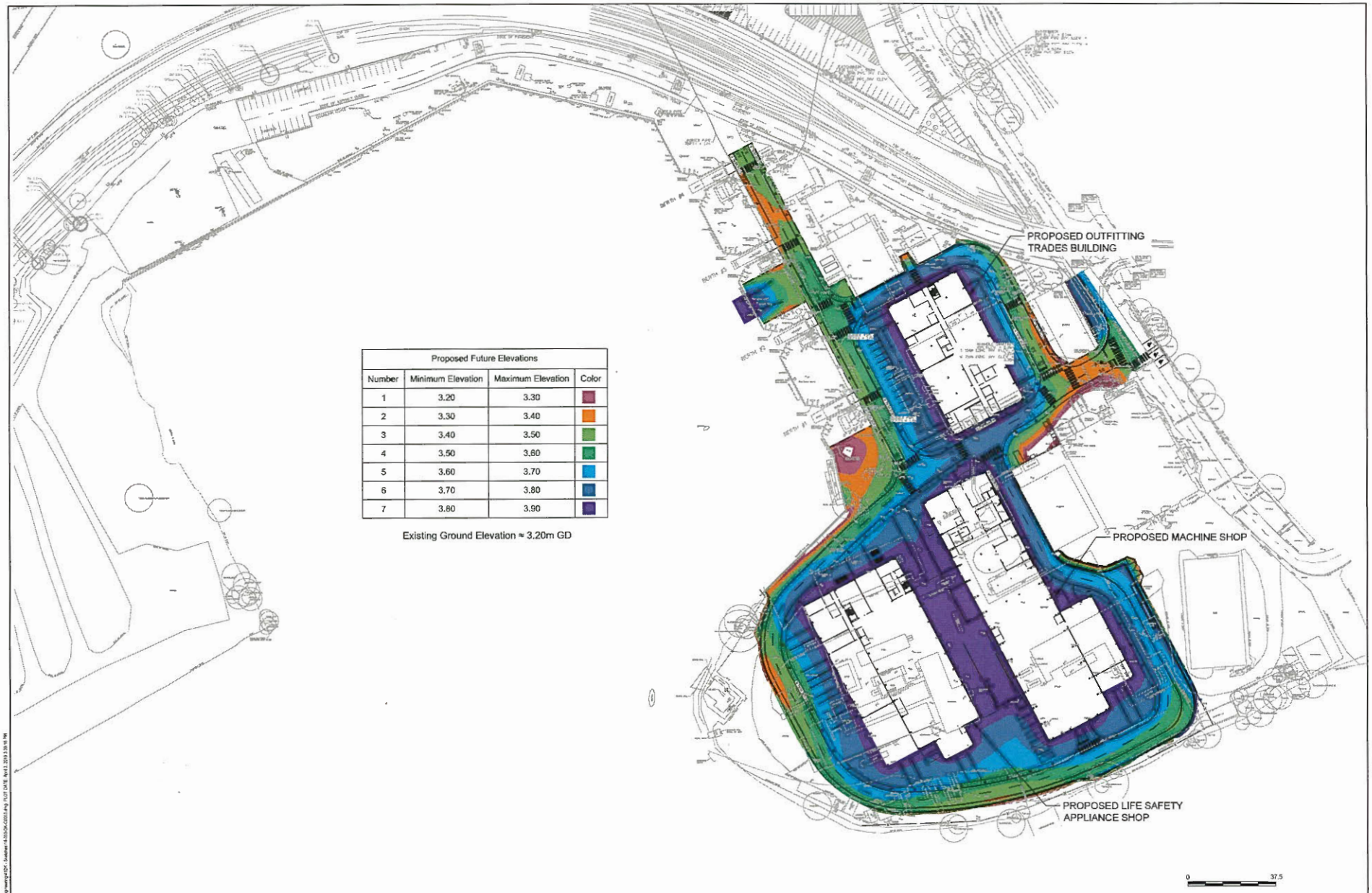
FILE No.: 14-350 SCALE: 1 : 250
PAGE SIZE: A1 (841x594mm)

BCFerries
British Columbia Ferry Services Inc.

FLEET MAINTENANCE UNIT (FMU)
FMU DEVELOPMENT PROJECT
BASIN CRANE STRUCTURE
SECTION
DRAWING No.: 14-350-BC-4PDK-0001 | B

Plan #i

CNCL - 407



Proposed Future Elevations			
Number	Minimum Elevation	Maximum Elevation	Color
1	3.20	3.30	
2	3.30	3.40	
3	3.40	3.50	
4	3.50	3.60	
5	3.60	3.70	
6	3.70	3.80	
7	3.80	3.90	

Existing Ground Elevation ≈ 3.20m GD

REVISIONS			REVISIONS		
E			K		
D			J		
C			H		
B			G		
A			F		

SNC·LAVALIN

DACI Project Number: 654307

REVIEWED FOR ISSUE IN CONSTRUCTION

DRAWN BY: A. AFANASEVA | DESIGN BY: F. VASILCHIKOV

DATE: 2019-02-26 | CHECKED BY: S. S. DEEPAK

FILE No.: 14-350 | SCALE: 1:750 FULL SIZE

BCFerries

British Columbia Ferry Services Inc.

FLEET MAINTENANCE UNIT (FMU)

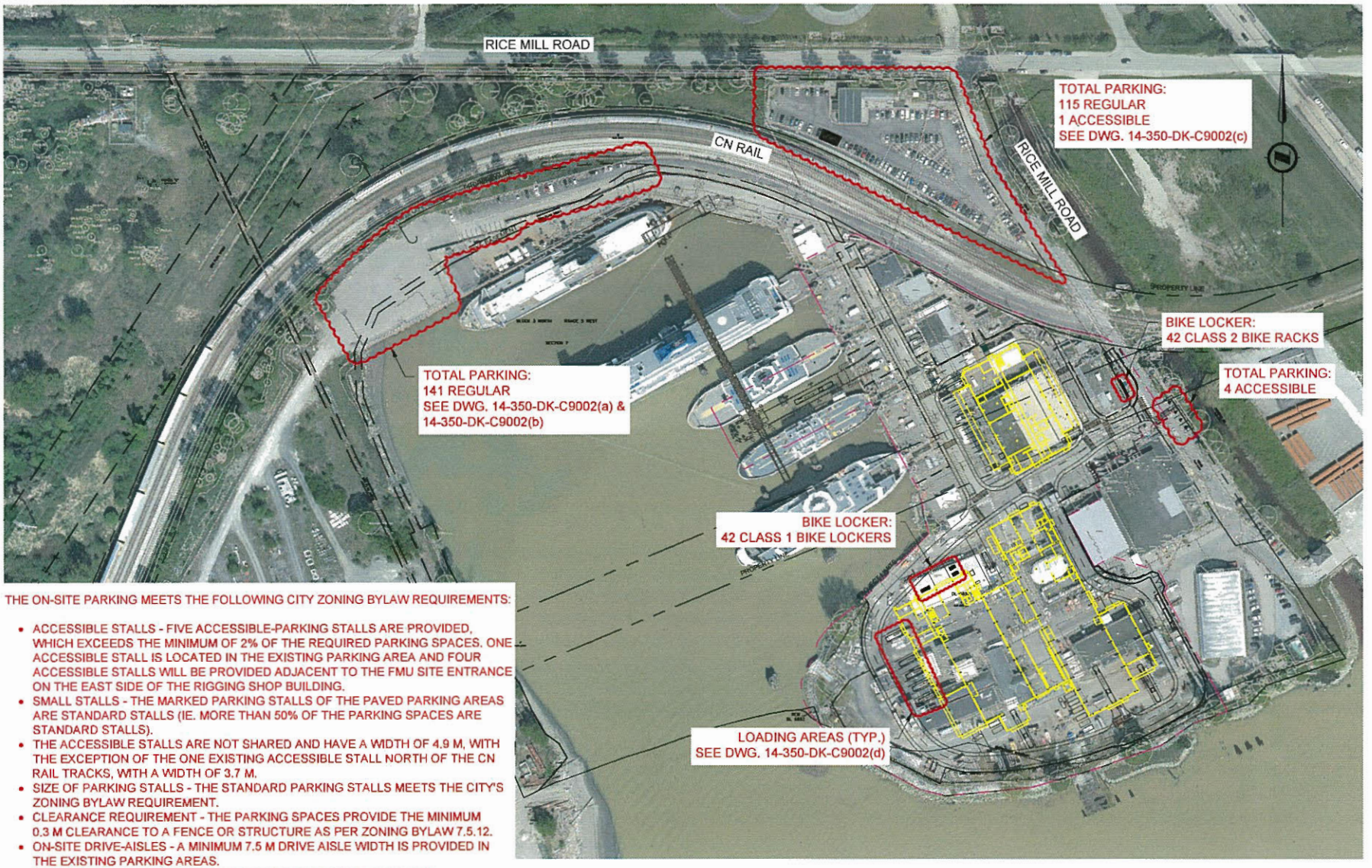
9060

FMU DEVELOPMENT PROJECT
OVERALL SITE

GRADING PLAN

DRAWING No.: 14-350-DK-C0053

Plan # j



THE ON-SITE PARKING MEETS THE FOLLOWING CITY ZONING BYLAW REQUIREMENTS:

- ACCESSIBLE STALLS - FIVE ACCESSIBLE-PARKING STALLS ARE PROVIDED, WHICH EXCEEDS THE MINIMUM OF 2% OF THE REQUIRED PARKING SPACES. ONE ACCESSIBLE STALL IS LOCATED IN THE EXISTING PARKING AREA AND FOUR ACCESSIBLE STALLS WILL BE PROVIDED ADJACENT TO THE FMU SITE ENTRANCE ON THE EAST SIDE OF THE RIGGING SHOP BUILDING.
- SMALL STALLS - THE MARKED PARKING STALLS OF THE PAVED PARKING AREAS ARE STANDARD STALLS (IE. MORE THAN 50% OF THE PARKING SPACES ARE STANDARD STALLS).
- THE ACCESSIBLE STALLS ARE NOT SHARED AND HAVE A WIDTH OF 4.9 M, WITH THE EXCEPTION OF THE ONE EXISTING ACCESSIBLE STALL NORTH OF THE CN RAIL TRACKS, WITH A WIDTH OF 3.7 M.
- SIZE OF PARKING STALLS - THE STANDARD PARKING STALLS MEETS THE CITY'S ZONING BYLAW REQUIREMENT.
- CLEARANCE REQUIREMENT - THE PARKING SPACES PROVIDE THE MINIMUM 0.3 M CLEARANCE TO A FENCE OR STRUCTURE AS PER ZONING BYLAW 7.5.12.
- ON-SITE DRIVE-AISLES - A MINIMUM 7.5 M DRIVE AISLE WIDTH IS PROVIDED IN THE EXISTING PARKING AREAS.
- THE NEWLY ADOPTED (2018-09-05) CHANGE TO ZONING BYLAW 8500 REGULATING THE PROVISION OF ACCESSIBLE PARKING SPACES.

REVISIONS			
E			
D			
C			
B			
A			

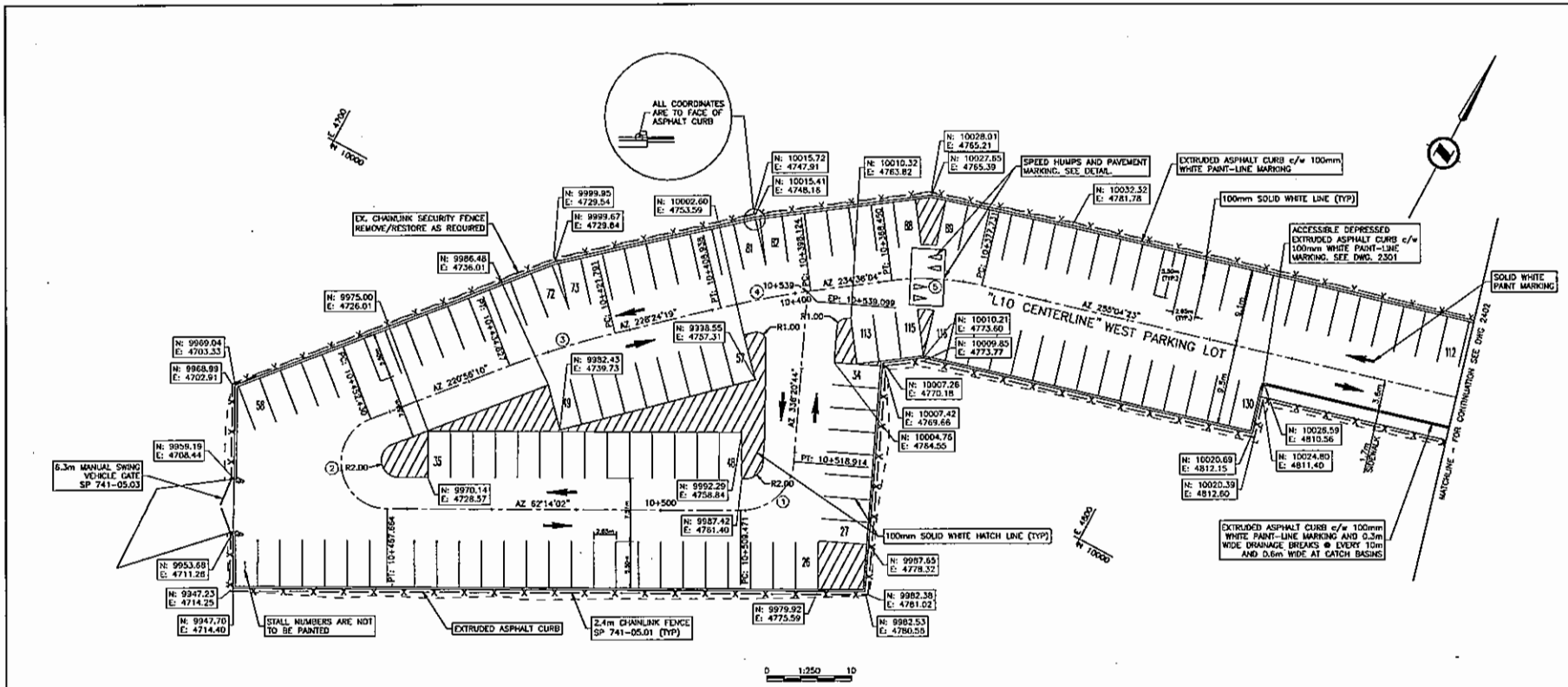
SNC·LAVALIN
SNCL Project Number: 654352

REVIEWED FOR USE IN CONSTRUCTION
DRAWN BY: D. LIU
DESIGN BY:
DATE: 19/02/21
CHECKED BY:
FILE No.: 14-350
SCALE: 1:1000 FULL SIZE

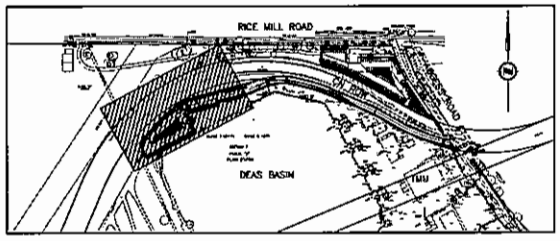
BCFerries
British Columbia Ferry Services Inc.

FLEET MAINTENANCE UNIT (FMU)
FMU DEVELOPMENT PROJECT
OVERALL SITE
PARKING PLAN
DRAWING No. 14-350-DK-C9002 A
CANCEL PRINTS BEARING EARLIER REVISION

Plan # K



WEST BASIN LOT



KEYPLAN

E				K			
D				J			
C				H			
B				G			
A				F			
REVISIONS		Y/M/D	BY	REVISIONS		Y/M/D	BY

REVIEWED FOR USE IN CONSTRUCTION
DRAWN BY: DESIGN BY:
DATE: CHECKED BY:
FILE No.: 14-350 SCALE: 1:250
PAGE SIZE: A1 (841x594mm)

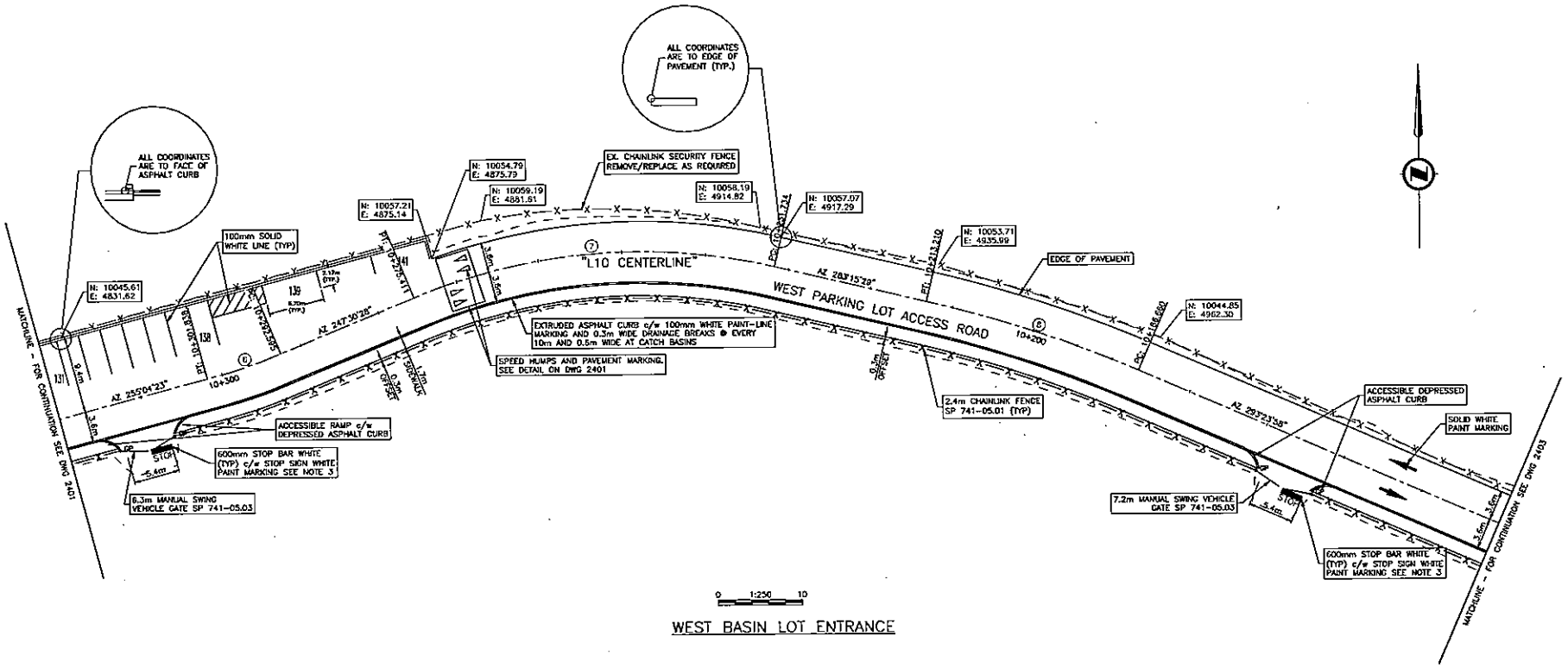
BCFerries
British Columbia Ferry Services Inc.

FLEET MAINTENANCE UNIT (FMU)
90990
FMU DEVELOPMENT PROJECT
OVERALL SITE
PARKING PLAN
DRAWING No.: 14-350-DK-C9002(a) A
CANCEL PRINTS BEARING EARLIER REVISION

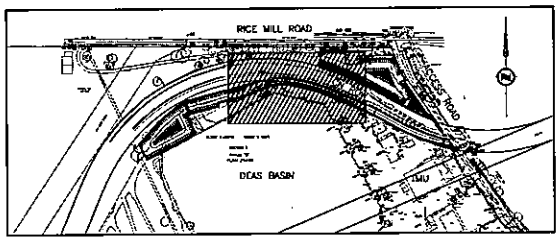
CNCL - 409

Plan # 1

CNCL - 410



WEST BASIN LOT ENTRANCE



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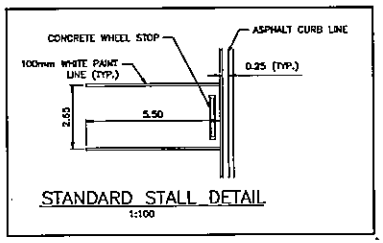

STANDARD STALL DETAIL
1:100

REVISIONS	Y/M/D	BY
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REVISIONS	Y/M/D	BY
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REVIEWED FOR USE IN CONSTRUCTION

DRAWN BY: DESIGN BY:

DATE: CHECKED BY:

FILE No.: 14-350 SCALE: 1:250

PAGE SIZE: A1 (841x594mm)

BCFerries
British Columbia Ferry Services Inc.

FLEET MAINTENANCE UNIT (FMU)

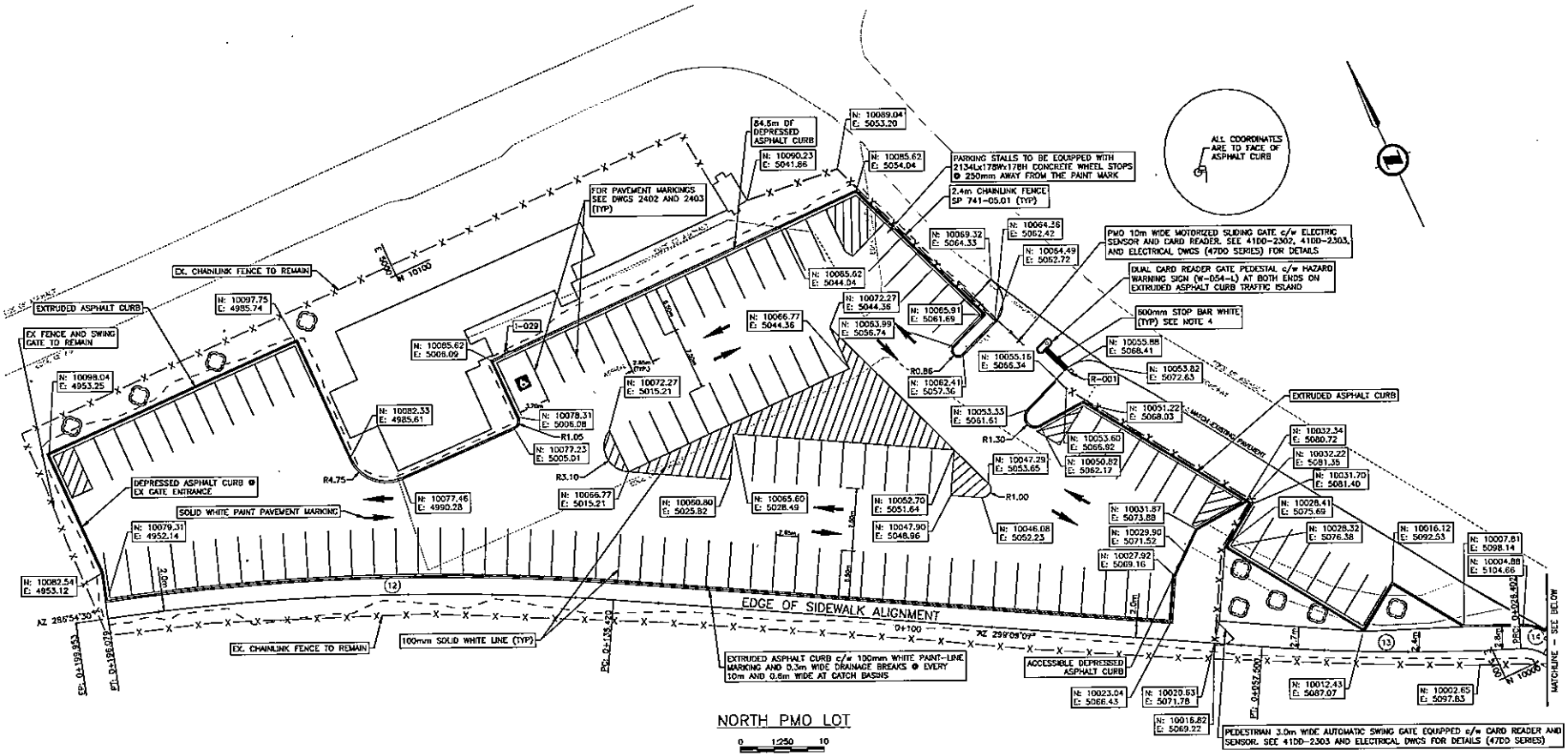
90960
FMU DEVELOPMENT PROJECT
OVERALL SITE

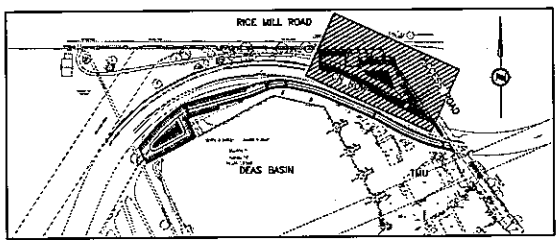
PARKING PLAN

DRAWING No.: 14-350-DK-C9002(b) A
CANCEL PRINTS BEARING EARLIER REVISION

Plan #m

CNCL - 411





KEYPLAN

REVISIONS	Y/M/D	BY	REVISIONS	Y/M/D	BY
E			K		
D			J		
C			H		
B			G		
A			F		

REVIEWED FOR USE IN CONSTRUCTION

DRAWN BY: DESIGN BY:

DATE: CHECKED BY:

FILE No.: 14-350 SCALE: 1:250

PAGE SIZE: A1 (841x594mm)

BCFerries
British Columbia Ferry Services Inc.

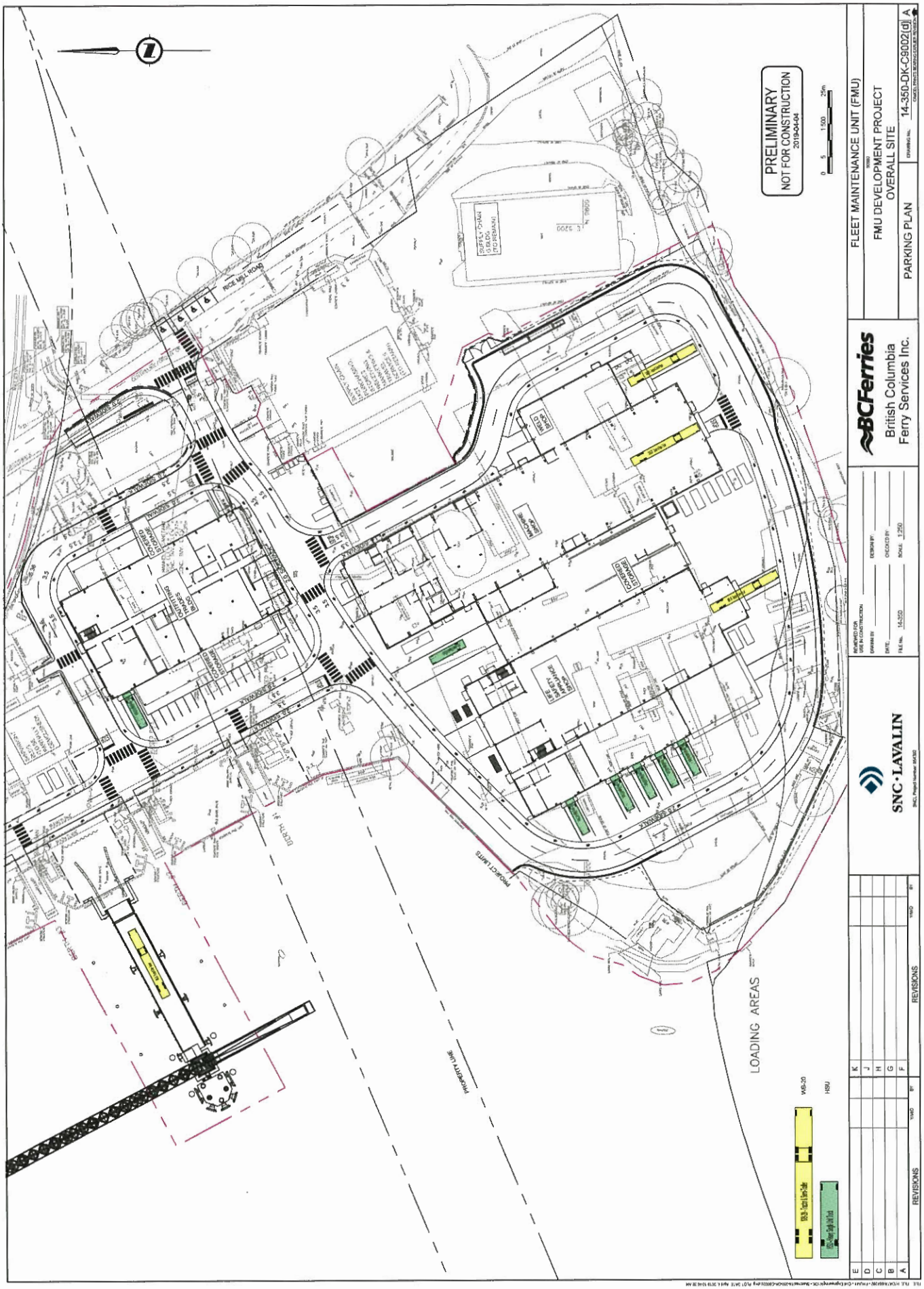
FLEET MAINTENANCE UNIT (FMU)

90980
FMU DEVELOPMENT PROJECT
OVERALL SITE

PARKING PLAN

DRAWING No.: 14-350-DK-C9002(c) | A
CANCEL PRINTS BEARING EARLIER REVISION

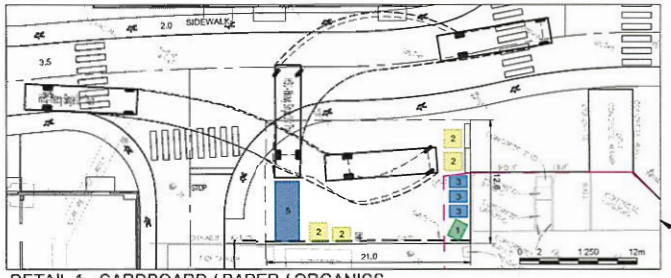
Plan #5


PRELIMINARY
NOT FOR CONSTRUCTION
2019-04-04
RICE MILL ROAD
LOADING AREAS
PROPERTY LINE
PROJECT LIMITS
FLEET MAINTENANCE UNIT (FMU)
FMU DEVELOPMENT PROJECT
OVERALL SITE
PARKING PLAN
14-350-DK-C9002 [d]
BCFerries
British Columbia
Ferry Services Inc.
SNC·LAVALIN
REVISIONS

Plan #0

CNCL - 413

CARDBOARD / PAPER / ORGANICS						
SIZE	264 m²					
LOCATION	SOUTH OF OUTFITTING BLDG					
ACCESS INFORMATION	GROUND FLOOR, GATED OUTSIDE AREA					
BIN TYPE	No. BINS	FOOTPRINT OF BIN (m²)	COLLECTION SERVICE	WASTE SERVICE PROVIDED	STORAGE AREA REQUIRED (m²)	COLLECTION FREQUENCY
4 YARD	1	2.51	PROGRESSIVE WASTE	ORGANICS	5.65	1/WEEK
4 YARD	1	2.51	PROGRESSIVE WASTE	PAPER / CARDBOARD	5.65	ON CALL
8 YARD	3	3.35	PROGRESSIVE WASTE	PAPER / CARDBOARD	22.6	1/WEEK
96 gal TOTE	1	0.50	PROGRESSIVE WASTE	GLASS	1.29	1/YEAR
20 YARD	1	14.9	PROGRESSIVE WASTE	HARD PLASTIC	33.46	1/MONTH
2 YARD	3	2.3	WEST COAST PLASTIC RECYCLING INC.	SOFT PLASTIC	15.53	1/MONTH
SPACE ALLOCATION FOR STORAGE FACILITY □NUMBER OF CONTAINERS □FOOTPRINT OF EACH CONTAINER □ MANEUVER FACTOR						
SPACE ALLOCATION FOR STORAGE FACILITY NEEDED				84.17 m²		

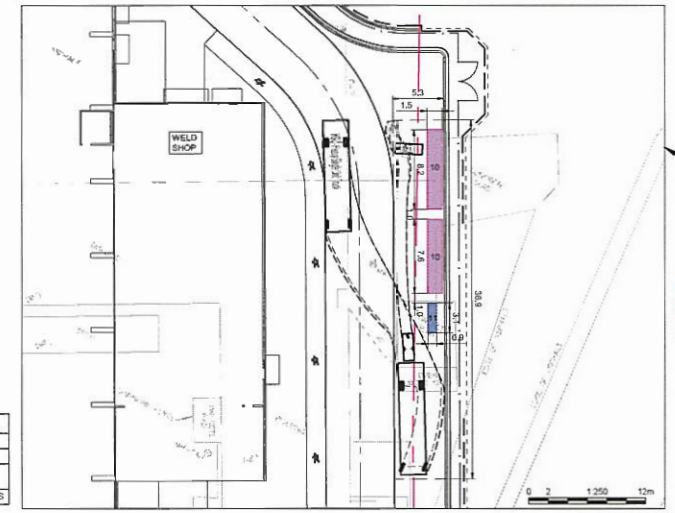


DETAIL 1 - CARDBOARD / PAPER / ORGANICS

HAZARDOUS WASTE STORAGE AND COLLECTION AREA				
ACCESS INFORMATION	CHEMICAL STORAGE BUILDING CAPACITY OF 48 DRUMS (55 gal EACH DRUM)			
LOCATION	NE OF THE SITE			
SIZE OF CONTAINER	2.0 □ 0.5 □			
No. DRUMS	WASTE SERVICE PROVIDED	COLLECTION SERVICE	COLLECTION FREQUENCY	STORAGE ON SITE
8/MONTH	PAINT	TERRAPURE	2/MONTH	4
8/MONTH	LEAD PAINT CHIPS	TERRAPURE	2/MONTH	4
2/MONTH	GASOLINE	TERRAPURE	2/MONTH	1
4/MONTH	OIL	TERRAPURE	2/MONTH	2
TOTAL No. 55 GALLON DRUMS REQUIRED: 11 DRUMS				

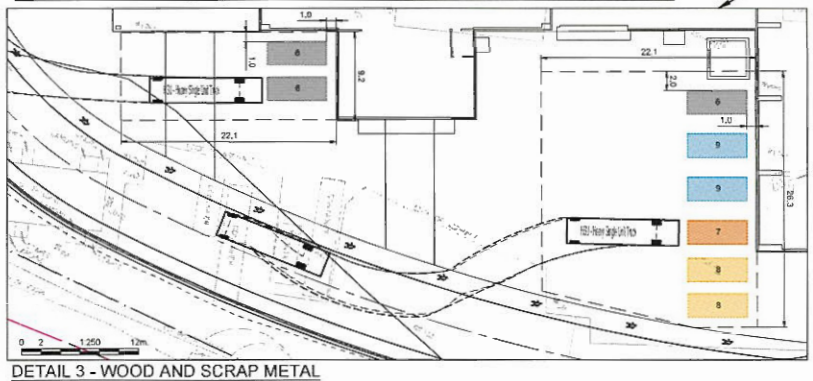
HAZARDOUS WASTE STORAGE AND COLLECTION AREA				
ACCESS INFORMATION	CHEMICAL STORAGE BUILDING CAPACITY OF 10 TOTES (1000 L EACH TOTE)			
LOCATION	NE OF THE SITE			
SIZE OF CONTAINER	2.5 □ 0.5 □			
No. TOTES	WASTE SERVICE PROVIDED	COLLECTION SERVICE	COLLECTION FREQUENCY	STORAGE ON SITE
2/MONTH	OIL	TERRAPURE	2/MONTH	1
15/MONTH	BILGE WATER	TERRAPURE	2/MONTH	8
2/MONTH	DIESEL	TERRAPURE	2/MONTH	1
TOTAL No. 1000 L TOTES REQUIRED: 10 DRUMS				

ASBESTOS WASTE STORAGE AND COLLECTION AREA					
LOCATION		NE OF THE SITE			
SIZE OF LOCKER		3 □ 1.0 □			
No. BINS	FOOTPRINT OF BIN (m²)	WASTE SERVICE PROVIDED	COLLECTION SERVICE	STORAGE AREA REQUIRED (m²)	COLLECTION FREQUENCY
1	2.25	ASBESTOS	TERRAPURE	2.25	1 EVERY 2 YEARS

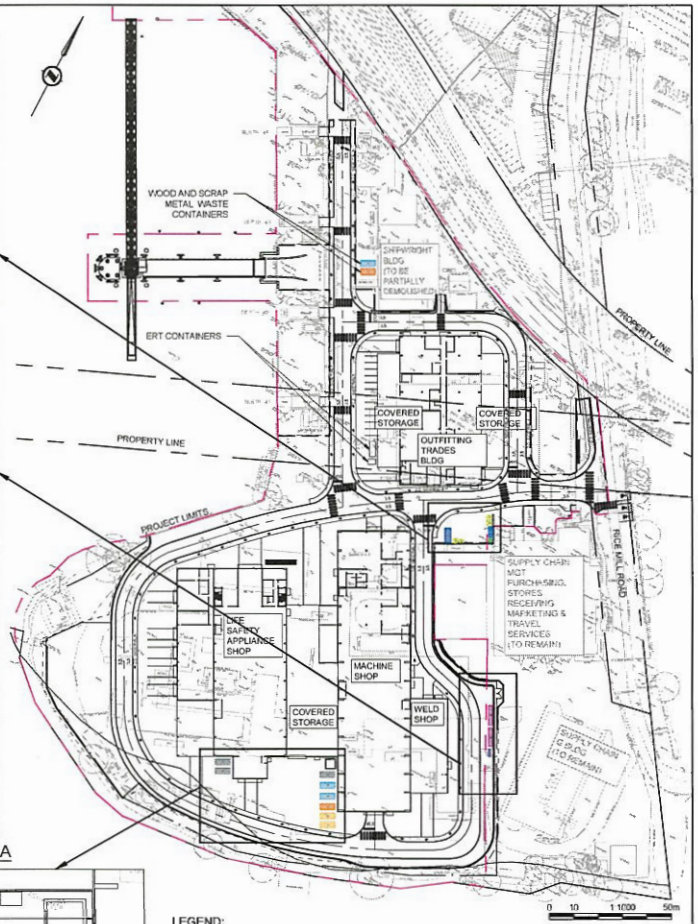


DETAIL 2 - HAZARDOUS WASTE / ASBESTOS STORAGE AND COLLECTION AREA

WOOD AND SCRAP METAL						
SIZE	751.6 m²					
LOCATION	SOUTH OF MACHINE SHOP					
ACCESS INFORMATION	GROUND FLOOR, GATED OUTSIDE AREA					
BIN TYPE	No. BINS	FOOTPRINT OF BIN (m²)	COLLECTION SERVICE	WASTE SERVICE PROVIDED	STORAGE AREA REQUIRED (m²)	COLLECTION FREQUENCY
40 YARD	1	14.80	PROGRESSIVE WASTE	WOOD	33.46	ON CALL
40 YARD	2	14.80	PROGRESSIVE WASTE	WOOD PALLETS	66.91	ON CALL
20 YARD	2	14.80	PROGRESSIVE WASTE	SCRAP METAL	66.91	ON CALL
40 YARD	3	14.80	PROGRESSIVE WASTE	GARBAGE	100.36	1/WEEK
SPACE ALLOCATION FOR STORAGE FACILITY □NUMBER OF CONTAINERS □FOOTPRINT OF EACH CONTAINER □ MANEUVER FACTOR						
SPACE ALLOCATION FOR STORAGE FACILITY NEEDED				267.68 m²		



DETAIL 3 - WOOD AND SCRAP METAL



LEGEND:

1	COMPOST BIN		TRUCK
2	PAPER / CARDBOARD		FORKLIFT
3	SOFT PLASTIC (EG. PLASTIC BAGS AND WRAPS)		
4	GLASS		TRUCK PATH
5	HARD PLASTIC		
6	GARBAGE		WASTE LOADING AREA
7	WOOD		
8	WOOD PALLETS		
9	SCRAP METAL		
10	HAZARDOUS WASTE		
11	ASBESTOS		

PRELIMINARY
NOT FOR CONSTRUCTION
2018-12-18

NOTES:
1. A MANEUVER FACTOR OF 2.25 WAS USED FOR ALL BIN TYPES.
2. THIS PLAN IS BASED ON CURRENT WASTE DISPOSAL VOLUMES. THE CAPACITY OF THE HAZARDOUS WASTE STORAGE AND THE SIZE OF THE BIN TYPE ALLOWS FOR AN INCREASE IN WASTE DIVERSION THAT IS ANTICIPATED FOR THIS FACILITY UNTIL 2030.
3. THIS IS A LIVING DOCUMENT. THEREFORE WILL BE REVIEWED AND UPDATED TO ACCOUNT FOR CHANGES THAT MAY IMPACT ON WASTE MANAGEMENT.

REVISIONS					REVISIONS			
E					K			
D					J			
C					H			
B	ISSUED FOR CLIENT REVIEW	2018-12-18	SSD		G			
A	ISSUED FOR CLIENT REVIEW	2018-11-09	SSD		F			

SNC·LAVALIN
SNCL Project Number 654092

REVIEWED FOR USE IN CONSTRUCTION
DRAWN BY: A. AFANASIEVA
DESIGN BY: A. AFANASIEVA
DATE: 2018-12-18
CHECKED BY: V. THAMM / D. MCWALTER
FILE No.: 14-350
SCALE: AS NOTED

BCFerries
British Columbia Ferry Services Inc.

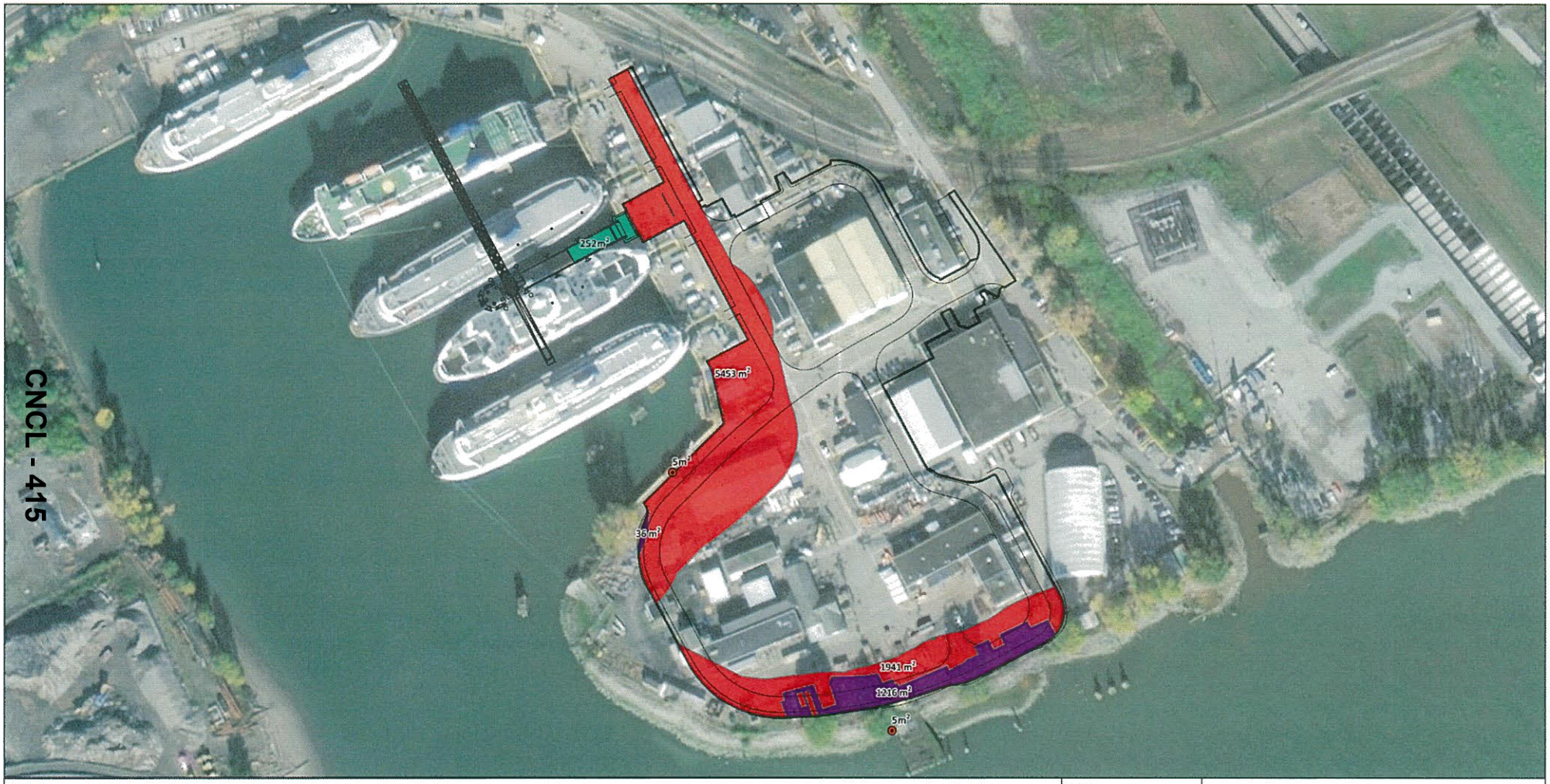
FLEET MAINTENANCE UNIT (FMU)
FMU DEVELOPMENT PROJECT
OVERALL SITE
WASTE MANAGEMENT PLAN
DRAWING No. 14-350-C0031 B

Plan # P

Figure 4: City of Richmond Environmentally Sensitive Areas and Riparian Management Areas

Plan # 8

Figure 14: Area in ESA SH-5 and IT-5 Impacted by the Proposed Development



Legend

- Outfalls
- Roadwork Extent
- Proposed Crane and Pier Design
- ESA IT-5 Overlap
- ESA SH-5 Overlap
- Poor to Low Quality Habitat (Vegetated)
- Impervious (Non-Vegetated)
- Disturbance Area

Notes:
Field data collected March 2018

References:
SNC-Lavalin, City of Richmond, BC Ferries, DataBC, ESRI Base Layers

SNC·LAVALIN

Client Name: BC Ferries

Project Location: Deas FMU, Richmond

N

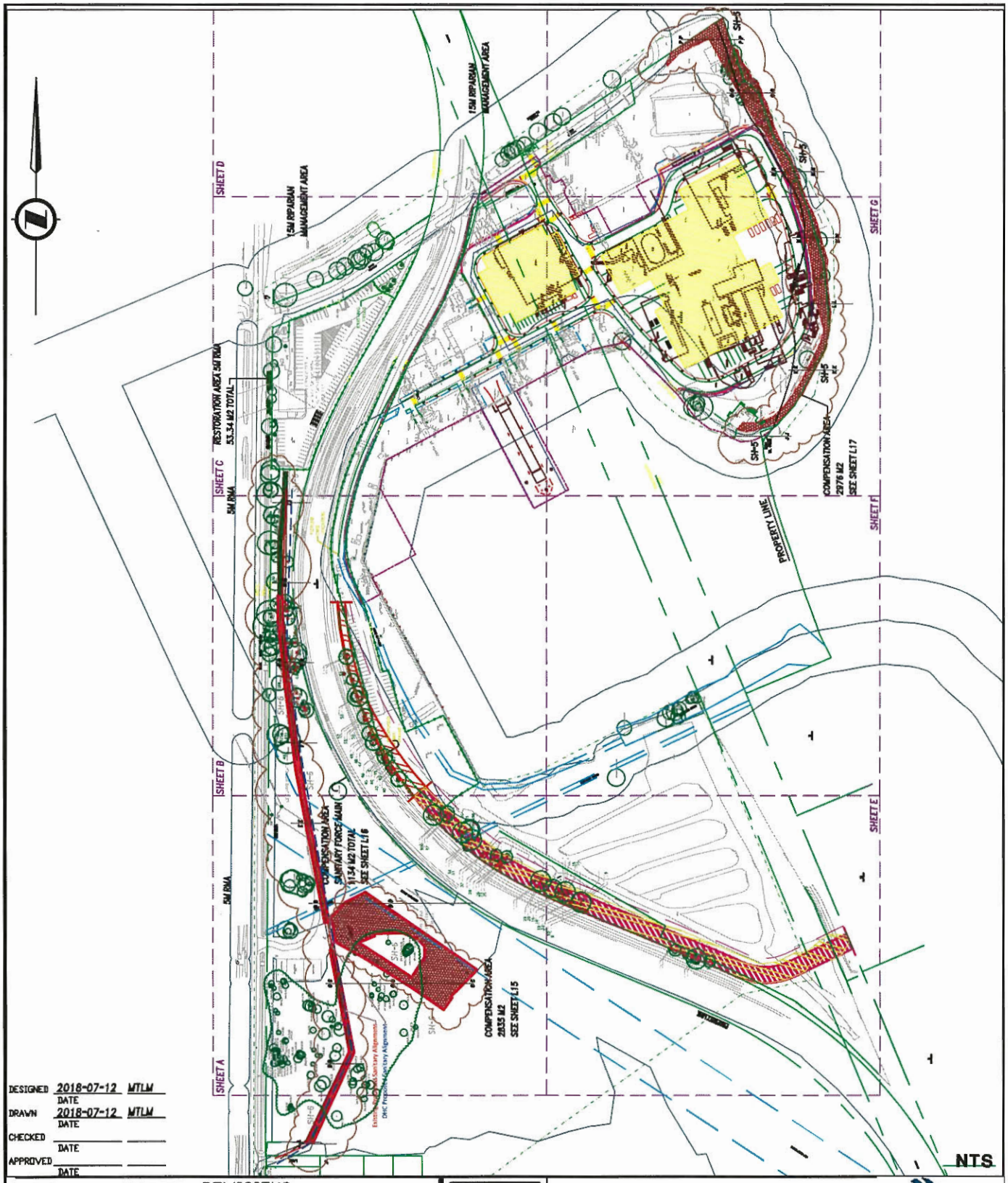
Scale: 1:1,600

0 0.01 0.03 0.05 0.08 0.1 Kilometers

Reviewer: RS Creator: ECH Date: 2019/03/05 REF No: 627732-024

MXD Path: \\SII2600\projects\Current Projects\SNC-Lavalin Ports & Marine\627732 - BC Ferries Deas FMU\4.0 Execution\4.5 GIS and Drawings\GIS\627732_2\627732_2.aprx

Plan # 5



DESIGNED 2018-07-12 MTLM
DRAWN 2018-07-12 MTLM
CHECKED
APPROVED

REVISIONS

REV	DATE	DESCRIPTION	BY
1	2018-07-12	KEY PLAN	MTLM
2	2018-08-08	LANDSCAPE PLAN	DY
3	2019-03-07	REV. PER CITY COMMENTS; PROVIDE 8.5/11 DOC	MTLM
4	2019-03-23	REV. PER CLIENT COMMENTS; ADDIT. INFO	MTLM
5	2019-04-16	REV. PER CITY COMMENTS; CONSULTANT INFO	MTLM

M2 LANDSCAPE ARCHITECTURE

SNC·LAVALIN

FMU DEVELOPMENT PROJECT
RICE MILL ROAD, RICHMOND
LANDSCAPE MASTERPLAN

ESA COMPENSATION AREA KEYPLAN

PROVINCE CONTRACT No. 03902

SUB-CONSULTANT No. M2LAND-18-054

DRAWING No. L15

08

Plan #4

ARBORIST

549 — EXISTING TREE

549 — EXISTING TREE REMOVED

ARBORIST SCOPE OF WORK AREA

ARBORIST TREE PROTECTION FENCING
(BASED ON ARBORIST REPORT; UTILIZE EXISTING CHAINLINK)

ARCHITECTURE

AREA OF DISTURBANCE

PROPOSED BUILDINGS

EXISTING STRUCTURES TO BE REMOVED

STRUCTURES TO BE RETAINED

LANDSCAPE ARCHITECTURE

PROPOSED LANDSCAPE AREA

PROPOSED ESA COMPENSATION AREA
6945 M2 PROPOSED TOTAL

RIPARIAN MANAGEMENT AREAS AND ENVIRONMENTALLY SENSITIVE AREAS (ESA'S)

ENVIRONMENTALLY SENSITIVE AREA IT-5
INTERTIDAL (30M SEAWARD SETBACK)

HIGH WATER MARK

15M RIPARIAN MANAGEMENT AREA

ENVIRONMENTALLY SENSITIVE AREA (SH-5)
SHORELINE 30M ABOVE HIGH WATER MARK

ENVIRONMENTALLY SENSITIVE AREA (SH-6)
UPLAND FOREST, OLD FIELDS, AND SHRUBLANDS

5M RIPARIAN MANAGEMENT AREA

5M RIPARIAN MANAGEMENT AREA (RESTORATION AREA)
AND SANITARY FORCE MAIN RESTORATION AREA
TERRALINK SEED; RIPARIAN / WETLAND REVEGETATION
SEED MIX; PRODUCT #22200330, 50-100 LB/ACRE

ARCHITECTURAL DIKE LOCATION

PHASE 1 DIKE LOCATION

PHASE 2 DIKE LOCATION

FUTURE DIKE LOCATION

ARBORIST NOTES

1. PLEASE REFER TO ARBORIST REPORT BY DIAMOND HEAD CONSULTING FOR:
   BC FERRIES FMU FACILITY
   PHASE 2, 3 AND 4 ARBORIST REPORT IN SUPPORT OF DEVELOPMENT PERMIT
   12800 RICE MILL RD, RICHMOND, BC
   MARCH 25, 2019

2. THE ARBORIST REPORT IDENTIFIES THREE PHASES OF WORK THAT ARE PHYSICALLY SEPARATED FROM EACH OTHER: PHASE 2 (MAIN SITE), PHASE 3 (DIKE), AND PHASE 4 (SANITARY LINE).

3. TREE FENCING IS REQUIRED IN TWO LOCATIONS:
   a. IN THE PHASE 2 AREA, FENCING IS REQUIRED ALONG THE FRASER RIVER IN THE LOCATION OF THE PROPOSED HABITAT PROTECTION ZONE IN ORDER TO PROTECT THE MATURE TREES THAT WILL BE RETAINED. THE HABITAT PROTECTION ZONE WILL RESULT IN A LARGER, PERMANENT TREE PROTECTION ZONE THAN CURRENTLY EXISTS. THE FENCING SHOULD BE INSTALLED IN THE LOCATION OF THE EXISTING CHAIN-LINK FENCE AS A MINIMUM.
   b. IN THE PHASE 4 AREA, FENCING IS REQUIRED WHERE THE NEW SANITARY LINE WILL BE INSTALLED. THIS FENCING WILL PROTECT MATURE TREES ALONG RICE MILL RD.

4. TREE TOTALS FROM PHASE 2 INCLUDE TREES THAT HAVE SINCE BEEN CONFIRMED TO BE OFF-SITE INCLUDING THE ONE HIGH RISK TREE 549. COMPLETE TREE INVENTORIES HAVE NOT BEEN GIVEN AS A RESULT OF CHANGING INFORMATION AND ONGOING REVISIONS. THE REPORT WILL FOCUS ON TREE REMOVALS AND TREE PROTECTION ADJACENT TO DEVELOPMENT. ONE ON-SITE TREE IN THE PHASE 2 SECTION WILL BE REMOVED DUE TO CONFLICTS.
   A TOTAL OF 82 TREES HAVE BEEN IDENTIFIED FOR REMOVAL DUE TO CONFLICTS: 1 TREE IN THE PHASE 2 AREA (MAIN SITE); 59 TREES IN THE PHASE 3 AREA (DIKE); AND 22 TREES IN THE PHASE 4 AREA (SANITARY LINE).

5. TREE REPLACMENT WILL BE AT A 2:1 RATIO, AS CONFIRMED BY THE CITY OF RICHMOND. WITH 82 TREES TO BE REMOVED, THAT WILL REQUIRE 164 REPLACEMENT TREES. IF TREES CANNOT BE PLANTED ON-SITE, THE CITY WILL DETERMINE THE COMPENSATION FOR THE DEFICIT.

6. NO TREES NOTED ON ADJACENT SITES THAT HAVE POTENTIAL TO BE IMPACTED BY WORK ON SITE.

ENVIRONMENTAL NOTES:

1. PLEASE REFER TO BC FERRIES FLEET MAINTENANCE UNIT (FMU) DEVELOPMENT PROJECT ENVIRONMENTAL ASSESSMENT REPORT; ENVIRONMENTALLY SENSITIVE AREA (ESA) DEVELOPMENT PERMIT REPORT BY SNC LAVALIN DATED: JUNE 04, 2018 CONSISTS OF REPORT FOR BOTH RIPARIAN/AQUATIC AND TERRESTRIAL AREAS

2. THREE AREAS OF ESA DELINEATED WITHIN THE SITE; SHELLMONT SOUTH SH-6 (UPLAND FOREST, OLD FIELDS AND SHRUBLANDS), SHELLMONT DYKE SH-5 (SHORELINE) AND LULU ISLAND FORESHORE IT-5 (INTERTIDAL). THE PROJECT IS NOT EXPECTED TO AFFECT THE EXISTING CONNECTIVITY OF THE ESA'S.

3. THE MAJORITY OF CONSTRUCTION WILL TAKE PLACE ON PREVIOUSLY DEVELOPED LANDS. SPECIFIC PROPOSED CONSTRUCTION WORKS WITHIN THE SITE THAT HAVE THE POTENTIAL TO AFFECT FISH OF WILDLIFE HABITAT ARE: INSTALLATION OF NEW CRANE IN THE EASTERN AREA OF THE DEAS BASIN. CONSTRUCTION OF A PORTION OF THE FLOOD PROTECTION DIKE SYSTEM.

4. NO VEGETATION SPECIES AT RISK WERE NOTED AT TIME OF SITE VISIT (PLEASE SEE REPORT FOR FULL DISCUSSION OF SPECIES). TWO WILDLIFE SPECIES AT RISK WERE OBSERVED (DOUBLE CRESTED CORMORANT AND GREAT BLUE HERON). NO NESTING COLONIES ARE PRESENT IN OR NEAR THE SITE.

5. UNNAMED DITCH AT RICE MILL ROAD; NOT CONNECTED TO SLOUGH AT EAST END AND CONNECTED TO CITY OF RICHMOND SEWER DRAINAGE SYSTEM TO THE WEST; NOT CONSIDERED FISH HABITAT. DESIGNATED A 5M RMA BY CITY.

6. UNNAMED SLOUGH EAST OF SITE; WITH GRAVITY DRAINAGE PUMP SYSTEM; SMALL FISH SPECIES NOTED IN SAMPLING. SALMONIDS AND SPAWNING HABITAT CONSIDERED POOR DUE TO CHANNEL SUBSTRATES. REARING HABITAT MODERATE, OVERWINTERING HABITAT MODERATE TO GOOD. DESIGNATED A 15M RMA BY CITY.

7. PLEASE SEE ENVIRONMENTAL REPORT FOR AREA CALCULATIONS OF DISTURBANCE TO ESA'S. GENERALLY, SCOPE OF WORK OF DP AREA WILL HAVE LIMITED IMPACT WITH VEGETATED AREAS. FOOTPRINT WILL OVERLAP APPROX. 9028 M2 OF SHORELINE (MAJORITY OF WHICH IS DEVELOPED PAVED, GRAVELLED INDUSTRIAL LAND). NO VEGETATION SPECIES AT RISK ARE KNOWN TO BE PRESENT ON THE SITE AND THE SITE HAS LIMITED POTENTIAL FOR OCCURRENCES OF PLANT SPECIES OF RISK DUE TO HISTORIC CONTEXT. DP AREA FOOTPRINT DOES NOT OVERLAP SENSITIVE TERRESTRIAL WILDLIFE HABITAT.

8. HABITAT COMPENSATION AREAS IS DISCUSSED IN ENVIRONMENTAL REPORT; TOTAL AREA IS 2976 M2 AT SHORELINE, 2835 M2 AT UPLANDS AND 1134 M2 AT SANITARY LINE RESTORATION; 6945 M2 TOTAL. M2 LANDSCAPE ARCHITECTURE WILL PROVIDE PLANTING PLAN IN COORDINATION WITH SNC. SEE SHEETS L13-L15 FOR SUGGESTED HATCHES FOR PLANTING PLAN. SHELLMONT SOUTH SH-6 (UPLAND FOREST, OLD FIELDS AND SHRUBLANDS), SHELLMONT DYKE SH-5 (SHORELINE) ARE DENOTED AS COMPENSATION AREAS

9. AN IRRIGATION SYSTEM COMPRISED OF WATER HOSES AND SPRINKLERS WILL BE TEMPORARILY ESTABLISHED IN THE AREA AND OPERATED BY A TIMER (BASED ON SEASON). FOR THE FIRST THREE MONTHS POST-PLANTING, THE COMPENSATION AREAS WILL BE IRRIGATED DAILY TO PROMOTE OPTIMAL SOIL-WATER BUDGET CONDITIONS FOR ESTABLISHMENT. FOR THE REMAINDER OF THE FIRST YEAR, POST-PLANTING, THE COMPENSATION AREAS WILL BE IRRIGATED WEEKLY. FOR THE NEXT TWO YEARS THE COMPENSATION AREAS WILL BE IRRIGATED WEEKLY DURING SPRING AND SUMMER.

DESIGNED	2018-07-12	MTLM
DRAWN	2018-07-12	MTLM
CHECKED		
APPROVED		

(DATE)

REVISIONS

REV	DATE	DESCRIPTION	BY
1	2018-07-12	KEY PLAN	MTLM
2	2018-08-08	LANDSCAPE PLAN	DY
3	2019-03-07	REV. PER CITY COMMENTS; PROVIDE 8.5/11 DOC	MTLM
4	2019-03-25	REV. PER CLIENT COMMENTS; ADDIT. INFO	MTLM
5	2019-04-16	REV. PER CITY COMMENTS; CONSULTANT INFO	MTLM

M2 LANDSCAPE ARCHITECTURE

FMU DEVELOPMENT PROJECT
RICE MILL ROAD, RICHMOND
LANDSCAPE MASTERPLAN
CONSULTANT REPORT NOTES

SNC·LAVALIN

PROVINCE CONTRACT No. 03902

SUB-CONSULTANT No. M2LAND-18-054

DRAWING No. L3

08

PLANT SCHEDULE — SH-6 PLANT MATERIAL — M2 JOB NUMBER: 18-045

KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANTED SIZE / REMARKS
TREE				
	15	ALNUS RUBRA	RED ALDER	8CM CAL; B&B
	15	CORNUS NUTTALLII	PACIFIC DOGWOOD	8CM CAL; B&B
	15	PSEUDOTSUGA MENZIESII	DOUGLAS FIR	4M HT; B&B
SHRUB				
A2	311	ANAPHALIS MARGARITACEA	PEARLY EVERLASTING	#1 POT
G	810	GAULTHERIA SHALLON	SALAL	#2 POT; 1M O.C.
PP	94	PHYSOCARPUS CAPITATUS	PACIFIC NINE-BARK	#2 POT
R	446	ROSA NUTKANA	NOOTKA ROSE	#2 POT
SA	448	SAMBUCUS RACEMOSA	ELDERBERRY	#2 POT; 40CM
SY	335	SYMPHORICARPOS ALBUS	SNOWBERRY	#2 POT; 30CM
PERENNIAL				
L2	344	LUPINUS POLYPHYLLUS	LARGE LEAF LUPINE	#2 POT

NOTES: * PLANT SIZES IN THIS LIST ARE SPECIFIED ACCORDING TO THE BC LANDSCAPE STANDARD, LATEST EDITION. CONTAINER SIZES SPECIFIED AS PER CNTA STANDARDS. BOTH PLANT SIZE AND CONTAINER SIZE ARE THE MINIMUM ACCEPTABLE SIZES. * REFER TO SPECIFICATIONS FOR DEFINED CONTAINER MEASUREMENTS AND OTHER PLANT MATERIAL REQUIREMENTS. * SEARCH AND REVIEW: MAKE PLANT MATERIAL AVAILABLE FOR OPTIONAL REVIEW BY LANDSCAPE ARCHITECT AT SOURCE OF SUPPLY. AREA OF SEARCH TO INCLUDE LOWER MAINLAND AND FRASER VALLEY. * SUBSTITUTIONS: OBTAIN WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT PRIOR TO MAKING ANY SUBSTITUTIONS TO THE SPECIFIED MATERIAL. UNAPPROVED SUBSTITUTIONS WILL BE REJECTED. ALLOW A MINIMUM OF FIVE DAYS PRIOR TO DELIVERY FOR REQUEST TO SUBSTITUTE. SUBSTITUTIONS ARE SUBJECT TO BC LANDSCAPE STANDARD - DEFINITION OF CONDITIONS OF AVAILABILITY.

ALL PLANT MATERIAL MUST BE PROVIDED FROM CERTIFIED DISEASE FREE NURSERY. PROVIDE CERTIFICATION UPON REQUEST.

PLANT SCHEDULE — SH-5 PLANT MATERIAL — M2 JOB NUMBER: 18-045

KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANTED SIZE / REMARKS
TREE				
	6	ACER MACROPHYLLUM	BIGLEAF MAPLE	8CM CAL; B&B
	6	CORNUS NUTTALLII	PACIFIC DOGWOOD	8CM CAL; B&B
	9	CRATAEGUS DOUGLASII	BLACK HAWTHORN	8CM CAL; B&B
	4	MALUS FUSCA	PACIFIC CRABAPPLE	8CM CAL; B&B
SHRUB				
AR	472	ARONIA MELANOCARPA	CHOKEBERRY	#2 POT; 35CM
CC	643	CORNUS SERICEA	RED OSIER DOGWOOD	#2 POT; 50CM
O	470	HOLODISCUS DISCOLOR	OCEANSPRAY	#2 POT; 1M O.C. TRIANGULAR SPACING
RH	491	RUBUS PARVIFLORUS	THIMBLEBERRY	#2 POT
S	631	SALIX LASIANDRA	PACIFIC WILLOW	1.2M HT; B&B
PERENNIAL				
F	307	FRAGARIA CHILOENSIS	COASTAL STRAWBERRY	#1 POT
B	370	LATHYRUS JAPONICAS	BEACH PEA	#2 POT

NOTES: * PLANT SIZES IN THIS LIST ARE SPECIFIED ACCORDING TO THE BC LANDSCAPE STANDARD, LATEST EDITION. CONTAINER SIZES SPECIFIED AS PER CNTA STANDARDS. BOTH PLANT SIZE AND CONTAINER SIZE ARE THE MINIMUM ACCEPTABLE SIZES. * REFER TO SPECIFICATIONS FOR DEFINED CONTAINER MEASUREMENTS AND OTHER PLANT MATERIAL REQUIREMENTS. * SEARCH AND REVIEW: MAKE PLANT MATERIAL AVAILABLE FOR OPTIONAL REVIEW BY LANDSCAPE ARCHITECT AT SOURCE OF SUPPLY. AREA OF SEARCH TO INCLUDE LOWER MAINLAND AND FRASER VALLEY. * SUBSTITUTIONS: OBTAIN WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT PRIOR TO MAKING ANY SUBSTITUTIONS TO THE SPECIFIED MATERIAL. UNAPPROVED SUBSTITUTIONS WILL BE REJECTED. ALLOW A MINIMUM OF FIVE DAYS PRIOR TO DELIVERY FOR REQUEST TO SUBSTITUTE. SUBSTITUTIONS ARE SUBJECT TO BC LANDSCAPE STANDARD - DEFINITION OF CONDITIONS OF AVAILABILITY.

ALL PLANT MATERIAL MUST BE PROVIDED FROM CERTIFIED DISEASE FREE NURSERY. PROVIDE CERTIFICATION UPON REQUEST.

DESIGNED 2018-07-12 MTLM
DRAWN 2018-07-12 MTLM
CHECKED
APPROVED

REVISIONS

REV	DATE	DESCRIPTION	BY
1	2018-07-12	KEY PLAN	MTLM
2	2018-08-08	LANDSCAPE PLAN	DY
3	2019-03-07	REV. PER CITY COMMENTS; PROVIDE 8.5/11 DOC	MTLM
4	2019-03-23	REV. PER CLIENT COMMENTS; ADDIT. INFO	MTLM
5	2019-04-16	REV. PER CITY COMMENTS; CONSULTANT INFO	MTLM

M2 LANDSCAPE ARCHITECTURE

FMU DEVELOPMENT PROJECT
RICE MILL ROAD, RICHMOND
LANDSCAPE MASTERPLAN
ESA COMPENSATION PLANT LISTS SH-5 AND SH-6

SNC·LAVALIN

PROVINCE CONTRACT No. 03902
SUB-CONSULTANT No. M2LAND-18-054
DRAWING No. L30
08

SNC·LAVALIN
Building what matters

Plan #7

HABITAT BALANCE SHEET

Disturbances and Compensation for Impacts in ESA SH-5 and ESA IT-5.

Type of Disturbance/Enhancement	ESA Classification	Habitat Type	Area of Disturbance in ESA (m2)	Area of Compensation (m2)	Compensation Ratio
Buildings, roads and diking.	Shoreline ESA SH-5	Poor to low quality (vegetated)	1,252		
Stormwater outfalls	Intertidal ESA IT-5	Low quality rip rap and sheet pile wall	10		
Access pier, trestle and tower crane	Intertidal ESA IT-5	Subtidal (no true intertidal habitat)	252		
Shoreline Enhancement (Soil amendment, remove invasives, plant trees, shrubs and forbs)	Shoreline ESA SH-5	Moderate to high quality (vegetated)		2,976	
Intertidal Enhancement (Rock reef creation)	Intertidal ESA IT-5	Moderate quality habitat		440*	
		Disturbance Summary	**1,514**	**3,416**	**2.3:1**

* Note: 440 m^2 of intertidal enhancement is equivalent to 176 m^2 after applying the rugosity factor, as accepted by DFO. Environmental Assessment Appendix A includes rationale and calculations regarding the application of a rugosity factor towards habitat productivity.

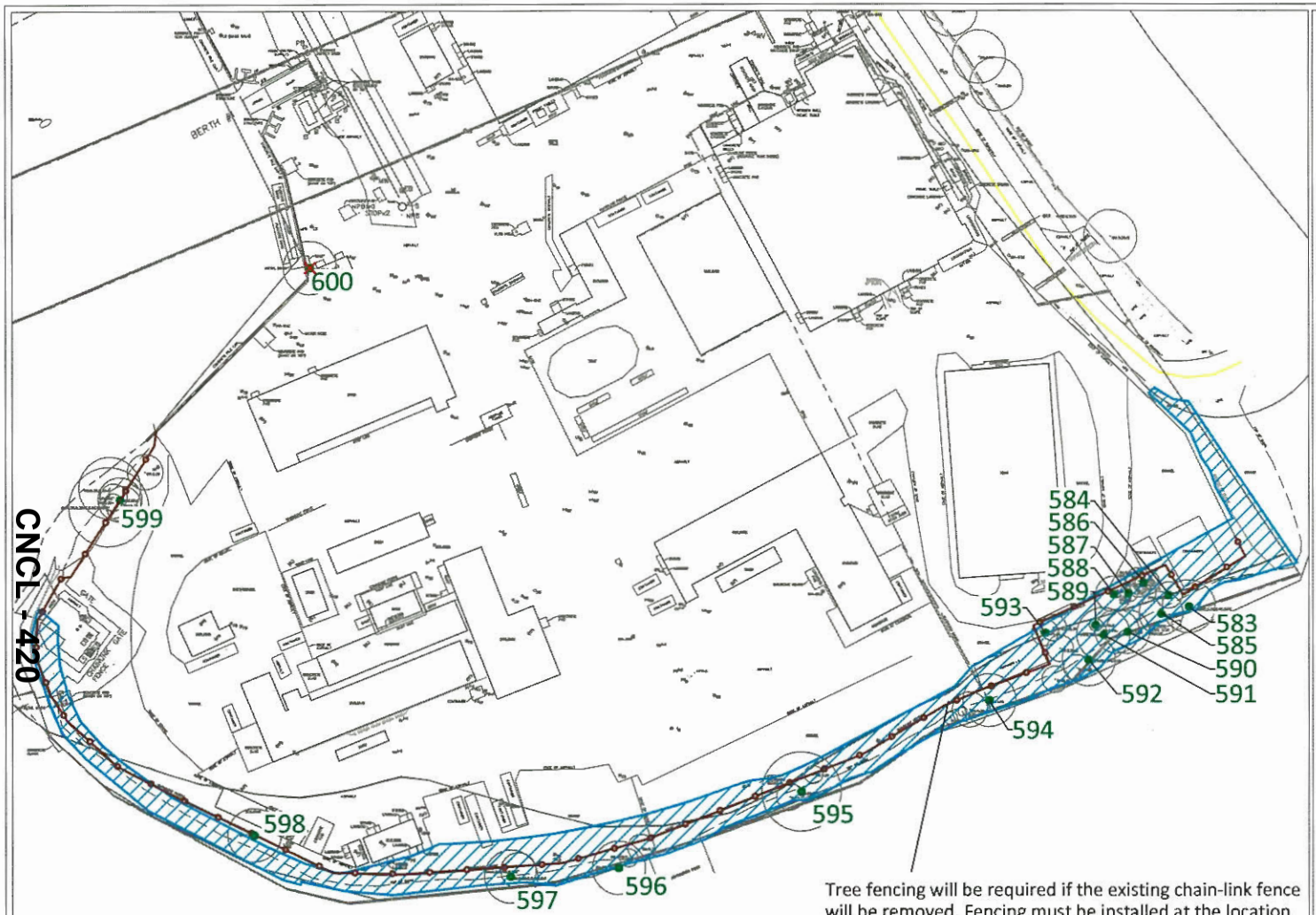
Disturbances and Proposed Compensation for Impacts in ESA SH-6

Type of Disturbance/ Enhancement	ESA Classification	Habitat Type	Area of Disturbance in ESA (m2)	Area of Compensation (m2)	Compensation Ratio
Sanitary force main	Upland forest, old field and shrublands ESA SH-6	Disturbed (poor to low quality), Shrubland, Upland Forest.	1,134		
Grassed Enhancement (hydroseeding to establish ground cover)	Upland Forest and Shrubland ESA SH-6	Low quality (vegetated)		1,134*	
Upland Forest and Shrubland Enhancement (Soil amendment, remove invasives, plant trees, shrubs and forbs)	Upland forest, old field and shrublands ESA SH-6	Moderate to high quality (vegetated)		2,835	
		Disturbance Summary	**1,134**	**2,835**	**2.5:1**

* Note: Although the 1,134 m2 area of sanitary trenchline will be restored to enhance the habitat, it was not included in the total compensation area or compensation ratio calculation since the proposed grass habitat does not fully conform with the upland forest, shrublands and old fields designation of the ESA.

Disturbances and Proposed Compensation for impacts in 5m RMA

Type of Disturbance/ Enhancement	ESA Classification	Habitat Type	Area of Disturbance in ESA (m2)	Area of Compensation (m2)	Compensation Ratio
Water main	5 m RMA	Disturbed / impervious (poor quality)	695		
Culvert Removal and Ditch Restoration	5 m RMA	Restored ditch		54	
5 m RMA Enhancement	5 m RMA	Restored ground surface and grass.		695	
		Disturbance Summary	**695**	**749**	**1.1:1**



CNCL - 420

LEGEND

- CRITICAL ROOT ZONE
- NO-BUILD ZONE
- TREE PROTECTION ZONE AND FENCING
- SURVEYED TREE TO BE RETAINED
- UN-SURVEYED TREE TO BE RETAINED
- TREE TO BE REMOVED
- COMPENSATION AREA

NOTES

1. The location of un-surveyed trees on this plan is approximate. Their location and ownership cannot be confirmed without being surveyed by a Registered BC Land Surveyor.
2. All tree protection fencing must be built to the relevant municipal bylaw specifications.The dimensions shown are from the outer edge of the stem of the tree.
3. The tree protection zone shown is a graphical representation of the critical root zone, measured from the outer edge of the stem of the tree. ($\frac{1}{2}$ the trees diameter was added to the graphical tree protection circles to accommodate the survey point being in the center of the tree)
4. No work is permitted within the Tree Protection Zone with the exception of swales. Swale construction is only permitted under the direct supervision of an arborist.
5. The 1.5m area No Build Zone does not allow for any building foundation wall encroachment. Excavation is permitted within this area under the direct supervision of an arborist.
6. Drainage works such as lawn basins, associated piping or services are permitted within the No Build Zone under the direct supervision of an arborist.
7. This plan is based on a topographic and tree location survey provided by the owners' Registered British Columbia Land Surveyor (BCLS) and layout drawings provide by the owners' Engineer (P Eng).
8. This plan is provided for context only, and is not certified as to the accuracy of the location of features or dimensions that are shown on this plan. Please refer to the original survey plan and engineering plans.

DIAMOND HEAD
3559 COMMERCIAL STREET
VANCOUVER BC | V5N 4E8
T 604.733.4886 | F 604.733.4879

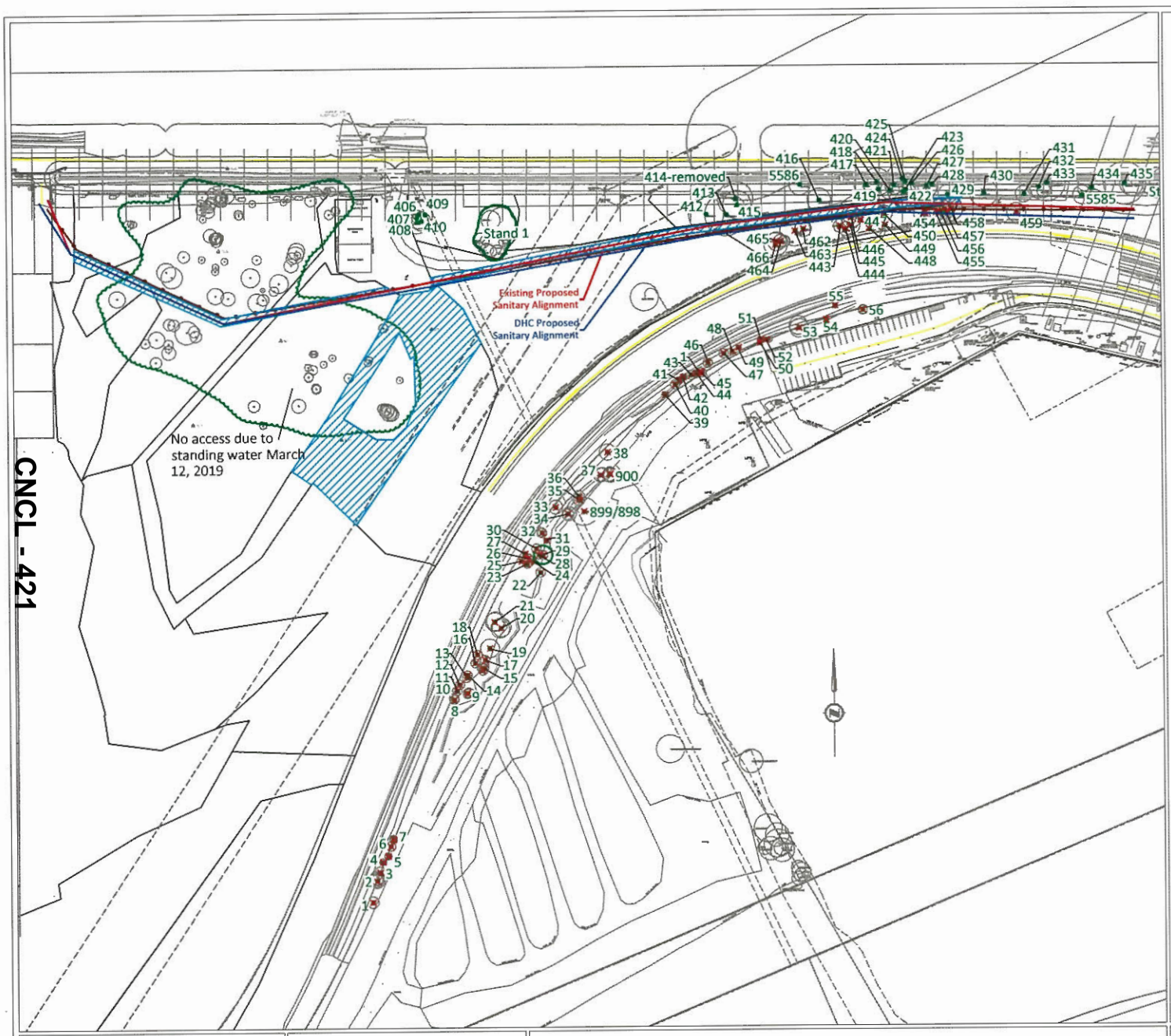
Drawing title: Tree Management Plan - Phase 2
Project address:12800 Rice Mill Rd
Client: SNC Lavalin

Drawing No: XXX
Date: 2019/04/16
Drawn by: KS
Page Size: LETTER(8.5"x11")

Page # 1 of 1

ATTACHMENT 3

Plan # W



CNCL - 421

LEGEND

- CRITICAL ROOT ZONE
- NO-BUILD ZONE
- TREE PROTECTION ZONE AND FENCING
- SURVEYED TREE TO BE RETAINED
- UN-SURVEYED TREE TO BE RETAINED
- TREE TO BE REMOVED
- COMPENSATION AREA

NOTES

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DIAMOND HEAD
3559 COMMERCIAL STREET
VANCOUVER BC | V5N 4E8
T 604.733.4886 | F 604.733.4879

Drawing title: Tree Management Plan - Phase 3 and 4
Project address:12800 Rice Mill Rd
Client: SNC Lavalin

Drawing No: XXX
Date: 2019/04/16
Drawn by: KW
Page Size: LETTER(8.5"x11")

Plan # X

City of Richmond

Development Application Data Sheet

Development Applications Department

RZ 18-824565 **Attachment 4**

Address: 12700 and 12800 Rice Mill Road, 12280 and 12300 No. 5 Road

Applicant: SNC Lavalin Inc.

Planning Area(s): Shellmont

	Existing	Proposed
Owner:	BC Ferry Services Ltd.	No Change
Site Size (m^2):	245,065.5 m² (60.56 ac)	No Change
Land Uses:	Marine Vessel Repair and Moorage	No Change
OCP Designation:	Industrial	No Change
Zoning:	"Agricultural (AG1)" and "Light Industrial (IL)"	North of the CN Rail Corridor: No Change South of the CN Rail Corridor: "BC Ferries Fleet Maintenance and Moorage (ZI14)"
Other Designations:	Environmentally Sensitive Areas over portions of the site	Encroachment and Compensation to be addressed via DP

On Future Subdivided Lots	Bylaw Requirement	Proposed	Variance
Floor Area Ratio:	Max. 1.0	0.1	None permitted
Buildable Floor Area (m^2) *	Max. 245,065.5 m² (2,637,863 ft²)	Proposed New: 15,502.0 m² (166,862 ft²) Existing Retained: Max. 6,209.5 m² (66,838.5 ft²) Combined Total: 21,711.5 m² (233,701 ft²)	None permitted
Lot Coverage (% of lot area):	Building: Max. 60%	Building: Max. 7.1% Non-porous Surfaces: Max. 14.3% Total: Max. 21.4%	None
Lot Size:	245,065.5 m² (60.56 ac)	Same	None
Setbacks (m):	Front (East PL): Min. 3.0 m Rear: Min. 0 m Side: Min. 0 m	Front (East PL) Min: 0.0 m for existing, min 3.0 m for new construction after May 1, 2019 Rear: Min. 3.0 m Side: Min. 3.0 m	None

On Future Subdivided Lots	Bylaw Requirement	Proposed	Variance
Height (m):	Buildings: 23 m GSC (measured from slab) Heavy Lift Crane: 84.0 m GSC	Buildings: 22.2 m GSC (measured from slab) Heavy Lift Crane:83.1 m GSC	None
Accessible Spaces	Min. 5	5	None
Off-street Parking Spaces – Total:	Min. 218	257	None
Bicycle Spaces	Min. Class 1: 42 Min. Class 2: 42	Class 1: 42 Class 2: 42	None
Loading Spaces	Min. 5 medium Min. 4 large	7 medium 4 large	None

Proposed Sustainability Features

Both design and operational measures are being incorporated into the development to address efficiency and sustainability. These measures include the following:

1. Limited skylights to reduce energy consumption.
2. Light coloured roof to reduce heat build-up.
3. Low VOC interior paint coatings.
4. Central heating plant using condensing boilers and a low temperature heating system to allow future fuel switching and a lower carbon energy operation compared to a low budget business as usual gas-fired terminal heating appliances approach.
5. Use of air source heat pump chillers to generate a significant portion of low carbon heating during the shoulder seasons, and to allow heat recovery operation from steady-state year round cooling loads in the buildings.
6. Variable speed heating and chilled water pump systems to minimize electrical energy use during low load seasonal periods.
7. Chilled beam cooling and heating systems in the offices areas of each building using a dedicated outdoor air system equipped with heat recovery sections.
8. Occupancy controlled HVAC terminals in all offices and amenity spaces to allow reduction of system energy use when spaces are unoccupied.
9. Extensive use of ceiling de-stratification fans to mix space air and keep warm buoyant air driven down to the occupied zone in high bay areas.
10. Manually controlled point source local exhaust systems to minimize constant central exhaust fan operations.
11. Variable speed high efficiency shop air compressors with specifications for leak-free compressed air piping distribution, and large receiver tanks to minimize run-time cycling of the main air compressors.
12. Extensive System Commissioning requirements are specified to insure that the energy efficiency measures are tested, balanced, and commissioned prior to turnover to BC Ferries.
13. High efficiency gas-fired condensing domestic hot water heaters coupled with low flow plumbing fixtures to minimize service water heating energy use.
14. Local small electric domestic hot water heaters for remote service sink and emergency eye-wash and shower stations to minimize the amount of insulated domestic hot water distribution, and insulated recirculation piping.
15. Extensive floor drainage and sanitary drainage containment and oil interception with sediment filtration to insure sanitary sewer flows leaving the site are treated as much as possible at the source, and contained within the spaces.
16. Extensive local polluted drain water containment where chemical cleaning and contaminated sanitary waste drainage is produced (Chemical Cleaning and Wash area and Life Boat washing and cleaning area).

Technical Reports Submitted

1. Arborist Report, prepared by Diamond Head, dated April 9, 2019 (REDMS 6170332);
2. Archaeological Overview Assessment (AOA), prepared by Arrowstone Archaeological Research and Consulting Ltd., dated September 15, 2016 (REDMS 6165681).
3. Construction Environmental Management Plan (CEMP), prepared by SNC Lavalin, dated April 15, 2019, (REDMS 6170374).
4. Department of Fisheries Letter of Advice, dated February 27, 2019 (REDMS 6143363).
5. Environmental Assessment ESA DP Report, prepared by SNC Lavalin, dated April 15, 2019 (REDMS 6170298).
6. Fire Response Plan. Prepared by GHL Consultants Ltd., dated December 12, 2018 (REDMS 6135049)
7. Flood Protection Plan (powerpoint), prepared by SNC Lavalin, updated April 12, 2019 (REDMS 6167724).
8. Geotechnical Input to the West Dike Design (Segments 2 to 3), prepared by Tetra Tech, dated February 22, 2019 (REDMS 6135058).
9. Grading and Drainage Plan prepared by SNC Lavalin, dated February 1, 2019 (REDMS 6135062).
10. Letter from Nav Canada, dated October 25, 2018 (REDMS 6143393). (Air navigation)
11. Letter From Transport Canada Navigation Protection Program, Dated December 10th, 2018 (REDMS 6165138).
12. MOECCS Release Letter For Site Profile, Dated October 29th, 2018 (REDMS 6017755).
13. MOTI Setback Permit (For Existing Buildings), Dated October 5th, 2018 (REDMS 6165138).
14. Soil Management Plan, included within the CEMP document (REDMS).
15. Traffic Assessment (rev3), prepared by SNC Lavalin, dated December 6, 2018 (REDMS 6047959) – pending rev4 for minor edits;
16. Visual Impact Assessment (VIA), prepared by Boldwing Continuum Architects Inc., dated August 9, 2018 (REDMS 6165687).
17. Waste Management Overlay Plan prepared by SNC Lavalin, dated December 18, 2018 (REDMS 6065374).
18. Landscape Plan Revisions, dated April 16, 2019 (REDMS 6170361)

Fisheries and Oceans Canada | Pêches et Océans Canada

Pacific Region
3190 Hammond Bay Road
Nanaimo, BC V9T 6N7

Région du Pacifique
3190 rue Hammond Bay
Nanaimo, CB V9T 6N7

Your file *Votre référence*

February 27, 2019

Our file *Notre référence*

18-HPAC-00751

Scott Hall
BC Ferries Services Inc.
500-1321 Blanshard Street
Victoria, BC, V8W 0B7

Via email: RScott.Hall@bcferries.com

Subject: Tower Crane Installation, Deas Basin Fraser River, Richmond – Implementation of Measures to Avoid and Mitigate Serious Harm to Fish

Dear Mr. Hall:

The Fisheries Protection Program (the Program) of Fisheries and Oceans Canada (DFO) received your proposal on August 13, 2018. We understand that you propose to:

- Redevelop the BC Ferries Fleet Maintenance Unit (FMU) in Richmond. Construction activities which have the potential to impact fish and fish habitat include:
  - Removal of two sets of dolphin piles where the crane and pier are proposed to be installed;
  - Installation of 23 piles using a vibratory hammer or impact hammer from a spud barge for the access pier and crane pad foundation;
  - Infilling an area in front of an existing sheet pile wall at the shoreline for construction of an access pier abutment;
  - Seismic support activities including installation of timber piles below the river bed to support the access pier;
  - Installation of a raised access pier and decking for the crane pad; and,
  - Replacement of the existing stormwater outfall in Deas Basin.

Our review considered the following information:

- Request for Review package as provided by SNC-Lavalin to DFO via email on August 13, 2018 including:
  - Request for Review Form;
  - Site Location and Design Drawings prepared by SNC-Lavalin, dated June 12, 2018;
  - Habitat Impact and Offsetting Drawings prepared by SNC-Lavalin, dated August 2, 2018; and,
  - Site photos, dated March 14, 2018.

- Information collected during the site visit attended by Sandy Foxall and Kris Singer (DFO), and Peter Troffe and David McWalter (SNC-Lavalin) on November 15, 2018;
- Project update letter provided by SNC-Lavalin to DFO on February 20, 2019 including:
  - Updated scope of works;
  - Updated quantification and mitigation effects to CRA fish habitat; and,
  - Updated habitat offsetting plan.

Your proposal has been reviewed to determine whether it is likely to result in serious harm to fish which is prohibited under subsection 35(1) of the *Fisheries Act* unless authorized. Your proposal has also been reviewed to determine whether it is likely to affect listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act,* unless authorized.

To avoid and mitigate the potential for serious harm to fish as well as prohibited effects on listed aquatic species at risk, we recommend implementing the measures listed below, as per your project plan and discussions with DFO:

- All instream works will be conducted during the instream work window for the Fraser River Estuary Area 28 (July 16 to February 28).
- Barges and other vessels used during the project should not disturb the foreshore or basin seabed.
- An Environmental Monitor (EM) will monitor instream construction activities including conducting water quality monitoring to ensure that water quality adheres to provincial water quality guidelines for the protection of aquatic life.
- When possible, works will be conducted during favourable weather and low water conditions (i.e., low tide).
- A silt curtain will be installed around the work area in Deas Basin to contain potential sedimentation during instream works, where possible.
- Existing riparian vegetation along shorelines will be protected from potential damage during construction activities.
- Install sheet piles around the area to be infilled to isolate the work area prior to infilling activities.
- All rock used during the project (e.g., construction of enhancement features, etc.) should be clean and free of dirt, etc. before placing in the water. The rock should be carefully placed into position as opposed to just dumped into the water.
- All fish should be removed from within isolated work areas prior to in-water works.
- A vibratory hammer will be used as the primary pile driving method. Impact pile driving will only be used if piles cannot be installed using a vibratory hammer.
- Potential vibration impacts to fish will be monitored during pile driving (i.e., acoustic monitoring). The Program acknowledges the pile driving best management practices reference that shock waves not be in excess of 30 kPa;

.../3

however, updated information on acoustic noise thresholds for fish presented below should be applied:

- The criteria agreed upon by the US Fisheries Hydroacoustic Working Group (FHWG, 2009) for the onset of effects of percussive pile driving activities in terms of injuries to fishes identified the dual criteria of a peak sound pressure level of 206 dB re: 1 µPa and a SELcum of 187 dB re: 1 µPa2·s. These thresholds are the most up-to-date for protection of fish from acoustic injuries in North America (http://acousticstoday.org/wp-content/uploads/2015/05/Assessing-the-Impact-of-Underwater-Sounds-on-Fishes-and-Other-Forms-of-Marine-Life-Anthony-D.-Hawkins-and-Arthur-N.-Popper.pdf); and,
- Sound levels for fish should not exceed 206 dB re: 1 µPa and a SELcum of 187 dB re: 1 µPa2·s, acoustic monitoring should occur at 10 m from the noise source.

- If monitoring indicates sound levels in excess of the above thresholds at the 10 m monitoring distance for fish, the activity should cease and only resume after additional mitigation measures are implemented. The above mentioned acoustic thresholds are applicable to all underwater generated noise, such as, but not limited to, those from blasting, hydraulic ramming, and vibratory hammers.

Provided that you incorporate these measures into your plans, the Program is of the view that your proposal will not result in serious harm to fish or prohibited effects on listed aquatic species at risk. As such, an authorization under the *Fisheries Act* or a permit under the *Species at Risk Act* is not required.

Should your plans change or if you have omitted some information in your proposal, further review by the Program may be required. Consult our website (http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html) or consult with a qualified environmental consultant to determine if further review may be necessary. It remains your responsibility to avoid causing serious harm to fish and avoid prohibited effects on listed aquatic species at risk, any part of their critical habitat or the residences of their individuals.

It is also your *Duty to Notify* DFO if you have caused, or are about to cause, serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery. Such notifications should be directed to http://www.dfo-mpo.gc.ca/pnw-ppe/violation-infraction/index-eng.html, or to the DFO-Pacific Observe, Record and Report phone line.

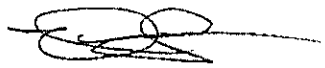
Please notify this office at least 10 days before starting your project. A copy of this letter should be kept on site while the work is in progress. It remains your responsibility to meet all other federal, territorial, provincial and municipal requirements that apply to your proposal.

If you have any questions with the content of this letter, please contact Sandy Foxall at our Nanaimo office at 250-756-7295, by fax at 250-756-7229, or by email at

.../4

Sandy.Foxall@dfo-mpo.gc.ca. Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,



Vincent Harper
Senior Fisheries Protection Biologist
Fisheries Protection Program

cc. Sandy Foxall, DFO, Nanaimo
Peter Troffe, SCN-Lavalin, Burnaby
David McWalter, SNC-Lavalin, Victoria

City of Richmond

Rezoning Considerations

Development Applications Department
6911 No. 3 Road, Richmond, BC V6Y 2C1

Address: 12700 and 12800 Rice Mill Road, 12280 and 12300 No. 5 Road **File No.:** RZ 18-824565

Prior to final adoption of Richmond Zoning Bylaw 8500, Amendment Bylaw 9940, the developer is required to complete the following:

1. Consolidation of all the lots into one development parcel.
2. Submission of a Contract entered into between the applicant and a Certified Arborist for supervision of any on-site works conducted within the tree protection zone of the trees to be retained. The Contract should include the scope of work to be undertaken, including: the proposed number of site monitoring inspections, and a provision for the Arborist to submit a post-construction assessment report to the City for review.
3. Installation of appropriate tree protection fencing around all trees to be retained as part of the development prior to any construction activities, including building demolition, occurring on-site.
4. Granting of an approximately 1,010 m (3,314 ft.) long Statutory Right-of-Way (SRW) for the purposes of dike works covering the entire dike alignment as outlined under "Section 5 Dike Works" of the Servicing Agreement requirements and to the satisfaction of the General Manager, Engineering and Public Works.
5. Registration of a legal agreement on title identifying a minimum habitable elevation of 3.85 m GSC for all new construction after May 1, 2019. The legal agreement shall indemnify the City for all flood-related damages at the site as a result of the variance, and shall include acceptance from the owner that flood protection on their site will be their sole responsibility. Based on BC Ferries' intended use of the site, which is incompatible with the City's flood construction level of 4.35 m geodetic for buildings outside of the dike, the City will permit the minimum Flood Construction Level to be lowered to 3.85 m with the understanding that the owner and applicant accept all risks associated with flooding due to construction outside of the City's dike.
6. The owner/applicant is to submit written confirmation from the Provincial Inspector of Dikes acceptable to the City's Director of Development that the proposed strategy to incrementally raise the subject site and structures in the future, as needed for flood protection, addresses any provincial flood protection requirements. The intent to incrementally raise the site and structures in the future as needed for flood protection will be the sole responsibility of the owner.
7. The owner/applicant is to submit to the City written confirmation of the GVWD's (Metro Vancouver) acceptance of the encroachment of the proposed dike and associated improvements into the GVWD water line right-of-way.
8. The submission and processing of a Development Permit* completed to a level deemed acceptable by the Director of Development.
9. City acceptance of the developer's offer to voluntarily contribute $0.24/SF (2018 rate) per buildable square foot (e.g. $40,047.00) to the City's public art fund. This contribution is for both phase 1 and phase 2 of the development.
10. Discharge of the existing dike right-of-way (RD144951 with reference to plan NWD 59814). The discharge is to follow the registration of the replacement dike right-of-way noted earlier in these Rezoning Considerations.
11. Enter into a Servicing Agreement* for the design and construction of dike works, utility services and frontage works. Works include, but may not be limited to, the following:

Initial: _____

A Servicing Agreement is required to design and constrnct the following works, to be registered on Title prior to Rezoning adoption.

1) Water Works:

a) Using the OCP Model and with the upgrades identified below, there will be 424 L/s of water available at a 20 psi residual at the Rice Mill Road frontage. Based on your proposed development, your site requires a minimum fire flow of 250 L/s.

b) At Developer's cost, the Developer is required to:
   i) Submit, as part of the first servicing agreement submission, Fire Underwriter Survey (FUS) fire flow calculations confirming that the available fire flow of 424 L/s with water main upgrades is adequate for onsite fire protection. Calculations must be signed and sealed by a Professional Engineer.
   ii) Provide a right-of-way for the water meter. Minimum right-of-way dimensions to be the size of the meter box (from the City of Richmond supplementary specifications) + any appurtenances (for example, the bypass on W2o-SD) + 0.5 m on all sides. Exact right-of-way dimensions to be finalized via the servicing agreement process.
   iii) Install a new water connection, complete with meter and meter box, to serve the proposed development.
   iv) Provide fire hydrants along Rice Mill Road per City spacing requirements.
   v) Upgrade approximately 680 m of 250 mm water main to 300 mm along Rice Mill Road from No 5 Road to the driveway entrance of the site as required to meet the fire flow demand for the proposed development.

c) At Developer's cost, the City is to:
   i) Reconnect all existing water service connections to the new water main.
   ii) Complete all tie-ins for the proposed works to existing City infrastructure.

2) Storm Sewer Works:

a) At Developer's cost, the Developer is required to:
   i) Fill and abandon the existing 310 mm culvert at the entrance on Rice Mill Road to the driveway access to the development site. Prior to filling and abandoning the culvert, the developer's engineer shall confirm via video inspection that there are no connections to the culvert and that the culvert can be safely abandoned, and provide a signed and sealed letter with the servicing agreement confirming the same.
   ii) Provide a sediment and erosion control plan for the proposed onsite and offsite works, to be reviewed as part of the servicing agreement design.

3) Sanitary Sewer Works:

a) At Developer's cost, the Developer is required to:
   i) Replace the portion of the existing privately-owned sanitary forcemain that is within the City road dedication (approximately 80 m) with approximately 30 m of City-owned gravity-fed sanitary sewer and approximately 50 m of privately-owned force main, located within the roadway. The exact lengths of private- and City-owned sewer shall be determined during the servicing agreement process. A gravity-fed system shall be used to the extent possible, transitioning to a private forcemain once issues with cover arise. The design of the forcemain shall minimize the length of the forcemain located within City road dedication as much as possible (i.e., shall transition into the development site as soon as possible).
   ii) Enter into a license agreement with the City for the proposed encroachment of the privately-owned sanitary forcemain into City road right-of-way. The license agreement shall, among other things:
      i. Place ownership, maintenance responsibility, and liability of the sanitary forcemain with the developer/owner;
      ii. Impose license fees for use of the City road right-of-way;
      iii. Require the developer/owner to design and construct the forcemain to the satisfaction of the General Manager, Engineering & Public Works via the servicing agreement;

Initial: _____

iv. Require the developer/owner to relocate or remove the forcemain upon reasonable request from the City;
v. Require the developer/owner to remove the private forcemain within the roadway and connect to a City-owned system if/when one becomes available, upon request from the City; and
vi. Indemnify the City.

b) At Developer's cost, the City is to:
i) Complete all tie-ins of the proposed works to existing City infrastructure.

4) Frontage Improvements:

a) At Developer's cost, the Developer is required to:
i) Coordinate with BC Hydro, Telus and other private communication service providers:
i. Before relocating/modifying any of the existing power poles and/or guy wires within the property frontages.
ii. To underground overhead service lines.
ii) Locate/relocate all above ground utility cabinets and kiosks required to service the proposed development, and all above ground utility cabinets and kiosks located along the development's frontages, within the developments site (see list below for examples). A functional plan showing conceptual locations for such infrastructure shall be included in the development design review process. Please coordinate with the respective private utility companies and the project's lighting and traffic signal consultants to confirm the requirements (e.g., statutory right-of-way dimensions) and the locations for the aboveground structures. If a private utility company does not require an aboveground structure, that company shall confirm this via a letter to be submitted to the City. The following are examples of statutory right-of-ways that shall be shown on the architectural plans/functional plan, the servicing agreement drawings, and registered prior to SA design approval:
- BC Hydro PMT – 4.0 x 5.0 m
- BC Hydro LPT – 3.5 x 3.5 m
- Street light kiosk – 1.5 x 1.5 m
- Traffic signal kiosk – 2.0 x 1.5 m
- Traffic signal UPS – 1.0 x 1.0 m
- Shaw cable kiosk – 1.0 x 1.0 m
- Telus FDH cabinet – 1.1 x 1.0 m

5) Dike Works:

a) Through this rezoning, the City will secure from the developer an approximately 1010 m-long dike and dike right-of-way through the development site. Based on the developer's site constraints and the proposed use of the site, the City understands that construction of the entire dike is not feasible for the developer at this time. The right-of-way for the entire dike will be registered through the rezoning process; however, the developer's construction of the dike will be done in stages, as follows:
i) Segment 1, located roughly in the east half of the site, will be constructed to elevation 4.7 m in the future when needed for flood protection. The timing of constructing this segment will be determined by the City;
ii) Segment 2, located roughly in the centre of the site, will be constructed to an interim elevation of 4.0 m through this development's servicing agreement, then raised in the future to elevation 4.7 m when needed for flood protection. The timing of raising this segment from 4.0 m to 4.7 m will be determined by the City;
iii) Segment 3, located roughly on the west half of the site, will be constructed to elevation 4.7 m through this development's servicing agreement.

b) In the future, Segments 1, 2, and 3 will be raised to elevation 5.5 m (not covered by this development). The rights-of-ways secured through this development will provide adequate space for the future 5.5 m dike.

c) At Developer's cost, the Developer is required to:
i) *Dike SRW:* Prior to rezoning adoption, provide registered statutory rights-of-ways for diking, as follows:
i. *Segment 1:* an approximately 430 m long SRW along the northern property line adjacent to the CNR property and the eastern property line adjacent to Rice Mill Road. This SRW shall begin at the NE corner

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of the bay and shall connect to the existing dike at the southern extent of Rice Mill Road, as shown on Appendix (1). The width of this SRW, which will be determined through the servicing agreement, shall be sufficient to fit a standard City dike to elevation 5.5 m with erosion protection. The SRW shall:

(a) Prohibit any excavation or construction within the SRW without prior written consent from the City.
(b) Include provisions requiring the Developer to design and construct a dike to the satisfaction of the General Manager, Engineering and Public Works at a time where this is required for the purpose of flood protection, as determined at the sole discretion of the City. The dike shall be built to elevation 4.7 m and conform to the City and Provincial specifications and standards for dike design and construction that are most current at the time of design and construction. If the Developer fails to fulfill such obligations within the time specified in the right-of-way agreement, the City may carry out the Developer's obligations to complete the necessary construction, including the demolition of any existing structures within the SRW, at the Owner's cost.
(c) Provide the City with unrestricted vehicular and man access to all sections of the SRW for the purpose of dike maintenance and future upgrade.
(d) Upon completion of the construction of the dike, the City shall have full rights of access to the SRW area for the purposes of inspecting, maintaining and upgrading the dike. The dike will be owned and maintained by the City.

ii. *Segments 2 & 3:* an approximately 17 m wide (or as required to fit a standard City dike to elevation 5.5 m with erosion protection, as determined through the servicing agreement), approximately 580 m long SRW extending north from the existing dike at the south-west corner of the site along the west side of Metro Vancouver's water main to the north property line of the site adjacent to CNR's property, and continuing eastward to tie into the Section A SRW identified above, as shown on Appendix (1). The SRW shall:

(a) Prohibit any excavation or construction within the SRW without prior written consent from the City.
(b) Provide the City with unrestricted vehicular and man access to all sections of the SRW for the purpose of dike maintenance and future upgrade.
(c) Upon completion of the construction of the dike, the City shall have full rights of access to the SRW area for the purposes of inspecting, maintaining and upgrading the dike. The dikes shall be owned and maintained by the City.
(d) *Segment 2:* Where the dike is not constructed to the City's standard to an elevation of 4.7 m, the SRW shall include provisions requiring the Owner/Developer to raise the dike to elevation 4.7 m at the Developer/Owner's cost, to the satisfaction of the General Manager, Engineering and Public Works at a time where this is required for the purpose of flood protection, as determined at the sole discretion of the City. If the Developer fails to fulfill such obligations within the time specified in the right-of-way agreement, the City may carry out the Developer's obligations to complete the necessary construction, including the demolition of any existing structures within the SRW, at the Owner's cost.

iii. Minimum building setback from the dike rights-of-way shall be 3.0 m for all new buildings. Existing buildings constructed prior to 2019 shall be exempt from this setback requirement.

iv. Any crossings of the dike SRW proposed for this development must be reviewed and approved by the City. This includes, but is not limited to, private onsite services such as water, storm, and sanitary, hydro, and tel. Crossings will be required to be designed and constructed in a way to minimize impact to the dike, and must be in conformance with Dike Maintenance Act Approval for Pipe Crossings of Dikes (2014) or any superseding guidelines.

v. The Developer shall coordinate the design and alignment of the Segment 1 dike and dike SRW with the Ministry of Transportation and Infrastructure, and ensure that the SRW width and configuration is adequate to construct a future 5.5 m dike that addresses MOTI concerns. The developer shall obtain a conceptual-level sign-off from MOTI for the future Segment 1 dike prior to the SRW width being finalized.

ii) Discharge the existing dike right-of-way as reflected on Plan 59814.

iii) *Dike Access:* Provide maintenance vehicle access to all portions of the City dike and dike SRW, to the satisfaction of the General Manager, Engineering and Public Works. Prior to rezoning adoption, the developer is to provide a dike access plan showing how City maintenance vehicles will access the dike in the interim and ultimate conditions, and indicating any required items to facilitate access, such as ramps, turnarounds, rights-of-ways, etc., which shall be secured from the developer through the servicing agreement. Access ramps shall be designed to accommodate the TAC's SU vehicle and be at no more than 10% grade.

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iv) *Dike Construction:* Construct an approximately 580 m-long embankment dike within Segments 2 & 3 of the SRW, extending from the NE extent of the SRW (at the connection to Segment 1 of the SRW) to the south property line adjacent to property 003-543-765 as shown on Appendix (2). The dike shall satisfy the following conditions:

i. The dike shall be designed by a Professional Geotechnical Engineer.

ii. The dike shall be constructed to an elevation of 4.7 m geodetic (except segment 2, as noted under point 3), and designed to accommodate a future elevation of 5.5 m geodetic. The waterside slope of the dike shall be a maximum of 2:1 and the landside slope of the dike shall be a maximum of 3:1, except as recommended by the developer's geotechnical engineer and reflected on Appendix (2).The crest of the dike shall be a minimum 4.0 m wide and shall accommodate vehicular access. All dike construction and design, including materials, shall be in conformance with City standard drawing MB-98 or MB-99, Dike Design and Construction Guide – Best Management Practices for British Columbia (2003), and Environmental Guidelines for Vegetation Management on Flood Protection Works to Protect Public Safety and the Environment (1999), or any superseding guidelines.

iii. *Segment 2:* At the existing asphalt parking lot (segment 2 on Appendix (2)), the dike crest elevation may be constructed to 4.0 m geodetic, with the ability to be raised to 5.5 m geodetic in the future.

iv. The dike shall be designed to have a smooth transition to the existing dike towards the west, with a maximum slope of 3:1.No retaining walls within the dike crest or slope area are permitted.

v. The dike shall include erosion protection on the waterside slope.

vi. The Developer shall coordinate the dike alignment, design and construction with Metro Vancouver with regards to impacts to and from Metro Vancouver's water transmission main.

vii. The design and construction of the dike shall complete to the satisfaction of the General Manager, Engineering and Public Works and any other relevant dike approving authorities. Once approved by the City, the developer must submit an application for a Dike Maintenance Act approval to the Ministry of Forest, Lands, Natural Resources Operations and Rural Development.

viii. The developer shall submit to the City a FLAC or Plaxis analysis for the dike to assess seismic performance of the dike design under the three seismic design scenarios specified in the Ministry of Forest, Lands, Natural Resources Operations and Rural Development's Seismic Design Guidelines for Dikes (2014) or any superseding guidelines.

6) **Sustainability:**

a) Two redundant culvert crossings within the Riparian Management Area along the south side of Rice Mill Road are to be removed and the open watercourse reinstated and re-vegetated. Culvert removal will proceed in accordance with requirements under the Water Sustainability Act and Standards and Best Practices for Instream Works. Disturbed areas will be re-vegetated with a native riparian seed mix in accordance with the Riparian Area Regulation Re-vegetation Guidelines.

b) A site-specific Erosion and Sediment Control Plan must be submitted to the City and approved by the Environmental Manager prior to any works being undertaking within, or that could impact, the designated Riparian Management Area(s).

c) All works within, or that could impact, designated Riparian Management Areas are to be completed in accordance with the City of Richmond's Riparian Management Areas Bulletin INFO-23, the approved Construction Environmental Management Plan, and the site-specific Erosion and Sediment Control Plan.

7) **General Items:**

a) At Developer's cost, the Developer is required to:

i) Coordinate with Metro Vancouver to:

i. obtain approval for the proposed encroachment of the dike fill into their existing water main right-of-way through the site;

ii. confirm any potential impacts due to construction;

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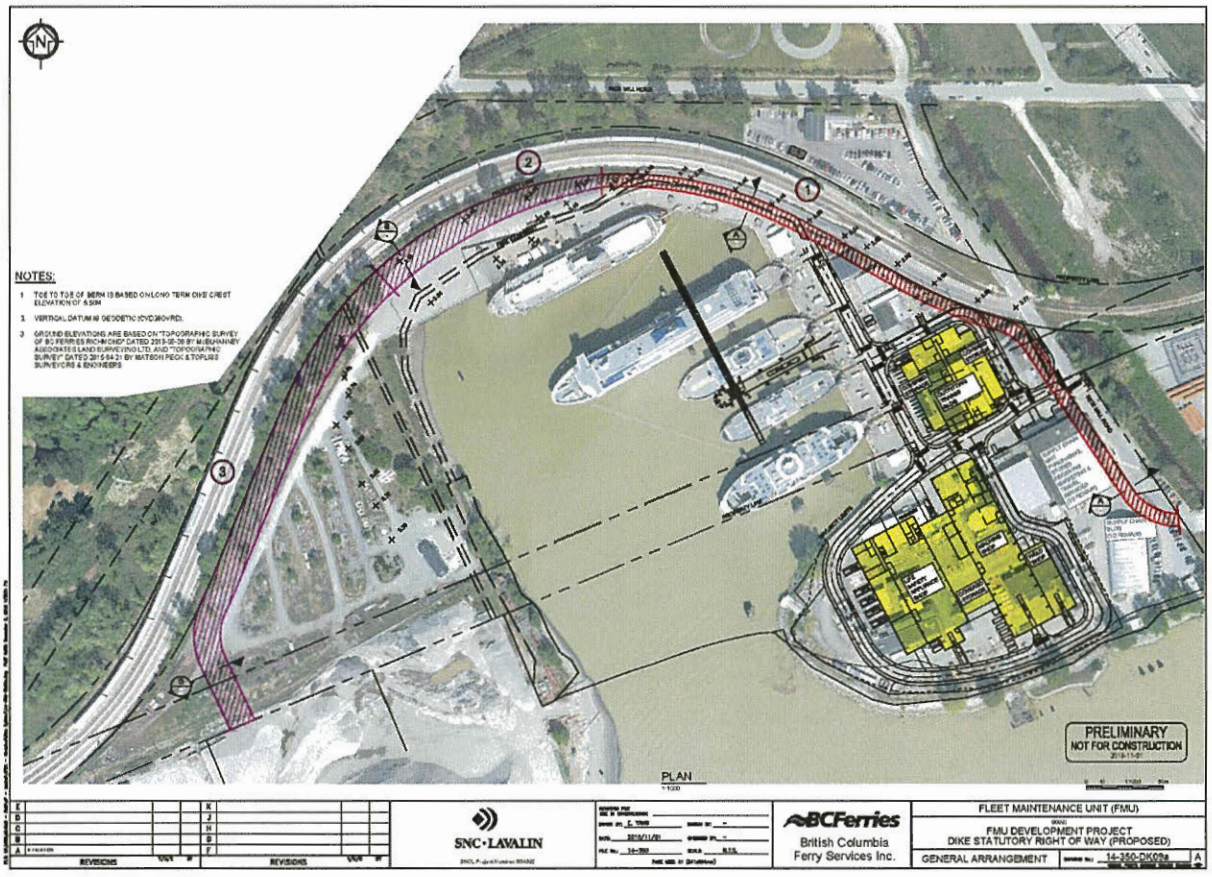
iii. provide any improvements, including modifications to the existing SRW, as required for the protection of the water main; and

iv. comply with their requirements regarding the same.

ii) Enter into, if required, additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering, including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.

Appendix 1



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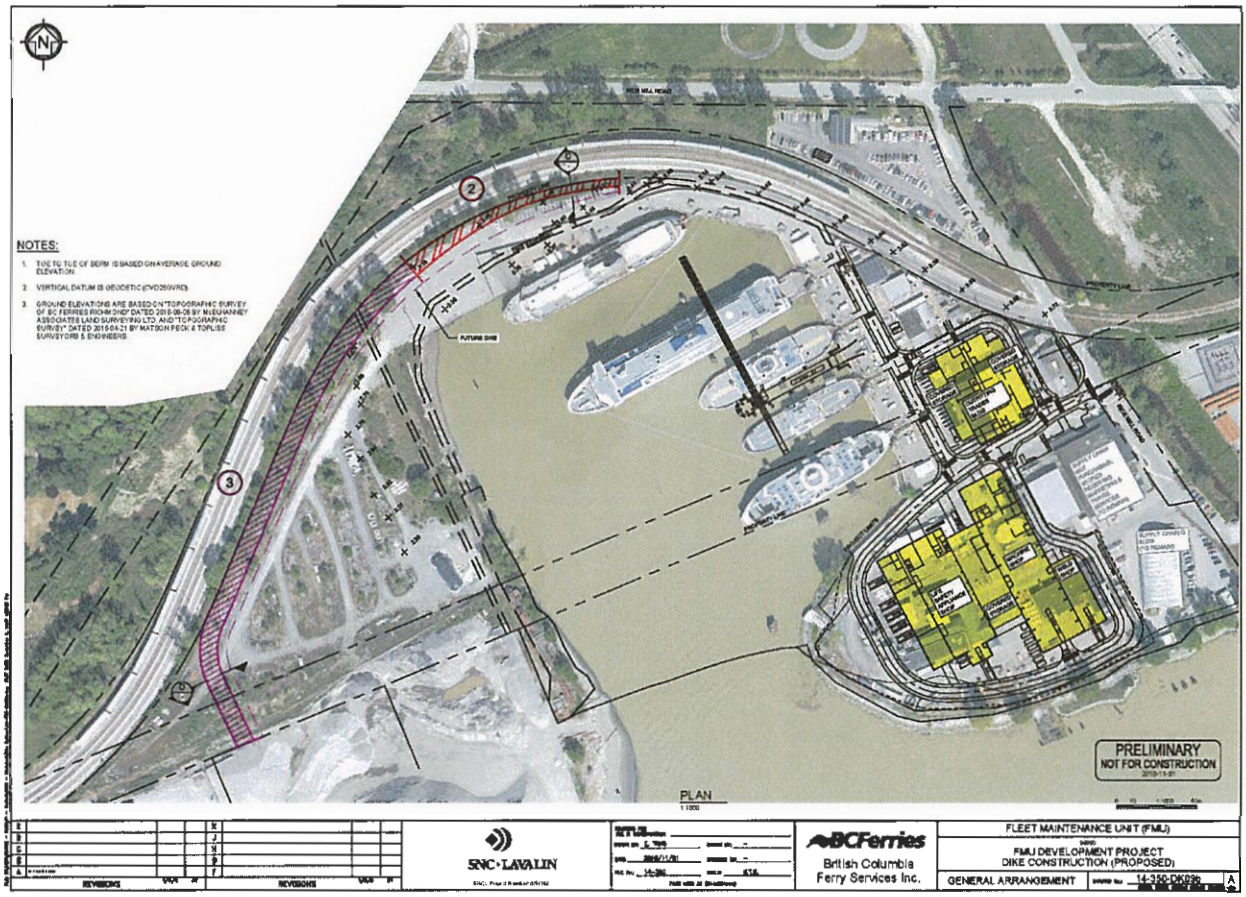
Appendix 2



Prior to Building Permit Issuance, the developer must complete the following requirements:

1. Submission of a Construction Parking and Traffic Management Plan to the Transportation Department. Management Plan shall include location for parking for services, deliveries, workers, loading, application for any lane closures, and proper construction traffic controls as per Traffic Control Manual for works on Roadways (by Ministry of Transportation) and MMCD Traffic Regulation Section 01570.
2. Incorporation of accessibility measures in Building Permit (BP) plans as determined via the Rezoning and/or Development Permit processes.
3. Obtain a Building Permit (BP) for any construction hoarding. If construction hoarding is required to temporarily occupy a public street, the air space above a public street, or any part thereof, additional City approvals and associated fees may be required as part of the Building Permit. For additional information, contact the Building Approvals Department at 604-276-4285.

Note:

* This requires a separate application.

- Where the Director of Development deems appropriate, the preceding agreements are to be drawn not only as personal covenants of the property owner but also as covenants pursuant to Section 219 of the Land Title Act.

  All agreements to be registered in the Land Title Office shall have priority over all such liens, charges and encumbrances as is considered advisable by the Director of Development. All agreements to be registered in the Land Title Office shall, unless the Director of Development determines otherwise, be fully registered in the Land Title Office prior to enactment of the appropriate bylaw.

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The preceding agreements shall provide security to the City including indemnities, warranties, equitable/rent charges, letters of credit and withholding permits, as deemed necessary or advisable by the Director of Development. All agreements shall be in a form and content satisfactory to the Director of Development.

- Additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering may be required including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.
- Applicants for all City Permits are required to comply at all times with the conditions of the Provincial *Wildlife Act* and Federal *Migratory Birds Convention Act*, which contain prohibitions on the removal or disturbance of both birds and their nests. Issuance of Municipal permits does not give an individual authority to contravene these legislations. The City of Richmond recommends that where significant trees or vegetation exists on site, the services of a Qualified Environmental Professional (QEP) be secured to perform a survey and ensure that development activities are in compliance with all relevant legislation.

[Signed Concurrence in File]

Signed Date

City of Richmond

Bylaw 9940

Richmond Zoning Bylaw 8500
Amendment Bylaw 9940 (RZ18-824565)
12700 and 12800 Rice Mill Road, 12280 and 12300 No. 5 Road

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

1. Richmond Zoning Bylaw 8500 is amended by inserting Section 23.14 thereof the following:

"23.14 BC Ferries Fleet Maintenance and Moorage (ZI14)

23.14.1 Purpose

A site specific **zone** to provide for the service, moorage and maintenance of BC Ferries fleet.

23.14.2 Permitted Uses

- **commercial vehicle parking and storage**
- **contractor service**
- **industrial, general**
- **industrial, heavy**
- **manufacturing, custom indoor**
- **vehicle & equipment services, industrial**
- **vehicle body repair or paint shop**
- **vehicle repair**

23.14.3 Secondary Uses

- **residential security/ operator unit**
- **outdoor storage**

23.14.4 Permitted Density

1. The maximum **floor area ratio** is 1.0.

23.14.5 Permitted Lot Coverage

1. The maximum **lot coverage** is 60% for **buildings**.

23.14.6 Yards & Setbacks

1. The minimum **front (east) yard** setback is 4.5 m for all new construction after May 1, 2019.

2. The minimum **exterior side yard** is 3.0 m.

3. There is no minimum interior side yard or rear yard.

23.14.7 Permitted Heights

1. The maximum **height** for **buildings** is the lesser of 22.2 m above top of building slab elevation or 26.6 m GSC.

2. The maximum **height** is 84.0 m GSC for a single heavy lift crane and 20.0 m for all other **accessory structures**.

23.14.8 Subdivision Provisions/Minimum Lot Size

1. There is no minimum **lot width, lot depth** or **lot area**.

23.14.9 Landscaping & Screening

1. **Landscaping** and **screening** shall be provided according to the provisions of Section 6.0.

23.14.10 On-Site Parking and Loading

1. On-site **vehicle** and bicycle parking and loading shall be provided according to the standards set out in Section 7.0.

23.14.11 Other Regulations

1. The following **Outdoor storage** uses are prohibited from occurring:

   a. **Outdoor storage** of food products;
   b. **Outdoor storage** of goods or materials that are capable of being transmitted above, across or below a land or water surface due to the effects of weather;
   c. **Outdoor storage** of goods or materials that constitute a health, fire, explosion or safety hazard;
   d. Producing, discharging or emitting odiferous, toxic, noxious matter or vapours, effluents, heat, glare, radiation, noise, electrical interference or vibrations.

2. In addition to the regulations listed above, the General Development Regulations in Section 4.0 and the Specific Use Regulations in Section 5.0 apply."

2. The Zoning Map of the City of Richmond, which accompanies and forms part of Richmond Zoning Bylaw 8500, is amended by repealing the existing zoning designation of the following area and by designating it **"BC FERRIES FLEET MAINTENANCE AND MOORAGE (ZI14)".**

That area shown cross-hatched on "Schedule A attached to and forming part of Bylaw No. 9940"

3. This Bylaw may be cited as **"Richmond Zoning Bylaw 8500, Amendment Bylaw 9940".**

FIRST READING	
A PUBLIC HEARING WAS HELD ON	
SECOND READING	
THIRD READING	
OTHER CONDITIONS SATISFIED	
MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE APPROVAL	
ADOPTED	

CITY OF RICHMOND
APPROVED by
AB
APPROVED by Director or Solicitor

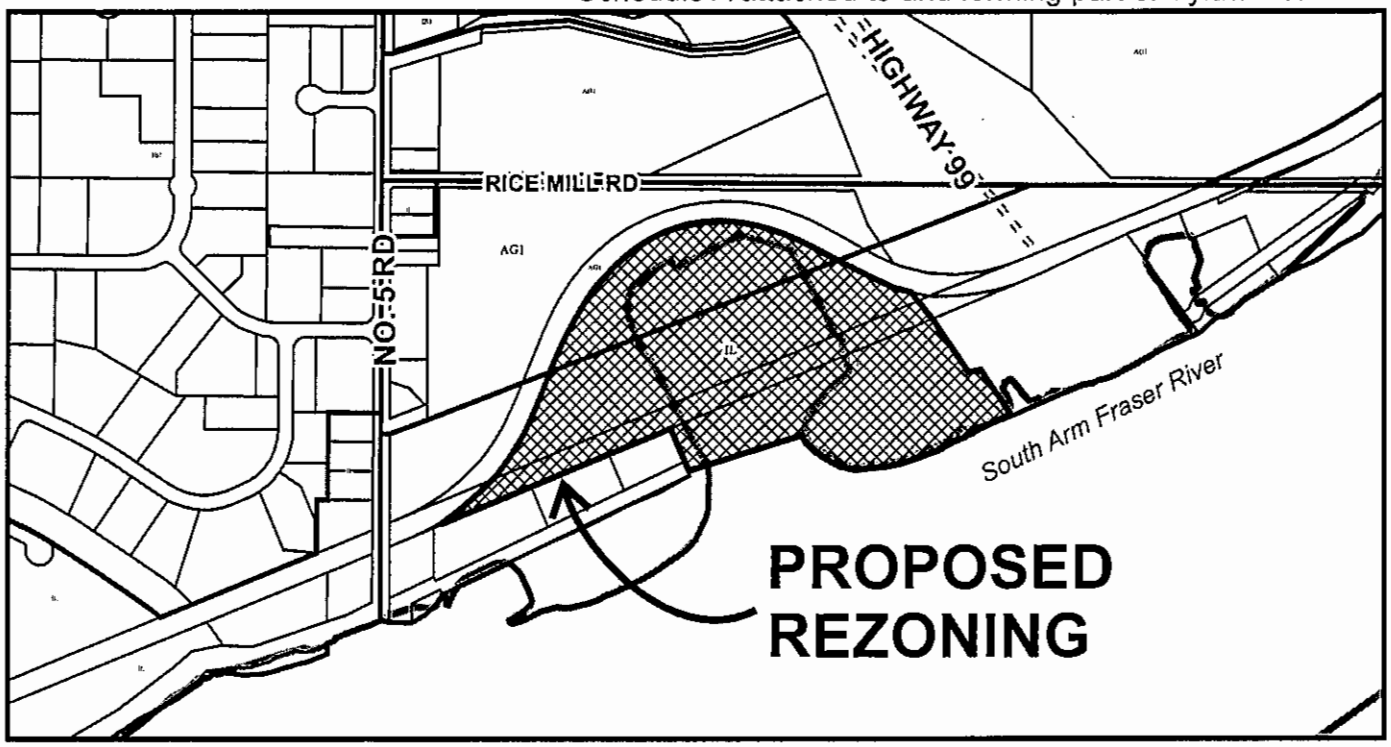
MAYOR

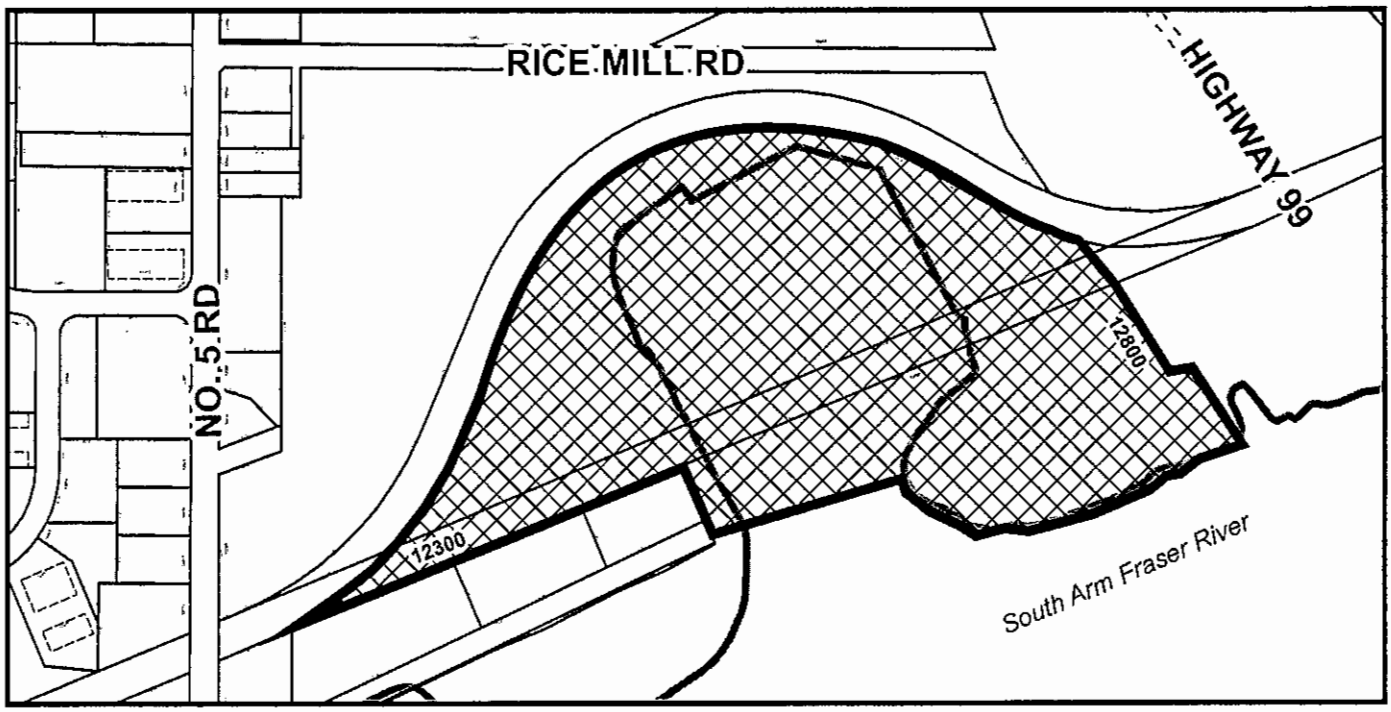
CORPORATE OFFICER

6040362

City of Richmond

Schedule A attached to and forming part of Bylaw No. 9940





RZ 18-824565

Original Date: 06/20/18

Revision Date: 10/12/18

Note: Dimensions are in METRES

City of Richmond

Report to Committee

To:	Planning Committee	**Date:**	May 31, 2019
From:	Wayne Craig Director, Development	**File:**	RZ 18-829032

Re: **Application by Matthew Cheng Architect Inc. for Rezoning at 9020 Glenallan Gate, 9460, 9480 & 9500 Garden City Road from Single Detached (RS1/E) to Low Density Townhouses (RTL4)**

Staff Recommendation

That Richmond Zoning Bylaw 8500, Amendment Bylaw 10047, for the rezoning of 9020 Glenallan Gate, 9460, 9480 & 9500 Garden City Road from the "Single Detached (RS1/E)" zone to the "Low Density Townhouses (RTL4)" zone, in order to permit the development of 13 townhouse units with vehicle access from Garden City Road, be introduced and given first reading.

Wayne Craig
Director, Development

WC:sds
Att. 7

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Affordable Housing	☑	

Staff Report

Origin

Matthew Cheng Architect Inc. has applied to the City of Richmond for permission to rezone the properties at 9020 Glenallan Gate, 9460, 9480 & 9500 Garden City Road from the "Single Detached (RS1/E)" zone to the "Low Density Townhouses (RTL4)" zone in order to permit the development of 13 townhouse units with vehicle access from Garden City Road. A location map and aerial photograph are provided in Attachment 1. The subject site is currently occupied by four single-family dwellings, which are proposed to be demolished.

Project Description

The subject properties have a total combined frontage of approximately 76.2 m (250 ft.) and are required to be consolidated into one development parcel prior to final adoption of the rezoning bylaw. The proposal includes eight three-storey and five two-storey townhouse units, in five buildings, with a proposed floor area ratio (FAR) of 0.6. One secondary suite and two convertible units are also included in the proposal. The preliminary site plan, building elevations and landscape plan are provided in Attachment 2.

Findings of Fact

A Development Application Data Sheet providing details about the development proposal is attached (Attachment 3).

Existing Housing Profile

The applicant has advised that the four existing single-family dwellings are currently tenanted with no existing secondary suites.

Surrounding Development

To the North: Across Glenallan Gate, single-family dwellings on lots zoned "Single Detached (RS1/E)" fronting Garden City Road.

To the South: Duplex and single-family dwellings on lots zoned "Single Detached (RS1/C)" fronting Garden City Road.

To the East: Single-family dwellings on lots zoned "Single Detached (RS1/E)" fronting Glenallan Drive.

To the West: Across Garden City Road, single-family dwellings on lots zoned "Single Detached (RS1/E)" fronting Greenfield Drive.

Related Policies & Studies

Official Community Plan

The Official Community Plan (OCP) land use designation for the subject site is "Neighbourhood Residential (NRES)". The "Neighbourhood Residential" designation comprises of those areas where the principal uses are single-family, two-family and multiple family housing (specifically townhouses). The development proposal is consistent with this designation.

Arterial Road Policy

The subject site is identified for "Arterial Road Townhouse" on the Arterial Road Housing Development Map and the proposal is consistent with the Townhouse Development Requirements in the Arterial Road Land Use Policy.

Floodplain Management Implementation Strategy

The proposed redevelopment must meet the requirements of the Richmond Flood Plain Designation and Protection Bylaw 8204. Registration of a flood indemnity covenant on Title is required prior to final adoption of the rezoning bylaw.

Public Consultation

A rezoning sign has been installed on the subject property. Staff have not received any comments from the public about the rezoning application in response to the placement of the rezoning sign on the property.

The applicant has advised that notification letters were delivered by the applicant to all adjacent neighbouring properties, which included information on density, height, preliminary site plan, elevations and developer contact information. To date, one neighbour replied with questions in regards to setbacks, which were addressed by the developer. No other correspondence has been received. The applicant has also submitted a map showing the properties notified, which is provided in Attachment 4, along with a copy of the letter.

Should the Planning Committee endorse this application and Council grant 1st reading to the rezoning bylaw, the bylaw will be forwarded to a Public Hearing, where any area resident or interested party will have an opportunity to comment. Public notification for the Public Hearing will be provided as per the *Local Government Act*.

Analysis

Built Form and Architectural Character

The applicant is proposing to consolidate the subject properties into one development parcel, with a total frontage of 76.2 m (250 ft.) and a site area of 2,779.1 m^2 (29,914 ft^2), in order to construct 13 townhouse units. The proposed townhouse units are oriented around a single driveway providing access to the site from Garden City Road and a north-south internal maneuvering drive aisle providing access to the garages of the units. The shared outdoor amenity space is proposed to be situated in a central open area at the rear (east) of the site.

The proposal consists of eight three-storey and five two-storey townhouse units, for a total of 13 units, with side-by-side double car garages, and a proposed FAR of 0.6. The three-storey units are proposed along Garden City Road, with a 7.5 m (25 ft.) setback from the south property line to the third floor to minimize potential privacy concerns. Two-storey units and a 6.0 m (20 ft.) setback are proposed along the rear (east) to address the interface with the existing single-family dwellings. The proposed building forms, heights and setbacks are consistent with the design guidelines for arterial road townhouse development.

The proposal includes one secondary suite (studio) with a total area of 26.3 m^2 (283 ft^2), which complies with the minimum floor area for secondary suites in townhouses as per Zoning Bylaw 8500 (25.0 m^2). The applicant has also demonstrated that the proposed secondary suite can accommodate a bed, and kitchen and washroom facilities. To ensure the secondary suite is built to the satisfaction of the City, the applicant is required to register a legal agreement on Title prior to final adoption of the rezoning bylaw, stating that no final Building Permit inspection will be granted until the secondary suite is constructed to the satisfaction of the City in accordance with the BC Building Code and Richmond Zoning Bylaw 8500. In addition, prior to final adoption of the rezoning bylaw, the applicant is required to register a legal agreement on Title to ensure the secondary suite will not be stratified.

Existing Legal Encumbrances

There is an existing 3.0 m wide Statutory Right-of-Way (SRW) (Plan 35224) along the rear (east) property line of the subject properties for sanitary sewer services. The existing SRW will not be impacted by the proposed development and the developer is aware that encroachment into the SRWs is not permitted.

Transportation and Site Access

Vehicular access to the subject site is proposed via one full movement driveway from Garden City Road. The long-term objective is for the driveway access established on Garden City Road to be utilized by adjacent properties to the south, if the properties redevelop. A Statutory Right-of-Way (SRW) for Public Right-of-Passage (PROP) over the entire area of the proposed driveway and the internal maneuvering drive aisle is required prior to final adoption of the rezoning bylaw, which will facilitate access for future adjacent development.

The proposal complies with the required number of vehicle and bicycle parking spaces as per Zoning Bylaw 8500.

Prior to final adoption of the rezoning bylaw, the applicant is required to provide a 4 m by 4 m corner cut road dedication at the northwest corner of the subject site.

Tree Retention and Replacement

The applicant has submitted a Certified Arborist's Report, which identifies tree species, assesses tree structure and condition, and provides recommendations on tree retention and removal relative to the proposed development. The Report assesses 16 trees located on the subject property, three trees located on neighbouring property and two trees located on City property.

The City's Tree Preservation Coordinator has reviewed the Arborist's Report and Tree Management Plan (Attachment 5), conducted an on-site visual assessment and concurs with the Arborist's recommendations, with the following comments:

- 2 trees (tag# 220 & 224) located on-site along the street frontages are identified in good condition. Trees are to be retained and protected as per City of Richmond Tree Protection Information Bulletin TREE-03.
- 2 trees (tag# 434 & 435) located on City property were assessed by Parks Arboriculture Staff, which provided the following comments:
    - One tree (tag# 435) located in the southwest corner has been assessed for retention. A security deposit of $4,570 will be required prior to final adoption of the rezoning bylaw.
    - One tree (tag# 434) located in the southwest corner is identified in poor condition. The tree has been assessed for removal. Compensation of $650 will be required prior to final adoption of the rezoning bylaw.
    - One undersized hedge is located on City property along Garden City Road and has been assessed for removal. As per the Arterial Road Guidelines, hedges in the front yard are discouraged. No compensation is required for the removal of the hedge.
- 2 trees (tag# 318 & 396) located on neighbouring property to be retained and protected. The applicant has provided an authorization letter from the neighbouring property owner (9520 Garden City Road) for the removal of 1 tree (tag# 494).
- 14 trees (tag# 216-219, 221-223, 225, & 283-288) located on site are either dying (sparse canopy foliage) or have been historically topped and as a result exhibit significant structural defects such as previous stem failure, narrow and weak secondary stem unions at the main branch union (below previous topping cuts) and co-dominant stems with inclusions. As a result, these trees are not good candidates for retention and should be removed and replaced.

Tree Replacement

The applicant is proposing to remove 14 on-site trees (tag# 216-219, 221-223, 225, & 283-288). The OCP tree replacement ratio of 2:1 would require a total of 28 replacement trees. Based on the submitted Preliminary Landscape Plan (Attachment 2), the developer is proposing to plant 31 new trees.

The size and species of replacement trees, and overall landscape design, will be reviewed in detail through the Development Permit application process. To ensure the replacement trees are planted and maintained on-site, the applicant is required to provide an acceptable Landscape Plan and Landscape Security based on 100% of the cost estimate provided by the Landscape Architect, prior to Development Permit issuance.

Securities will not be released until a landscaping inspection has been passed by City staff after construction and landscaping has been completed. The City may retain a portion of the security for a one year maintenance period from the date of the landscape inspection.

Tree Protection

The proposed Tree Management Plan is provided in Attachment 5, which outlines the protection of the two trees on-site (tag# 220 & 224) and one City-owned tree (tag# 435). To ensure the protection of these trees, the applicant is required to provide the following, prior to final adoption of the rezoning bylaw:

- Submission to the City of a contract with a Certified Arborist for supervision of all works conducted within or in close proximity to tree protection zones.
- Submission of a Tree Survival Security in the amount of $19,570 ($15,000 based on the sizes of the on-site trees to be retained and $4,570 for the City-owned tree).
- Prior to demolition of the existing dwellings on the subject site, installation of tree protection fencing around all trees to be retained, in accordance with the City's Tree Protection Information Bulletin TREE-03.

Variance Requested

The proposed development is generally in compliance with the "Low Density Townhouses (RTL4)" zone other than the variances noted below. Based on the review of the current plans for the project, the following variances are being requested:

- Reduce the exterior side yard setback (along Garden City Road) from 6.0 m (20 ft.) to 4.5 m (15 ft.), in order to provide a 6.0 m rear yard setback to both the ground and second floors of the rear units.

  Staff are supportive of the proposed variance for the following reasons:

  - ***The proposed variance is consistent with the Arterial Road Guidelines for Townhouses in the OCP. In this context, the exterior side yard functions as a front yard along Garden City Road. The Arterial Road Guidelines are supportive of reduced front yard setbacks, provided an appropriate interface with neighbouring properties is provided. The reduced setback along Garden City Road allows for an increased setback along the east property line, adjacent to existing single-family development. Balconies, bay windows, and porches are not permitted to project into the proposed 4.5 m exterior side yard setback.***
  - ***The proposed 6.0 m rear yard setback to both the ground and second floors of the rear units provides an improved rear yard interface with the existing single-family dwellings to the west and enhances solar access to the rear yards.***
  - ***The distance between the proposed building face and the back of curb on Garden City Road would be approximately 8.6 m, in order to accommodate a new sidewalk and treed and grassed boulevard along Garden City Road.***

The variance will be reviewed in the context of the overall detailed design of the project, including architectural form, site design and landscaping at the Development Permit stage.

Affordable Housing Strategy

In addition to providing one secondary suite (studio), the applicant proposes to provide a cash contribution to the Affordable Housing Reserve Fund of $8.50 per buildable square foot, in accordance with the City's Affordable Housing Strategy, for a total cash contribution in the amount of $152,561.32.

Public Art

In response to the City's Public Art Program (Policy 8703), the applicant will provide a voluntary contribution at a rate of $0.85 per buildable square foot (2018 rate) to the City's Public Art Reserve Fund, for a total contribution in the amount of $15,256.13.

Energy Efficiency

The applicant has committed to design the subject development to meet the City's Step Code requirements (Attachment 6). Details on how all units are to be built and maintained to this commitment will be reviewed at Building Permit stage.

Amenity Space

The applicant is proposing a cash contribution in-lieu of providing the required indoor amenity space on-site. As per the OCP, rezoning applications received prior to February 28, 2019 may choose to provide a cash contribution of $1,600 per unit for developments up to 19 units. The total cash contribution required for this 13 unit townhouse development is $20,800.

Shared outdoor amenity space will be provided on-site. Based on the preliminary design, the size of the proposed outdoor space complies with the OCP requirements of 6.0 m^2 per unit. Staff will work with the applicant at the Development Permit stage to ensure the configuration and design of the outdoor amenity space meets the Development Permit Guidelines in the OCP.

Site Servicing and Frontage Improvements

Prior to final adoption of the rezoning bylaw, the developer is required to enter into a Servicing Agreement for the design and construction of required site servicing and frontage improvements, as described in Attachment 7. Site servicing and frontage improvements include, but are not limited to, the following:

- Construct a new concrete sidewalk and grassed/treed boulevard along the Garden City Road and Glenallan Gate frontages. The new sidewalk placement will incorporate the required tree protection and transition to the existing frontage treatments to the south and east of the site.
- Construct a 1.5 m wide concrete walkway to connect the north-south drive-aisle to the new sidewalk along Glenallan Gate.
- Upgrade the existing northbound bus stop on Garden City Road at Glenallan Gate to the following standards: concrete landing pad (3.0 m x 9.0 m) for installation of bus shelter, bus bench, garbage/recycling receptacles, and conduit pre-ducting for electrical connections.

- Upgrade approximately 40 m of water main along Glenallan Gate frontage, upgrade 60 m of storm sewer along Glenallan Gate frontage, and replace 55 m of sanitary sewer located in the rear yard.

Prior to final adoption of the rezoning bylaw, the developer is required to:

- Contribute $8,726 towards the upgrade of the existing special crosswalk at the Garden City Road and Glenallan Gate intersection. The upgrade works include new LED street lights, new amber flashers, and new standard Audible Pedestrian Signal pushbuttons.
- Contribute $30,000 towards the purchase and installation of a City design standard bus shelter.

The developer is also required to pay Development Cost Charges (DCCs') (City & Metro Vancouver), School Site Acquisition Charge, Address Assignment Fees, and the costs associated with the completion of the required site servicing and frontage improvements as described in Attachment 7.

Development Permit

A Development Permit application is required to be processed to a satisfactory level, prior to final adoption of the rezoning bylaw. Further refinements to architectural, landscape and urban design will be completed as part of the Development Permit application review process, including, but not limited to, the following:

- Compliance with Development Permit Guidelines for multi-family developments and arterial road townhouses in the OCP;
- Refinement of the proposed building form and architectural features to achieve sufficient variety in design and create an interesting streetscape along Garden City Road and Glenallan Gate;
- Refinement of the shared outdoor amenity area design, including the choice of play equipment, to create a safe and vibrant environment for children's play and social interaction; and
- Review of the relevant accessibility features, including aging-in-place features in all units and proposed convertible units.

Additional issues may be identified as part of the Development Permit application review process.

Financial Impact or Economic Impact

The rezoning application results in an insignificant Operational Budget Impact (OBI) for off-site City infrastructure (such as roadworks, waterworks, storm sewers, sanitary sewers, street lights, street trees and traffic signals).

Conclusion

The purpose of this application is to rezone the properties at 9020 Glenallan Gate, 9460, 9480 & 9500 Garden City Road from the "Single Detached (RS1/E)" zone to the "Low Density Townhouses (RTL4)" zone in order to permit the development of 13 townhouse units.

The rezoning application complies with the land use designation and applicable policies contained within the OCP for the subject site. Further review of the project design will be completed as part of the Development Permit application review process.

The list of rezoning considerations is included in Attachment 7, which has been agreed to by the applicant (signed concurrence on file).

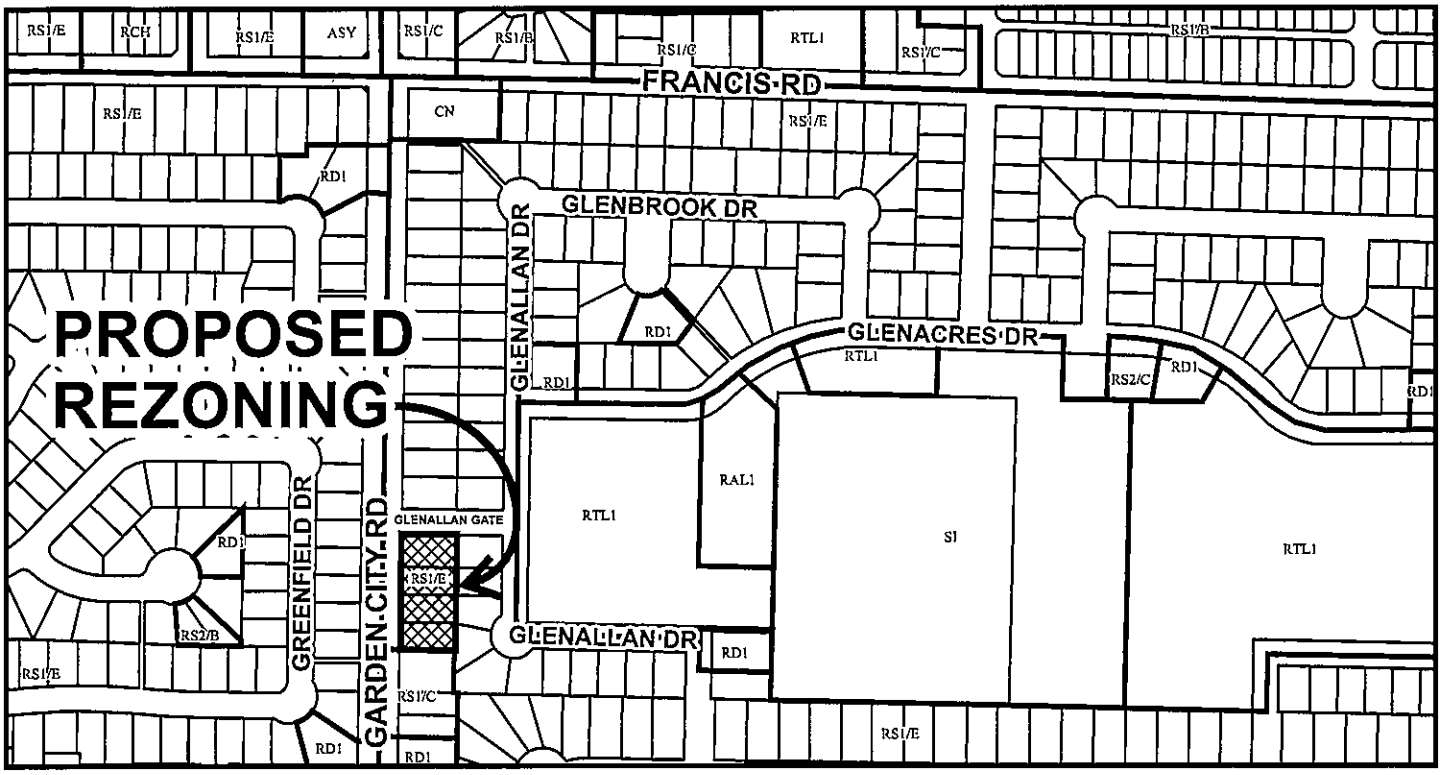
On this basis, it is recommended that Richmond Zoning Bylaw 8500, Amendment Bylaw 10047 be introduced and given first reading.

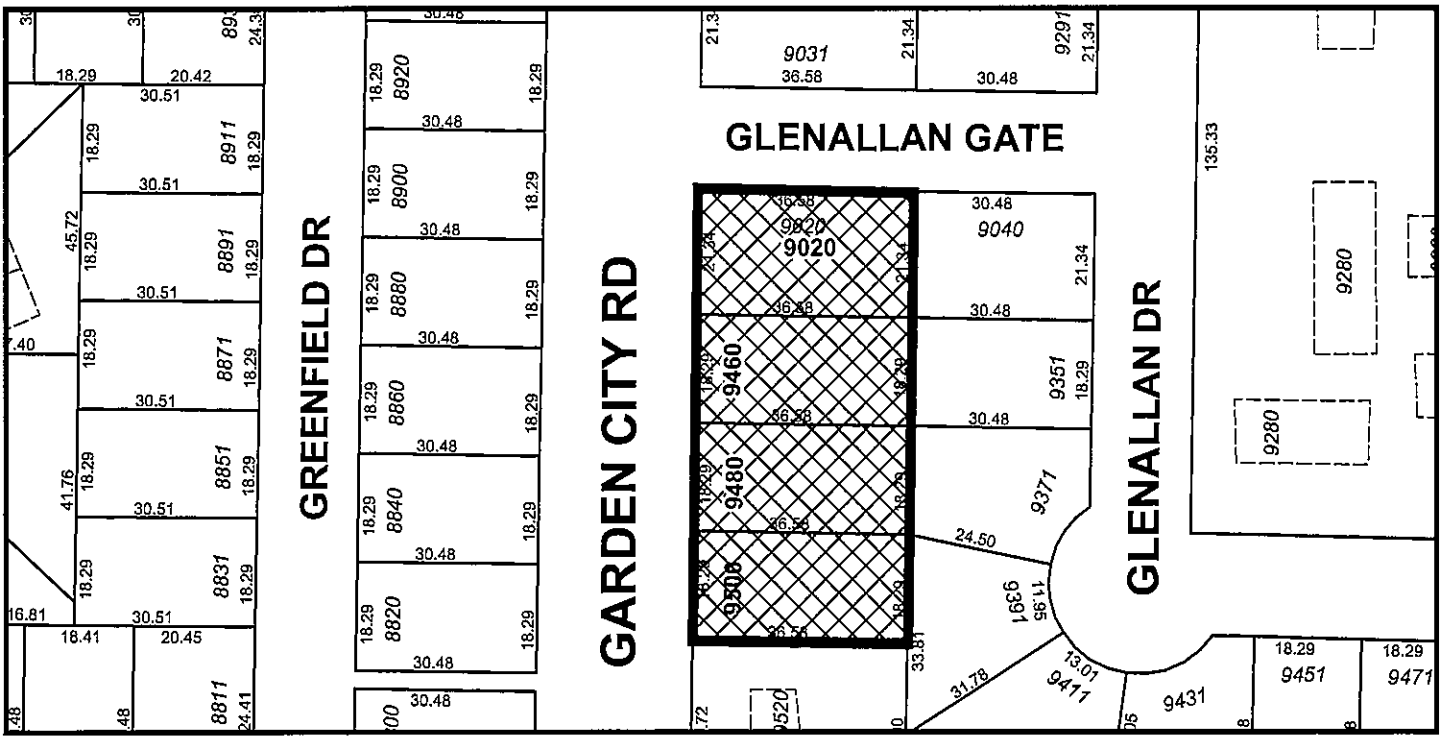
Steven De Sousa
Planner 1

SDS:sds

Attachment 1: Location Map & Aerial Photo
Attachment 2: Conceptual Development Plans
Attachment 3: Development Application Data Sheet
Attachment 4: Notification Map and Letter by Applicant
Attachment 5: Tree Management Plan
Attachment 6: Step Code Letter from Applicant
Attachment 7: Rezoning Considerations

City of Richmond





RZ 18-829032

Original Date: 08/14/18

Revision Date: 05/21/19

Note: Dimensions are in METRES

City of Richmond

RZ 18-829032

Original Date: 08/15/18

Revision Date: 05/21/19

Note: Dimensions are in METRES

CONVERTIBLE UNIT GUIDELINES:

DOORS & DOORWAYS
-ENTRY DOORS ARE A MINIMUM 863 MM BUT IDEALLY 914 MM AND HAVE CLEAR ACCESS.
-ENTRY DOOR CLEAR EXTERIOR FLOOR SPACE MIN. 1220 MM DEPTH BY DOOR WIDTH PLUS 500 MM ON LATCH SIDE (NOT NEEDED IF ROUGH IN WIRING PROVIDED FOR FUTURE AUTOMATIC DOOR OPENER).
-INTERIOR DOORS TO MAIN LIVING AREAS, 1 BATHROOM AND 1 BEDROOM, MIN. 800 MM CLEAR OPENING WITH FLUSH THRESHOLDS MAX. 13 MM HEIGHT. DEMONSTRATE WHEELCHAIR ACCESS BETWEEN THE HALLWAY AND ROOMS AND WIDEN HALLWAY AND/OR DOORWAY(S) IF NECESSARY TO SECURE ACCESS.
-PATIO/BALCONY MIN. 850 MM CLEAR OPENING. NOTE HOW ACCESSED. ALL INTERIOR THRESHOLDS WITHIN UNITS COMPLY WITH BC BUILDING CODE.
-LEVER-TYPE HANDLES FOR ALL DOORS.

VERTICAL CIRCULATION
-STAIR LIFT, STAIRCASE WIDTH, FRAMING SUPPORT, AND LANDINGS, AS NOTED ON FLOOR PLANS IN COMPLIANCE WITH MANUFACTURER SPECIFICATIONS.
OR
VERTICAL LIFT, DEPRESSED SLAB AREA, AND LANDINGS, AS NOTED ON FLOOR PLANS IN COMPLIANCE WITH MANUFACTURER SPECIFICATIONS. FRAMING TO ACCOMMODATE SHAFT CONSTRUCTION WITHOUT IMPACT TO SURROUNDING STRUCTURE.
-AT THE TOP OF ALL STAIRWAYS, WALLS ARE REINFORCED WITH 2" X 12" SOLID LUMBER AT 914 MM TO CENTRE.

HALLWAYS
-MIN. 900 MM WIDTH.

GARAGE
-MIN. 1 ACCESSIBLE PARKING SPACE WITH MIN. 4 M GARAGE WIDTH.
-ACCESS FROM GARAGE TO LIVING AREA MIN. 800 MM CLEAR OPENING.

BATHROOM (MIN. 1)
-TOILET CLEAR FLOOR SPACE MIN. 1020 MM AT SIDE AND IN FRONT.
-WALL BLOCKING FOR FUTURE GRAB BAR INSTALLATION AT TOILET, TUB AND SHOWER, REINFORCED WITH 2" X 12" SOLID LUMBER IN ALL BATHTUB, SHOWER, AND TOILET LOCATIONS.
-LEVER-TYPE HANDLES FOR PLUMBING FIXTURES.
-PRESSURE AND TEMPERATURE CONTROL VALVES ARE INSTALLED ON ALL SHOWER FAUCETS.
-CABINETS UNDERNEATH SINK(S) ARE EASILY REMOVED. DEMONSTRATE BATH AND SHOWER CONTROLS ARE ACCESSIBLE (LAYOUT OR FIXTURE PLACEMENT).

KITCHEN
-CLEAR AREA NEEDED UNDER FUTURE WORK SPACE. PLUMBING AND GAS PIPES (IN-WALL AND IN-FLOOR) LOCATED CLEAR OF UNDER COUNTER AREA OF FUTURE WORK SPACE (STOVE, SINK & MIN. 810 MM WIDE COUNTER). ALL PIPES ARE BROUGHT IN NO HIGHER THAN 304 MM TO 355 MM TO THE CENTRE OF THE PIPE FROM FLOOR LEVEL.
-CABINETS UNDERNEATH SINK ARE EASILY REMOVED.
-1500 MM TURNING DIAMETER OR TURNING PATH DIAGRAM.
- LEVER-TYPE HANDLES FOR PLUMBING FIXTURES.

WINDOWS
-MIN. 1 WINDOW THAT CAN BE OPENED WITH A SINGLE HAND (BATHROOM, KITCHEN, LIVING ROOM)

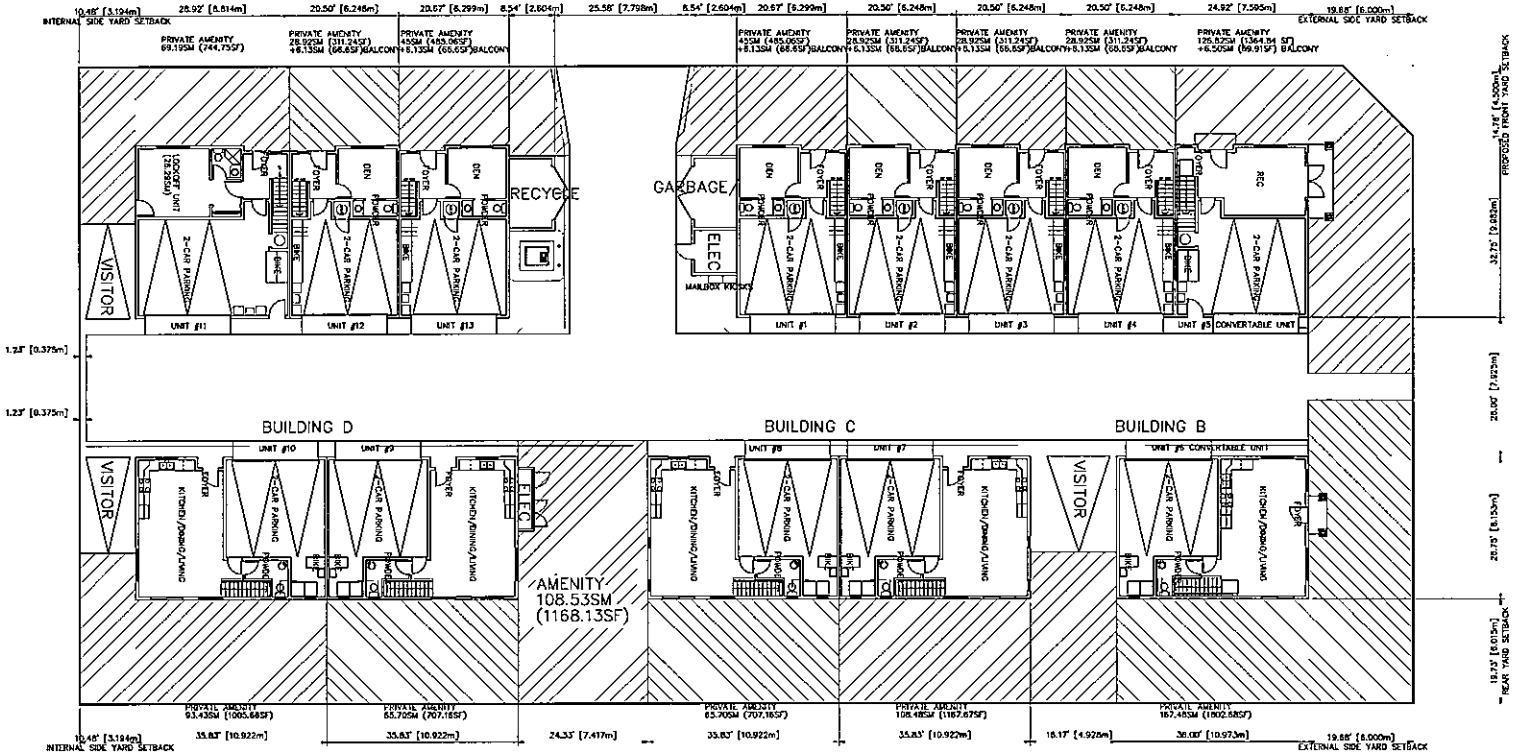
OUTLETS & SWITCHES
-PLACEMENT LOCATIONS OF ELECTRICAL OUTLETS: BESIDE WINDOW, BOTTOM OF STAIRWAYS, BESIDE TOILET, ABOVE EXTERNAL DOORS (OUTSIDE AND INSIDE), ON FRONT FACE OF KITCHEN COUNTER, WITHIN PROXIMITY OF CONTROL CENTRE FOR SMART HOME OPTIONS. -UPGRADE TO FOUR-PLEX OUTLETS IN MASTER BEDROOM, HOME OFFICE, GARAGE, AND RECREATION ROOM.

NOTES:

UNITS TO FEATURE AGING-IN-PLACE FEATURES SUCH AS, BUT NOT LIMITED TO:
-LEVER STYLE DOOR HANDLES
-BLOCKING INSTALLED IN WALLS FOR GRAB BARS
-STAIR HANDRAILS

UNIT GARAGES TO INCLUDE TWO(2) EV OUTLETS EACH

	EXISTING	PROPOSED:	VARIANCE:
SITE AREA:	2787.09SM (29999.27SF)	2779.09SM (29913.16SF)	
LAND USES:	SINGLE-FAMILY DWELLING	TOWNHOUSE	
OCP DESIGNATION:	RESIDENTIAL	NO CHANGE	
ZONING:	RS1/E	RTL4	
NUMBER OF UNITS:	4	13	
	ALLOWED/REQUIREMENTS:	PROPOSED:	
FLOOR AREA RATIO:	0.600 (17999.56 SF)	0.600 (17903.10 SF)	
LOT COVERAGE:			
SETBACK-FRONT (NORTH)	6.0m (19.68')	6.000m (19.68')	
SETBACK-SIDE (WEST)	6.0m (19.68')	4.500m (14.76')	VARIANCE REQUIRED
SETBACK-REAR (SOUTH)	3.0m (9.84')	3.194m (10.48')	
SETBACK-SIDE (EAST)	3.0m (9.84')	6.000m (19.68')	
HEIGHT: (m)	12.000m (39.40')	10.808m (35.46')	
LOT SIZE:	2787.09SM (29999.27SF)	2779.09SM (29913.16SF)	
OFF-STREET PARKING RESIDENTIAL/COMMERCIAL:	25 AND 3	26 AND 3	
OFF-STREET PARKING ACCESSIBLE:	1	1	
OFF-STREET PARKING TOTAL	29	29	
TANDEM PARKING SPACES:	NONE	NONE	
BICYCLE PARKING	CLASS 1: 16.25 CLASS 2: 2.6	21 (16 + 5 VERTICAL) 4 (2 RACKS)	
INDOOR AMENITY SPACE:	CASH-IN-LIEU	CASH-IN-LIEU	
OUTDOOR AMENITY SPACE:	78SM (839.56SF)	108.53SM (1168.13SF)	
LOT COVERAGE:		36.86%(11027.72 SF)	
PERMEABLE AREA:		44%	
LIVE LANDSCAPE:		25.3%	



CNCL - 453

MATTHEW CHENG ARCHITECT INC.

No. Date Revision

Consultants

Project Title
13-UNIT TOWNHOUSE DEVELOPMENT
9020 GLENALLAN GATE
9460, 9480 & 9500 GARDEN CITY ROAD
RICHMOND, B.C.

Sheet Title
PROJECT DATA
AMENITY AREA
PARKING PLAN

Drawn: MC
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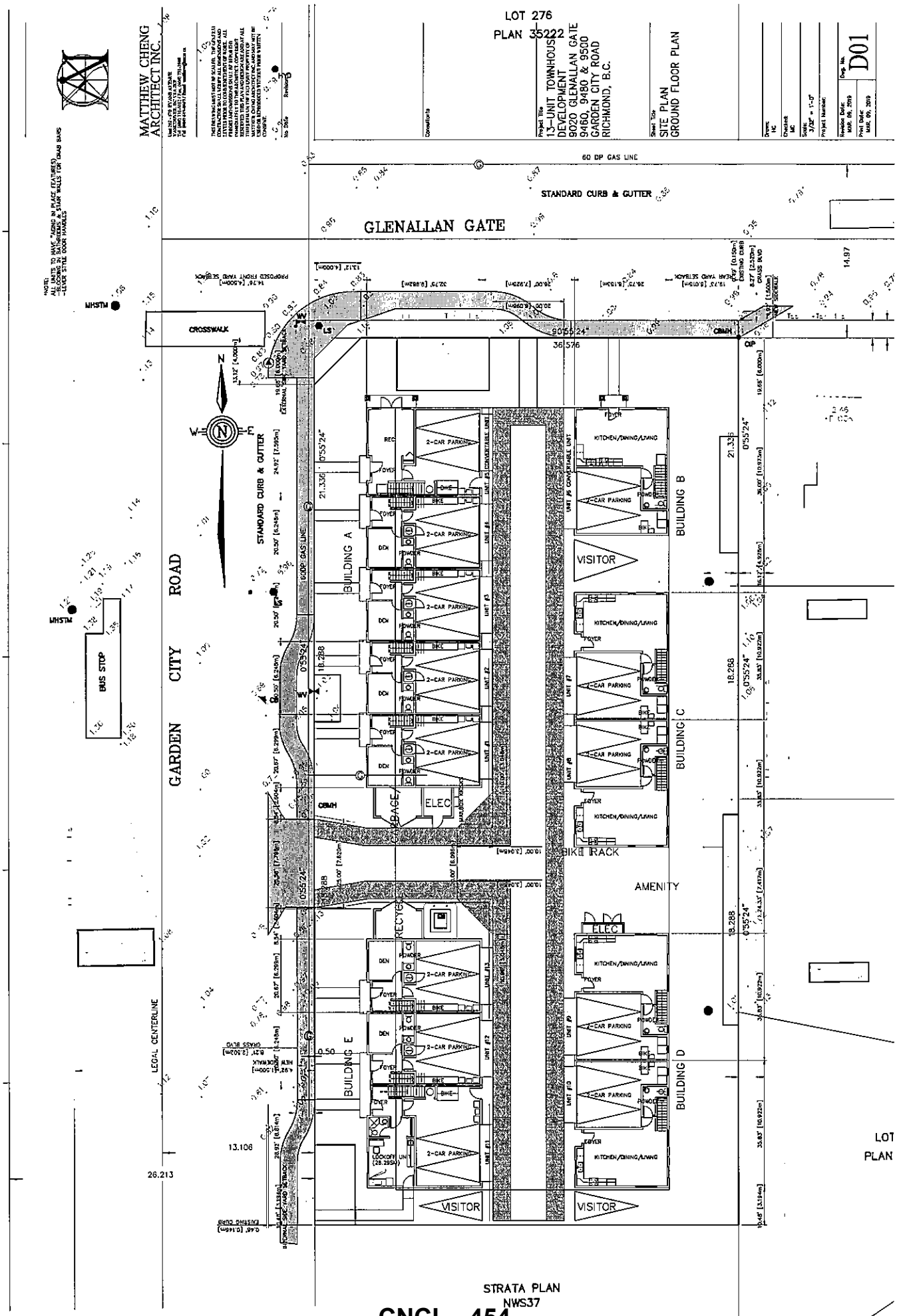
Scale: 3/32" = 1'-0"
Project Number:
Revision Date: MAR. 09, 2019
Print Date: MAR. 09, 2019
Dwg. No. D00

ATTACHMENT 2


LOT 276
PLAN 35222
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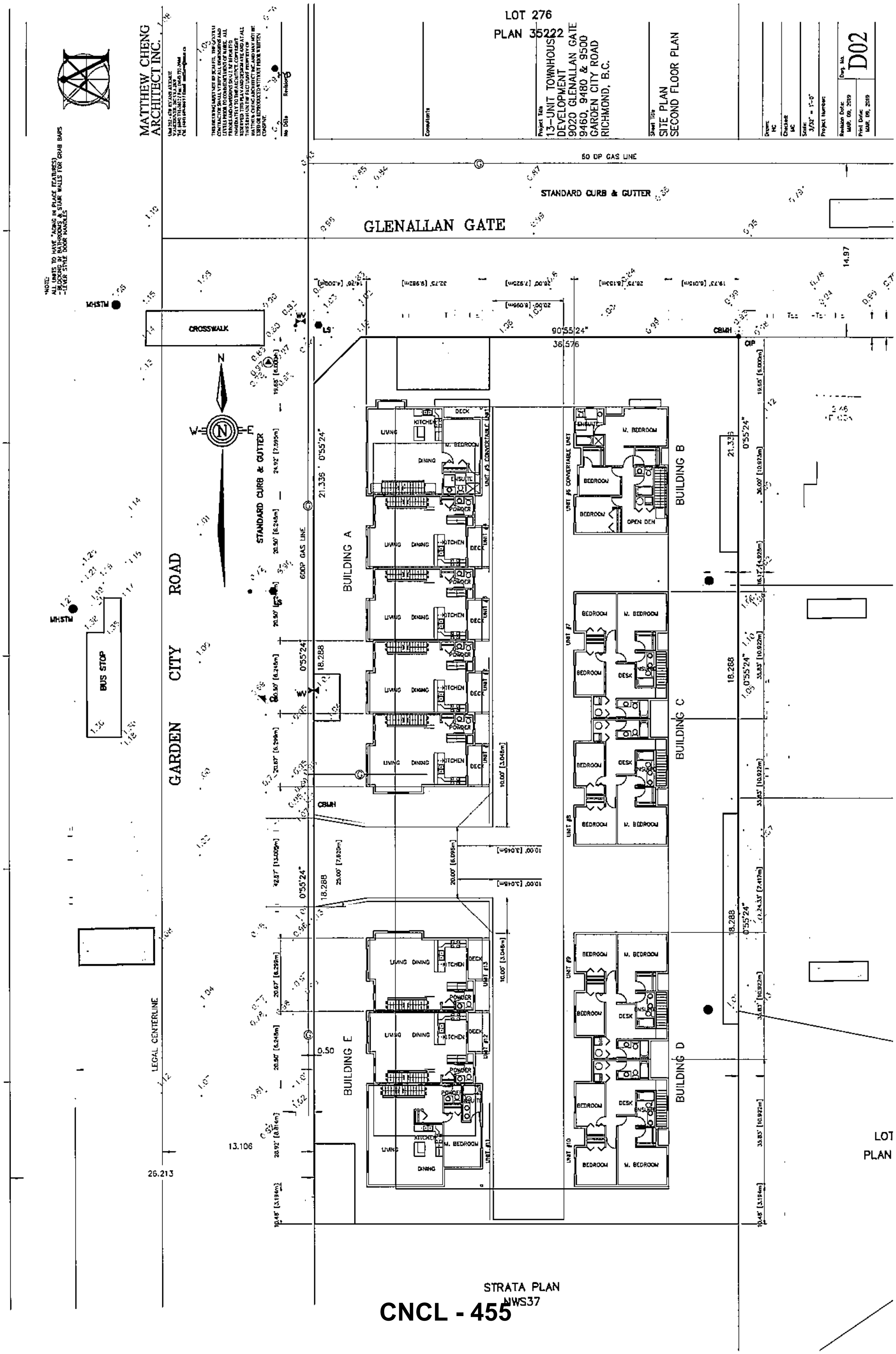
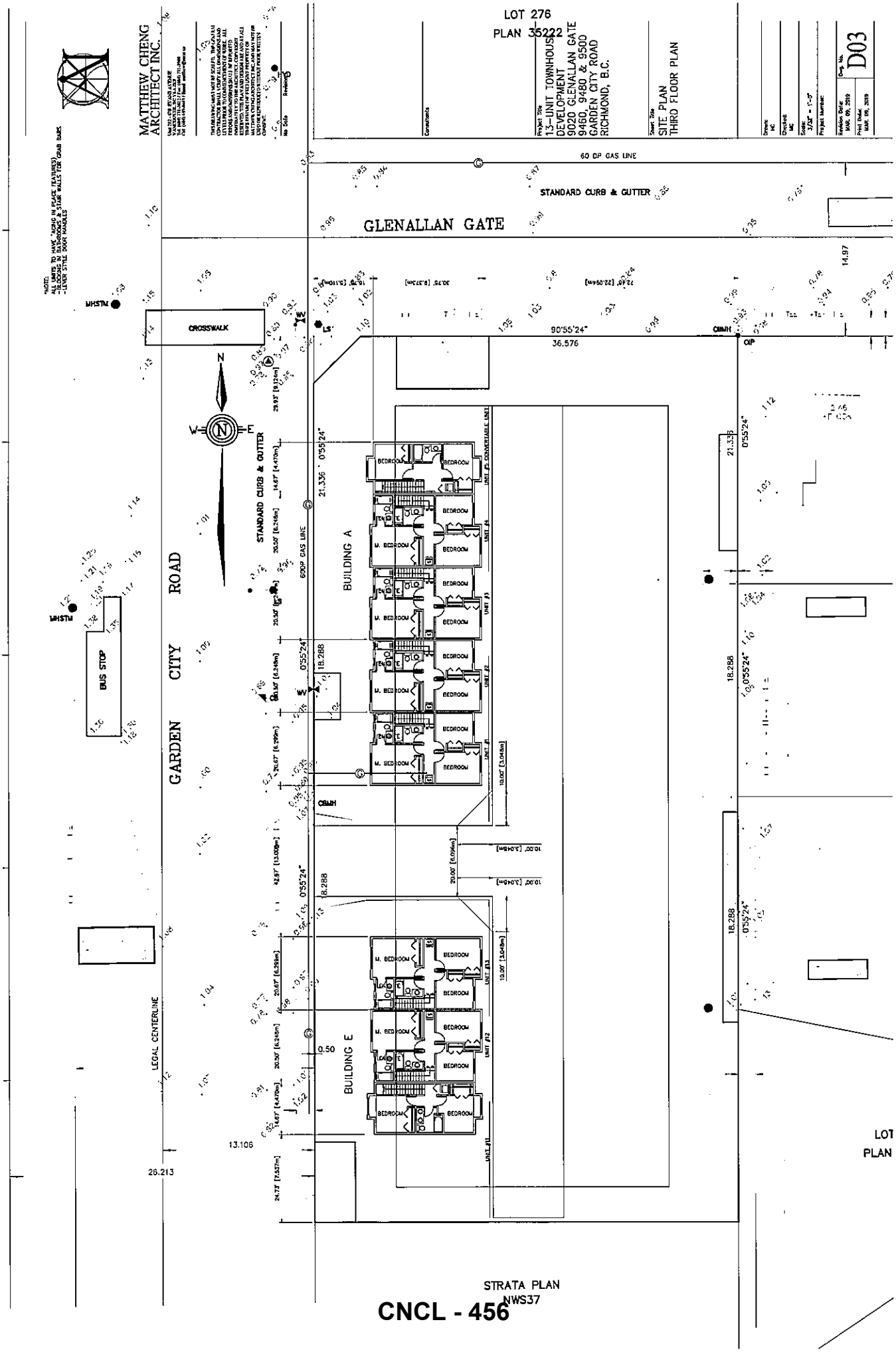
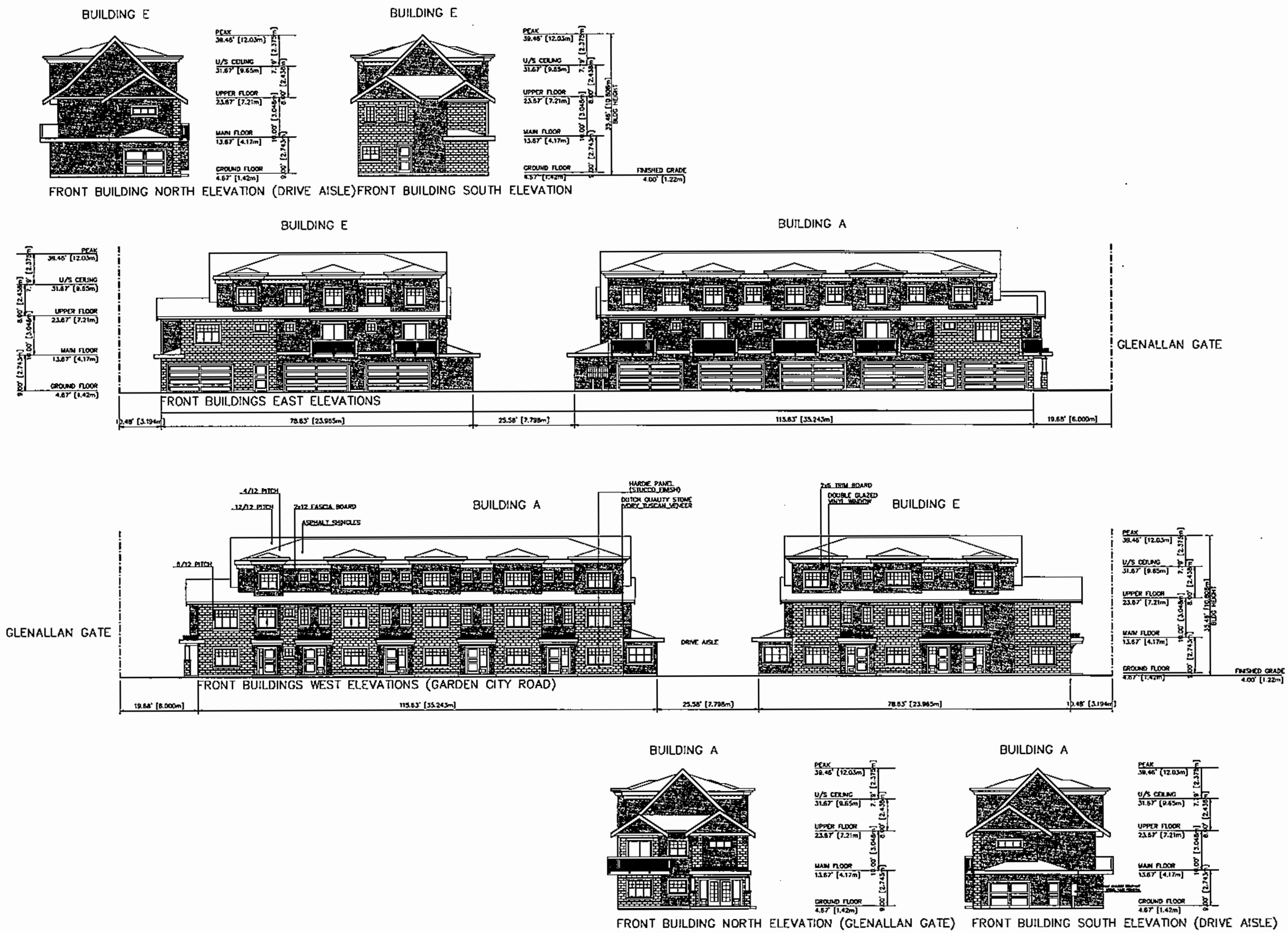
13-UNIT TOWNHOUSE DEVELOPMENT
9020 GLENALLAN GATE
9460, 9480 & 9500
GARDEN CITY ROAD
RICHMOND, B.C.
SITE PLAN
GROUND FLOOR PLAN
D01
60 DP GAS LINE
STANDARD CURB & GUTTER
GLENALLAN GATE
GARDEN CITY ROAD
CROSSWALK
BUS STOP
BUILDING A
BUILDING B
BUILDING C
BUILDING D
BUILDING E
VISITOR
AMENITY
BIKE RACK
ELEC
RECYCLE
LEGAL CENTERLINE
LOT
PLAN
STRATA PLAN
NWS37


MATTHEW CHENG ARCHITECT INC.
13-UNIT TOWNHOUSE DEVELOPMENT
9020 GLENALLAN GATE
9460, 9480 & 9500 GARDEN CITY ROAD
RICHMOND, B.C.
SITE PLAN
SECOND FLOOR PLAN
D02
MAR. 09, 2019
LOT 276
PLAN 35222
60 DP GAS LINE
STANDARD CURB & GUTTER
GLENALLAN GATE
GARDEN CITY ROAD
CROSSWALK
BUS STOP
MHSTM
LEGAL CENTERLINE
BUILDING A
BUILDING B
BUILDING C
BUILDING D
BUILDING E
LIVING
DINING
KITCHEN
DECK
M. BEDROOM
BEDROOM
ENSUITE
POWDER
OPEN DEN
DESK
CBMH
STRATA PLAN
NWS37
LOT
PLAN



STRATA PLAN
NWS37



MATTHEW CHENG ARCHITECT INC.

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No Date Revision

Consultants

Project Title
13-UNIT TOWNHOUSE DEVELOPMENT
9020 GLENALLAN GATE
9460, 9480 & 9500 GARDEN CITY ROAD
RICHMOND, B.C.

Sheet Title
ELEVATIONS

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Revision Date: MAR. 09, 2019
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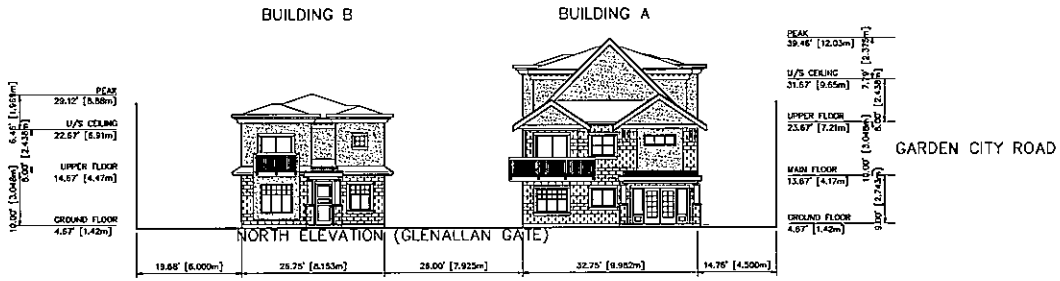

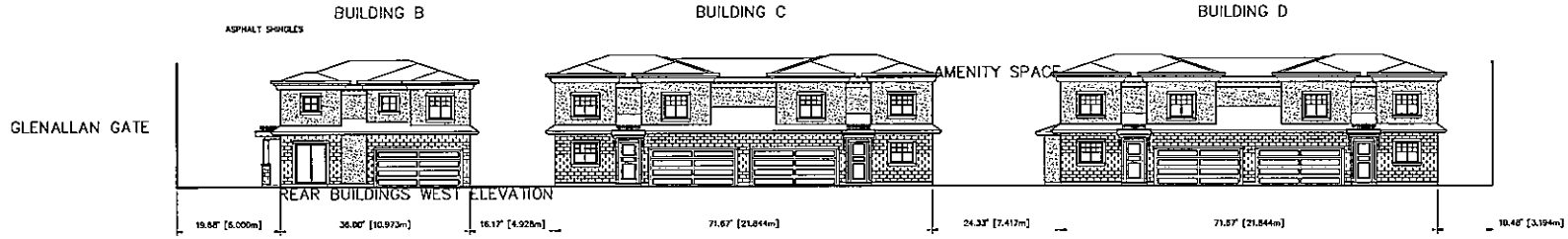

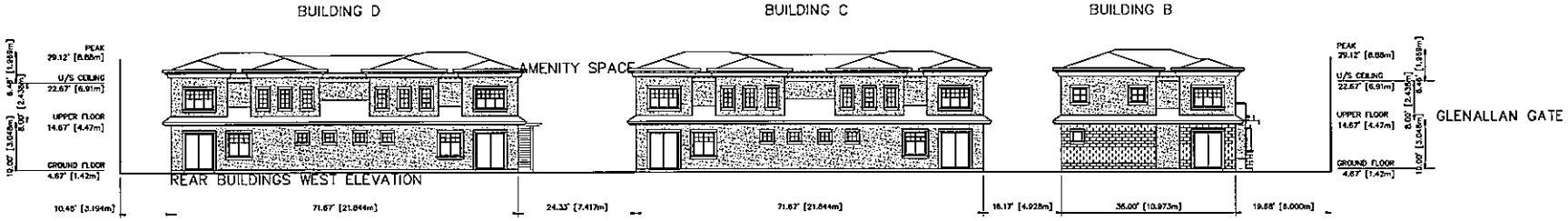

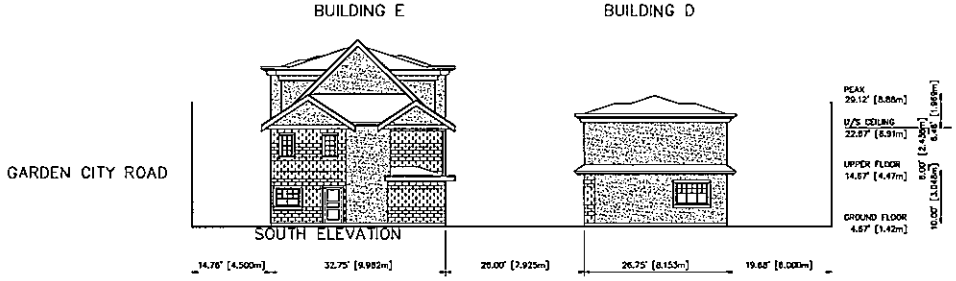

CNCL - 458

MATTHEW CHENG ARCHITECT INC.

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VANCOUVER, BC V6A 2K9
Tel: (604) 731-3622 Fax: (604) 731-3948
Cell: (604) 649-8669 Email: matthew@mca.ca

No. Date Revision

Consultants

Project Title
13-UNIT TOWNHOUSE DEVELOPMENT
9020 GLENALLAN GATE
9460, 9480 & 9500 GARDEN CITY ROAD
RICHMOND, B.C.

Sheet Title
ELEVATIONS

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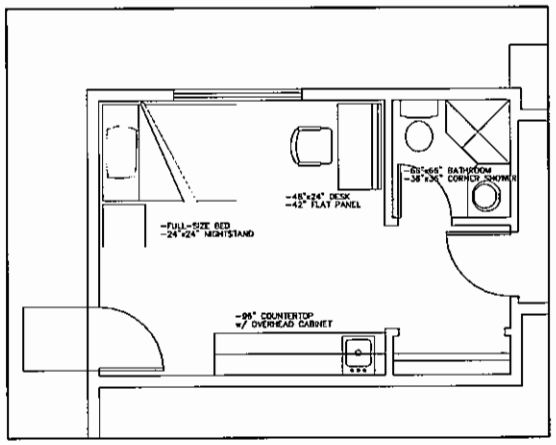
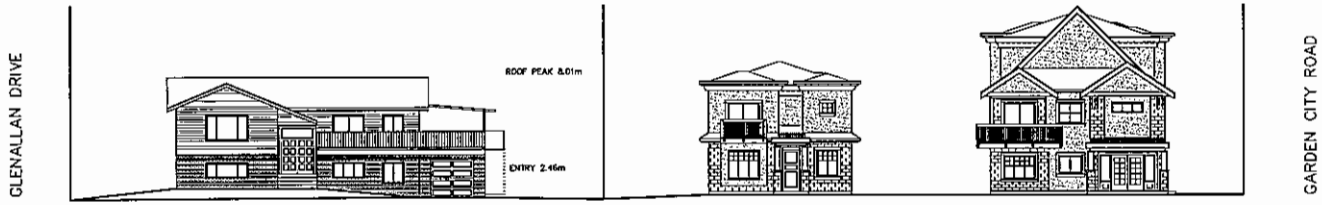
Revision Date: MAR. 05, 2019
Print Date: MAR. 05, 2019
Dwg. No. D05



LOCKOFF UNIT
(26.29SM)
SCALE: 3/8" = 1'

STREETSCAPE ALONG GARDEN CITY ROAD



STREETSCAPE ALONG GLENALLAN GATE

CNCL - 459

MATTHEW CHENG ARCHITECT INC.

No	Date	Revision

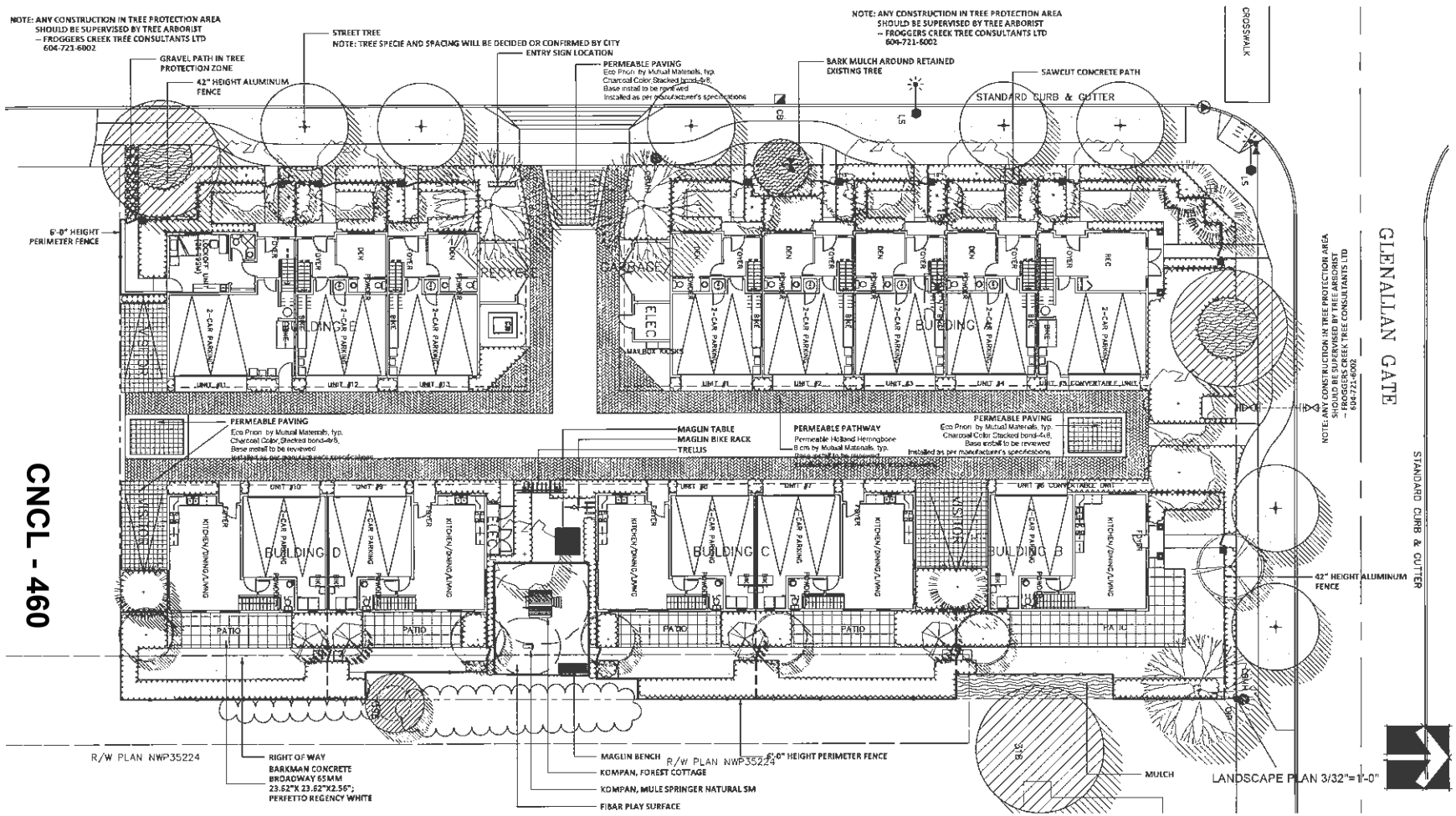
No	Date	Revision

Conditions

Project Title
13-UNIT TOWNHOUSE DEVELOPMENT
9020 GLENALLAN GATE
9460, 9480 & 9500
GARDEN CITY ROAD
RICHMOND, B.C.

Sheet Title
STREETSCAPE

Drawn: HC	Revision Date: MAR. 09, 2019
Checked: MC	Print Date: MAR. 09, 2019
Scale: 3/32" = 1'-0"	Dwg. No. D06
Project Number:	



CNCL - 460

EXISTING STREET VIEW ON GARDEN CITY ROAD
(FACING THE INTERSECTION WITH GLENALLAN GATE)

EXISTING STREET VIEW ON GLENALLAN GATE
(FACING THE INTERSECTION WITH GARDEN CITY ROAD)

PLANT SCHEDULE

PMG PROJECT NUMBER: 18-220

KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANTED SIZE / REMARKS
	6	ACER PALMATUM	JAPANESE MAPLE	6CM CAL, 1.8MT STD, B&B
	3	CERCIDIPHYLLUM JAPONICUM	KATSURA TREE	10CM CAL, 1.8M STD, B&B
	4	FAGUS SYLVATICA 'DAWYCK GOLD'	DAWYCK GOLD BEECH	9CM CAL, B&B
	1	OXYDENDRON ARBOREUM	SOURWOOD	6CM CAL, 1.8M STD, B&B
	4	PICEA OMORIKA	SERBIAN SPRUCE	3.5M HT, B&B
	5	QUERCUS PALUSTRIS 'GREEN PILLAR'	GREEN PILLAR PIN AK	6CM CAL, 2M STD, B&B
	8	STYRAX JAPONICUS 'PINK CHIMES'	PINK FLOWERED JAPANESE SNOWBELL	6CM CAL, 1.8M STD, B&B

NOTES: * PLANT SIZES IN THIS LIST ARE SPECIFIED ACCORDING TO THE BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD, LATEST EDITION. CONTAINER SIZES SPECIFIED AS PER CNLA STANDARD. BOTH PLANT SIZE AND CONTAINER SIZE ARE THE MINIMUM ACCEPTABLE SIZES. * REFER TO SPECIFICATIONS FOR DEFINED CONTAINER MEASUREMENTS AND OTHER PLANT MATERIAL REQUIREMENTS. * SEARCH AND REVIEW. MAKE PLANT MATERIAL AVAILABLE FOR OPTIONAL REVIEW BY LANDSCAPE ARCHITECT AT SOURCE OF SUPPLY. AREA OF SEARCH TO INCLUDE LOWER MAINLAND AND FRASER VALLEY. * SUBSTITUTIONS: OBTAIN WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT PRIOR TO MAKING ANY SUBSTITUTIONS. TO THE SPECIFIED MATERIAL. UNAPPROVED SUBSTITUTIONS WILL BE REJECTED. ALLOW A MINIMUM OF FIVE DAYS PRIOR TO DELIVERY FOR REQUEST TO SUBSTITUTE. SUBSTITUTIONS ARE SUBJECT TO BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD - DEFINITION OF CONDITIONS OF AVAILABILITY. * ALL LANDSCAPE MATERIAL AND WORKMANSHIP MUST MEET OR EXCEED BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD LATEST EDITION. * ALL PLANT MATERIAL MUST BE PROVIDED FROM CERTIFIED DISEASE FREE NURSERY. * BIO-SOLIDS NOT PERMITTED IN GROWING MEDIUM UNLESS AUTHORIZED BY LANDSCAPE ARCHITECT.

LOT SIZE: 29,999 SQ FT

LOT COVERAGE CALCULATION FOR PERMEABLE: 13,200 SQ FT
LOT COVERAGE CALCULATION FOR LANDSCAPING: 7,588 SQ FT

PERCENTAGE OF PERMEABILITY: 44%
PERCENTAGE OF LANDSCAPING: 25.3%

pmg LANDSCAPE ARCHITECTS
Suite C100 - 4185 Still Creek Drive
Burnaby, British Columbia, V5C 6G9
p 604 294-0011 . f 604 294-0022

SEAL

NO.	DATE	REVISION DESCRIPTION	DR.
7	2019-MAY-07	NEW SITE PLAN	YR
6	2019-MAR-21	REVISIONS PER CITY COMMENTS	YR
5	2019-FEB-25	NEW SITE PLAN REVISED PER CITY COMMENTS	YR
4	2019-FEB-14	CITY COMMENTS	YR
3	2019-JAN-18	NEW SITE PLAN	YR
2	2019-JAN-03	CITY COMMENTS	YR
1	2018-JAN-09	NEW SITE PLAN	YR

CLIENT

PROJECT

13-UNIT TOWNHOUSE DEVELOPMENT

9020 GLENALLAN GATE 9460, 9480 & 9500 GARDEN CITY ROAD RICHMOND, B.C.

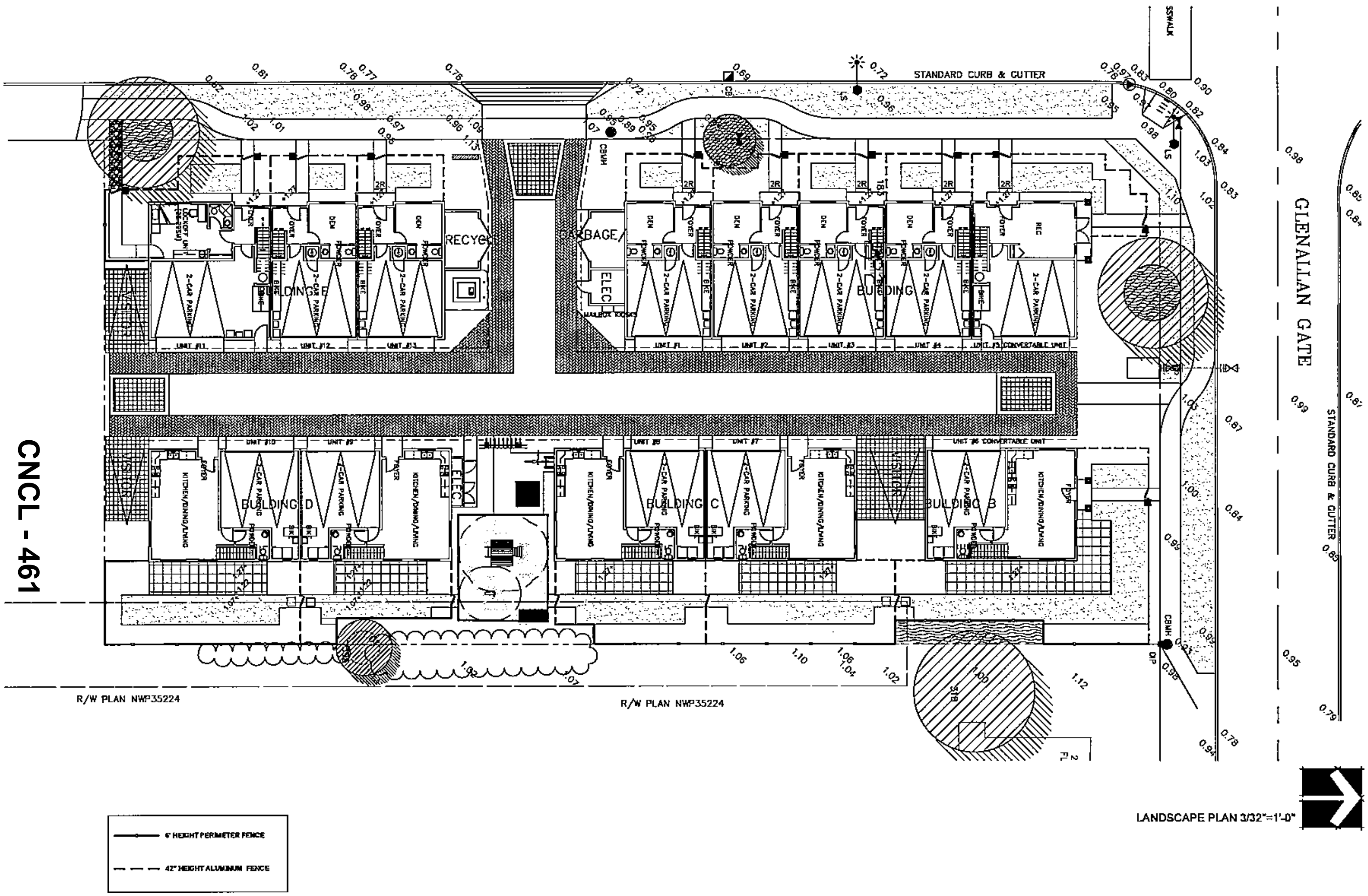
DRAWING TITLE

LANDSCAPE PLAN

DATE	18.11.27	DRAWING NUMBER	
SCALE	3/32"=1'		L1
DRAWN	YR		
DESIGN			
CHKD	PCM		OF 5

18220-7 ZP

PMG PROJECT NUMBER 18-220



LANDSCAPE PLAN 3/32"=1'-0"

pmg LANDSCAPE ARCHITECTS
Suite C100 - 4185 Still Creek Drive
Burnaby, British Columbia, V5C 6G9
p: 604 294-0011 ; f: 604 294-0022

SEAL:

NO.	DATE	REVISION DESCRIPTION	DR.
7	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]
5	[illegible]	NEW SITE PLAN/REMOVE TWO TREES	[illegible]
4	[illegible]	CITY COMMENTS	[illegible]
3	[illegible]	NEW SITE PLAN	[illegible]
2	[illegible]	CITY COMMENTS	[illegible]
1	[illegible]	NEW SITE PLAN	[illegible]

CLIENT:

PROJECT:

13-UNIT TOWNHOUSE DEVELOPMENT

9020 GLENALLAN GATE 9460, 9480 & 9500 GARDEN CITY ROAD
RICHMOND, B.C.

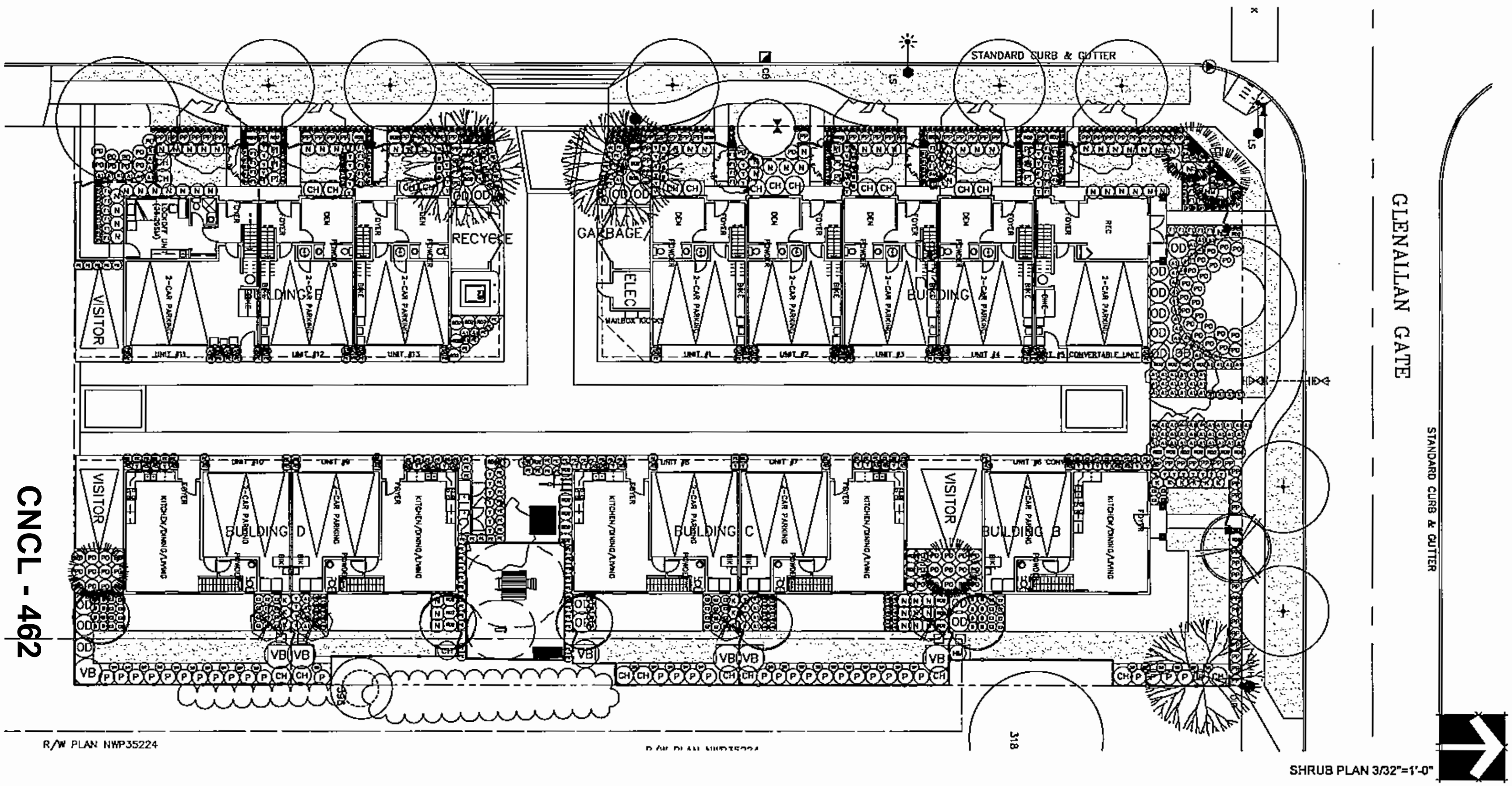
DRAWING TITLE:

GRADING AND FENCE PLAN

DATE: 18.11.27
SCALE: 3/32"=1'
DRAWN: YB
DESIGN:
CHK'D: PCM

DRAWING NUMBER: **L3** OF 5

PMG PROJECT NUMBER: 18-220



SHRUB PLAN 3/32"=1'-0"

PLANT SCHEDULE

PMG PROJECT NUMBER: 18-220

KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANTED SIZE / REMARKS
SHRUB				
B	29	BUXUS MICROPHYLLA 'WINTER GREEN'	LITTLE-LEAF BOX	#3 POT; 40CM
CH	25	CHOISYA TERNATA	MEXICAN MOCK ORANGE	#3 POT; 50CM
HB	52	HEBE PINGUIFOLIA 'SUTHERLANDII'	SUTHERLAND HEBE	#2 POT; 40CM
HM	3	HYDRANGEA MACROPHYLLA 'ENDLESS SUMMER'	ENDLESS SUMMER BIGLEAF HYDRANGEA	#3 POT; 80CM
K	12	KALMIA LATIFOLIA 'ELF'	DWARF MOUNTAIN LAUREL	#3 POT; 50CM
N	68	NANDINA DOMESTICA MOONBAY	DWARF HEAVENLY BAMBOO	#3 POT; 50CM
OD	18	OSMANTHUS DELAVAYI	FALSE HOLLY	#3 POT; 50CM
P	32	PIERIS JAPONICA 'VALLEY FIRE'	VALLEY FIRE PIERIS	#3 POT; 50CM
PP	75	PRUNUS LAUROCERASUS 'OTTO LUYKEN'	OTTO LUYKEN LAUREL	#3 POT; 50CM
RH	49	RHODODENDRON 'CAPISTRANO'	HYBRID RHODODENDRON; PALE YELLOW	#3 POT; 50CM
SA	8	SARCOCOCCA HOOKERANA VAR. HUMILIS	HIMALAYAN SWEET BOX	#2 POT; 25CM
SR	32	SKIMMIA REEVESIANA	DWARF SKIMMIA	#1 POT
Y	84	TAXUS X MEDIA 'HICKSII'	HICK'S YEW	1.0M B&B
VB	7	VIBURNUM X 'BURKWOODII'	BURKWOOD VIBURNUM	1.0M HT, B&B; TREE FORM

PLANT SCHEDULE

PMG PROJECT NUMBER: 18-220

KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANTED SIZE / REMARKS
GRASS				
AI	106	CAREX ELATA 'AUREA'	BOWLE'S GOLDEN SEDGE	#1 POT
BI	39	HELICTOTRICHON SEMPERVIRENS	BLUE OAT GRASS	#1 POT
PC	147	PENNISETUM ALOPECUROIDES 'HAMELIN'	DWARF FOUNTAIN GRASS	#1 POT
VINE				
•	4	CLEMATIS ARMANDII	EVERGREEN CLEMATIS	#2 POT; 60CM; STAKED
PERENNIAL				
AS	49	ASTILBE X 'ETNA'	ETNA FALSE SPIRAEA (RED)	#2 POT; 5 EYE OR LARGER
PT	46	EUPHORBIA CHARACIAS SSP. WULFENII	CHARACIAS SPURGE	15CM POT
LZ	172	LAVENDULA ANGUSTIFOLIA 'HIDCOT'	HIDCOT ENGLISH LAVENDER	15CM POT; #1 POT
PI	9	PEROVSKIA ATRIPLICIFOLIA 'BLUE SPIRE'	RUSSIAN SAGE	#2 POT
GC				
CS	21	CARDAMINE TRIFOLIA	THREE LEAF CARDAMINE	#1 POT
EE	46	EUONYMUS JAPONICA 'EMERALD GAIETY'	EUONYMUS; SILVER VARIEGATED	#1 POT; 25CM
PE	60	POLYSTICHUM MUNITUM	WESTERN SWORD FERN	#1 POT; 25CM

NOTES: * PLANT SIZES IN THIS LIST ARE SPECIFIED ACCORDING TO THE BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD, LATEST EDITION. CONTAINER SIZES SPECIFIED AS PER CNLA STANDARD. BOTH PLANT SIZE AND CONTAINER SIZE ARE THE MINIMUM ACCEPTABLE SIZES. * REFER TO SPECIFICATIONS FOR DEFINED CONTAINER MEASUREMENTS AND OTHER PLANT MATERIAL REQUIREMENTS. * SEARCH AND REVIEW: MAKE PLANT MATERIAL AVAILABLE FOR OPTIONAL REVIEW BY LANDSCAPE ARCHITECT AT SOURCE OF SUPPLY. AREA OF SEARCH TO INCLUDE LOWER MAINLAND AND FRASER VALLEY. * SUBSTITUTIONS: OBTAIN WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT PRIOR TO MAKING ANY SUBSTITUTIONS TO THE SPECIFIED MATERIAL. UNAPPROVED SUBSTITUTIONS WILL BE REJECTED. ALLOW A MINIMUM OF FIVE DAYS PRIOR TO DELIVERY FOR REQUEST TO SUBSTITUTE. SUBSTITUTIONS ARE SUBJECT TO BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD - DEFINITION OF CONDITIONS OF AVAILABILITY. * ALL LANDSCAPE MATERIAL AND WORKMANSHIP MUST MEET OR EXCEED BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD LATEST EDITION. * ALL PLANT MATERIAL MUST BE PROVIDED FROM CERTIFIED DISEASE FREE NURSERY. * BIO-SOLIDS NOT PERMITTED IN GROWING MEDIUM UNLESS AUTHORIZED BY LANDSCAPE ARCHITECT.

pmg LANDSCAPE ARCHITECTS
Suite C100 – 4185 Still Creek Drive
Burnaby, British Columbia, V5C 6G9
p: 604 294-0011 ; f: 604 294-0022

SEAL:

NO. DATE REVISION DESCRIPTION DR.

CLIENT:

PROJECT:

13-UNIT TOWNHOUSE DEVELOPMENT

9020 GLENALLAN GATE 9460, 9480 & 9500 GARDEN CITY ROAD RICHMOND, B.C.

DRAWING TITLE:

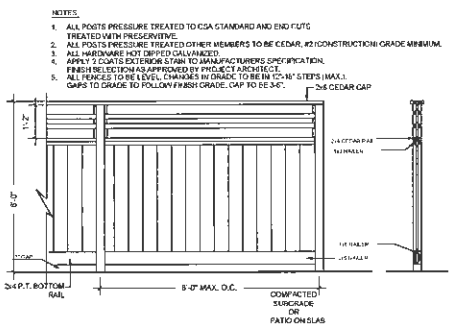
SHRUB PLAN

DATE: 18.11.27
SCALE: 3/32"=1'
DRAWN: YR
DESIGN:
CHK'D: PCM

DRAWING NUMBER: **L4** OF 5

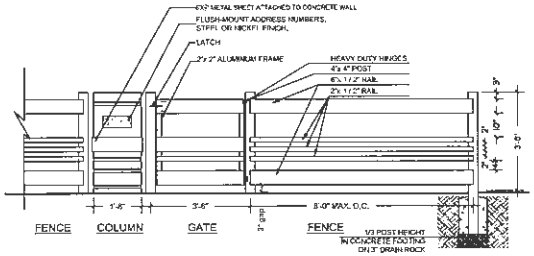
PMG PROJECT NUMBER: 18-220

18220-7.ZIP



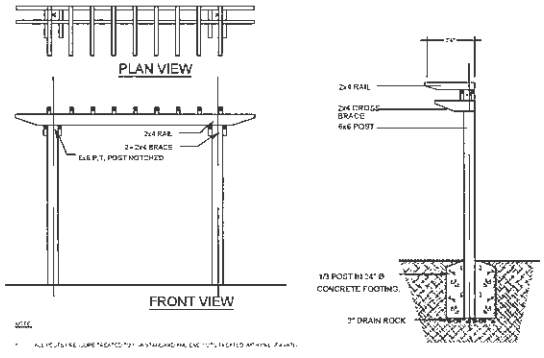
1 L-1 6'-0" HEIGHT PERIMETER FENCE

1/ 2"= 1'-0"



2 L-1 42" HEIGHT ALUMINUM FENCE WITH GATE AND COLUMN

1/ 2"= 1'-0"



3 L1 TRELLIS STRUCTURE

3/8" = 1'-0"

MAGLIN BENCH
Model: MLB970

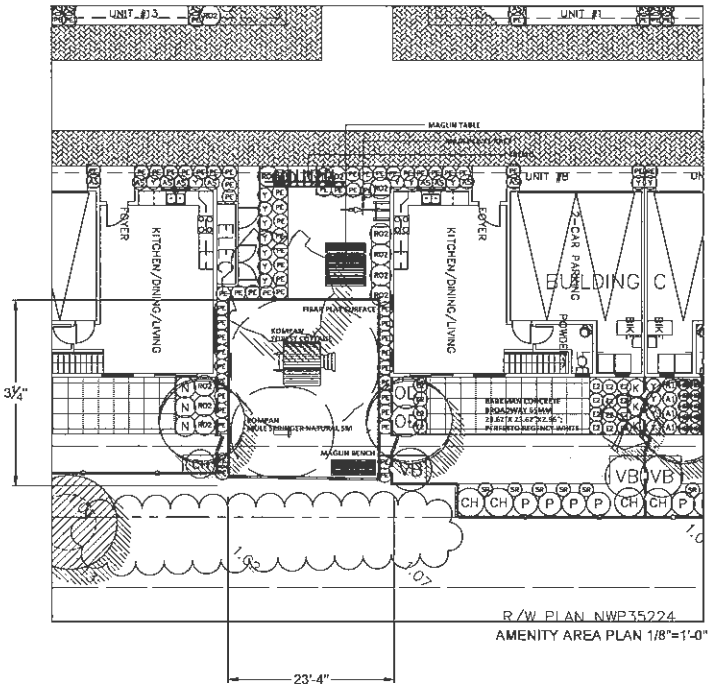
MAGLIN BIKE RACK
Model: SCBR1600-S

FOREST COTTAGE, NRO408-0022
KOMPAN
TO BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS.

NOTE:
ALL TABLE, BENCHES AND BIKE RACKS TO BE INSTALLED TO MANUFACTURER'S SPECIFICATION ON 3" THICK CONCRETE PAD.

MAGLIN TABLE
Model: MLPT720 CLUSTER SEATING SERIES

MULE SPRINGER NATURAL SM, NRO101-0001
KOMPAN
TO BE INSTALLED TO MANUFACTURER'S SPECIFICATIONS.



AMENITY AREA PLAN 1/8"=1'-0"

pmg LANDSCAPE ARCHITECTS
Suite C100 - 4185 Still Creek Drive
Burnaby, British Columbia, V5C 6G9
p 604 294-0011 | f 604 294-0022

SEAL

NO.	DATE	REVISION DESCRIPTION	DR.
7	[illegible]	NEW SITE PLAN	YR
6	[illegible]	[illegible]	YR
5	[illegible]	NEW SITE PLAN, MINOR REVISIONS	YR
4	[illegible]	LOT LINE MOVES	YR
3	[illegible]	NEW SITE PLAN	YR
2	[illegible]	LOT LINE MOVES	YR
1	[illegible]	NEW SITE PLAN	YR

CLIENT

PROJECT

13-UNIT TOWNHOUSE DEVELOPMENT

9020 GLENALLAN GATE 9460, 9480 & 9500 GARDEN CITY ROAD
RICHMOND, B.C.

DRAWING TITLE

DETAILS

DATE	18.12.27	DRAWING NUMBER	
SCALE			L5
DRAWN	YR		
DESIGN			
CHKD	PCM		OF 5

18220-7 ZP

PMG PROJECT NUMBER 18-220

CNCL - 463

City of Richmond

Development Application Data Sheet

Development Applications Department

RZ 18-829032 **Attachment 3**

Address: 9020 Glenallan Gate, 9460, 9480 & 9500 Garden City Road

Applicant: Matthew Cheng Architect Inc.

Planning Area(s): Broadmoor

	Existing	Proposed
Owner:	1110486 BC Ltd.	To be determined
Site Size:	2,787.1 m^2 (30,000 ft^2)	2,779.1 m^2 (29,914 ft^2) Corner cut: 8 m^2 (86 ft^2)
Land Uses:	Single-family residential	Multiple-family residential
OCP Designation:	Neighbourhood Residential (NRES)	No change
Zoning:	Single Detached (RS1/E)	Low Density Townhouses (RTL4)
Number of Units:	4	13

	Bylaw Requirement	Proposed	Variance
Floor Area Ratio:	Max. 0.6	0.6	None permitted
Lot Coverage – Building:	Max. 40%	37%	None
Lot Coverage – Non-porous:	Max. 65%	56%	None
Lot Coverage – Live Landscaping:	Min. 25%	25%	None
Lot Area:	N/A	2,779.1 m^2	None
Lot Width:	Min. 40.0 m	76.2 m	None
Lot Depth:	Min. 35.0 m	36.6 m	None
Setbacks – Front (North):	Min. 6.0 m	6.0 m	None
Setbacks – Rear (South):	Min. 3.0 m	3.0 m	None
Setbacks – Exterior Side (West):	Min. 6.0 m	4.5 m	**Variance requested**
Setbacks – Interior Side (East):	Min. 3.0 m	6.0 m	None
Height:	Max. 12.0 m (3 storeys)	Front Buildings: 10.8 (3 storeys) Rear Buildings: 9.0 m (2 storeys)	None
Off-street Parking Spaces – Total:	Min. 26 (R) and 3 (V)	26 (R) and 3 (V)	None
Accessible Parking Spaces:	Min. 2% where three or more visitor stalls required = 1	1	None

	Bylaw Requirement	Proposed	Variance
Tandem Parking Spaces:	Permitted – Maximum of 50% of required spaces	0	None
Small Car Spaces:	None when fewer than 31 spaces are provided on-site	0	None
Bicycle Parking Spaces – Class 1:	Min. 17	21	None
Bicycle Parking Spaces – Class 2:	Min. 3	4	None
Amenity Space – Indoor:	Min. 50 m^2 or cash-in-lieu	Cash-in-lieu	None
Amenity Space – Outdoor:	Min. 6.0 m^2 per unit = 78 m^2	108 m^2	None
Private Space – Outdoor:	Min. 30 m^2 per unit	Complies	None


Glenallan Dr
Turf Dealers Inc
Glenallan Gate
Garden City Rd
Garden City Rd
Sierpina Dr
Greenfield Dr
Greenfield Dr

Dear Neighbors,

January 22, 2019

City of Richmond Rezoning File Numbers: RZ 18-829032

This letter is a public notification of adjacent neighbors to the properties 9020 Glenallan Gate, 9460/9480/9500 Garden City Road, Richmond.

My name is Jaclyn Deng, Project Manager of Kingdom Property Investment. We are applying to Re-Zone these properties from single family use into low density two and three storey townhomes, FSR 0.6.

The proposed development has 13 units in total. Front units will be two and half-story and three-story, and the back units will be two-story. The elevation of the proposed development is consistent with single family neighborhood. Vehicle access to the development is to be provided by a single driveway located at the Garden City Road.

I have attached pertinent documents which contain proposed building massing and site plan.

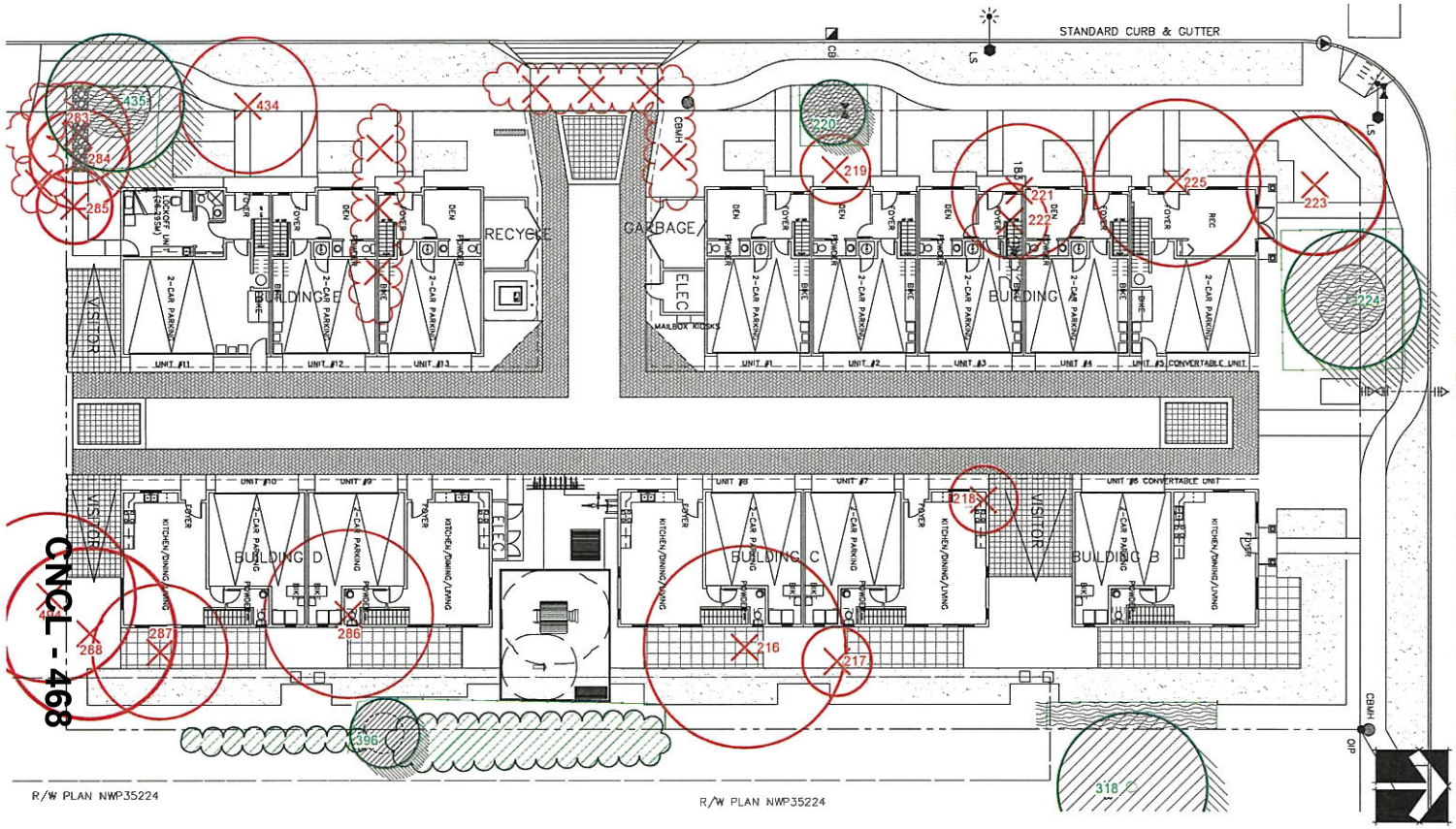
We will also make neighborhood contributions including: Upgrade the existing northbound bus stop on Garden City Road at Glenallan Gate, Upgrade of the existing special crosswalk at the Garden City Road/Glenallan Gate, Improve the frontage along the Garden City Road and Glenallan Gate, concrete sidewalk and grass boulevard.

If you have any concerns or would like to talk regarding this application, please don't hesitate to contact me or the Architecture Matthew Cheng.

Matthew Cheng, Architect AIBC
Matthew Cheng Architect Inc.
202-670 Evans Ave, Vancouver, BC
604-731-3012 (T)
604-649-0669 (C)

Best Regards,

Jaclyn Deng
Kingdom Property Investment Ltd.
360-3820 Cessna Dr. Richmond BC, V7B 0A2
Tel: 604-276-0563
Mail: jaclyn.deng@kingdomcanada.com




396 TREE

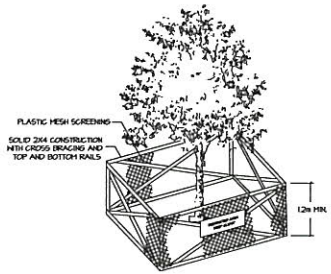

220 TREE


318 TREE


224 TREE

CNCL - 468

NOTES:
1) INSTALL TREE PROTECTION BARRIER BEFORE SITE CLEARING AND INITIATION OF CONSTRUCTION
2) MAINTAIN TREE PROTECTION BARRIER DURING CLEARING AND SITE CONSTRUCTION.
3) KEEP AREA WITHIN OR AGAINST PROTECTION BARRIER CLEAR OF BUILDING MATERIALS, LITTER AND STANDING WATER.
4) DO NOT DISTURB EXISTING GRADES WITHIN TREE PROTECTION AREA FOR PROTECTED RETAINED TREES.
5) THE DEVELOPER IS RESPONSIBLE FOR MAINTENANCE WITHIN TREE PROTECTION BARRIER. DAMAGED TREES SHALL BE REPLACED AT DEVELOPER'S COST
6) ANY DISRUPTION OF PLANTING WITHIN THE PROTECTION AREA IS TO BE SUPERVISED BY THE PROJECT ARBORIST OR LANDSCAPE ARCHITECT.
7) RETAINED TREES TO BE MARKED AT THE DIRECTION OF THE CONSULTING ARBORIST / LANDSCAPE ARCHITECT.



1A L2 TREE PROTECTION BARRIER

TREE PROTECTION DISTANCE TABLE

TRUNK DIAMETER in cm @ 1.4m *	MINIMUM REQUIRED PROTECTION RADIUS (DISTANCE FROM TRUNK IN METRES)
20	1.2
25	1.5
30	1.8
35	2.1
40	2.4
45	2.7
50	3
55	3.3
60	3.6
75	4.5
90	5
100	6.0

EXTRAPOLATE PROTECTION RADIUS FOR TREES LARGER THAN 100CM dbh.
*DIAMETRE AT BREAST HEIGHT OR 1.4M FROM GRADE).

TREE INVENTORY

#	Type	Action	DBH	MPZ
216	Willow	Remove	57cm	3.4m
217	Cherry	Remove	30/30/30cm	3.2m
218	Windmill Palm	Remove	25cm	1.5m
219	Cherry	Remove	23cm	1.4m
220	Magnolia	Retain	12/12/10cm	1.4m
221	Shore Pine	Remove	43cm	2.6m
222	Pyramid Cedar	Remove	20/18cm	2.0m
223	Mugo Pine	Remove	20cm	3.0m
224	Deodar Cedar	Retain	55cm	3.3m
225	Lawson Cypress	Remove	30/30/20cm	4.0m
283	Excelsa Cedar	Remove	25/25/25cm	2.5m
284	Excelsa Cedar	Remove	30/25/20cm	2.5m
285	Pyramid Cedar	Remove	19/15/7cm	2.0m
286	Cherry	Remove	45/38cm	3.4m
287	Cherry	Remove	44cm	2.8m
288	Cherry	Remove	47cm	2.8m
318	Apple	Remove	45cm	2.7m
396	Western Hemlock	Retain	20cm	1.2m
434	Cherry	Remove	30cm	1.8m
435	Cherry	Retain	44cm	2.6m
494	Cherry	Remove	40cm	2.4m

DBH- trunk diameter, MPZ- protection zone

14 ON SITE TREES TO BE REMOVED
28 REPLACEMENT TREES ARE REQUIRED

TREE TO RETAIN
TREE TO REMOVE
TREE PROTECTION FENCE
HEDGE TO RETAIN
HEDGE TO REMOVE

pmg LANDSCAPE ARCHITECTS
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Burnaby, British Columbia, V5C 6G9
p: 604 294-0011 , f: 604 294-0022

SEAL

NO.	DATE	REVISION DESCRIPTION	DR.
7	2019/MAY/07	NEW CNCL PLAN	YR
6	2019/MAY/01	RETAIN TREE #435, #220 AND #224	YR
5	2019/APR/25	NEW SITE PLAN/REMOVE TWO TREES	YR
4	2019/MAR/18	CITY COMMENTS	YR
3	2019/FEB/28	NEW SITE PLAN	YR
2	2019/JAN/25	CITY COMMENTS	YR
1	2019/JAN/08	NEW SITE PLAN	YR

CLIENT

PROJECT:

13-UNIT TOWNHOUSE DEVELOPMENT

9020 GLENALLAN GATE 9460, 9480 & 9500 GARDEN CITY ROAD RICHMOND, B.C.

DRAWING TITLE:

TREE MANAGEMENT PLAN

DATE:	18.11.27	DRAWING NUMBER:	L2
SCALE:	1/32"=1'		
DRAWN:	YR		
DESIGN:			
CHKD:	PCM		
18220-7.ZIP		PMG PROJECT NUMBER:	18-220

ATTACHMENT 5

MATTHEW CHENG ARCHITECT INC.
#202-670 EVANS AVE., VANCOUVER, B.C. V6A 2K9
CEL: 604-649-0669 TEL: 604-731-3012 Email:matthew@mcai.ca

Steven De Sousa
Planner 1,
Policy Planning Department
City of Richmond

May 21, 2019

Re: Intent to design in compliance with Step Code at
9020 Glenallan Gate, 9460, 9480, 9500 Garden City Road, Richmond, BC (RZ 18-829032)

Dear Steven,

The purpose of this letter is to confirm our intent to design the proposed development at 9020 Glenallan Gate, 9460, 9480, 9500 Garden City Road such that it will meet the City of Richmond's energy efficiency requirements (known as Step Code), which will be incorporated into the building permit drawings.

Capital Home Energy has been retained as the Certified Energy advisor.

Sincerely yours,

Matthew Cheng, Architect AIBC
Matthew Cheng Architect Inc.

May 21, 2019

Client: 1110486 BC Ltd

Re: City of Richmond Step Code 3 Letter of Intent

Development Address: 9020 - 9500 Garden City Road, Richmond

To Whom It May Concern:

This letter is to inform the City of Richmond that Capital Home Energy Inc has been engaged for Energy Design services, for the above-mentioned development address to comply with the BC Energy Step Code level 3 compliance. This will include, energy modeling, air tightness testing, and final Certification.

Please contact our office for any further inquiries about the project.

Regards,

Luke Dolan
Energy Advisor
Capital Home Energy Inc
www.capitalhomeenergy.com
604-562-0387

City of Richmond

Rezoning Considerations

Development Applications Department
6911 No. 3 Road, Richmond, BC V6Y 2C1

Address: 9020 Glenallan Gate, 9460, 9480 & 9500 Garden City Road **File No.:** RZ 18-829032

Prior to final adoption of Richmond Zoning Bylaw 8500, Amendment Bylaw 10047, the developer is required to complete the following:

1. 4 m x 4 m corner cut road dedication at the northwest corner of the subject site.
2. Consolidation of all the lots into one development parcel (which will require the demolition of the existing dwellings).
3. Submission of a Contract entered into between the applicant and a Certified Arborist for supervision of any on-site works conducted within the tree protection zone of the trees to be retained. The Contract should include the scope of work to be undertaken, including: the proposed number of site monitoring inspections, and a provision for the Arborist to submit a post-construction assessment report to the City for review.
4. City acceptance of the developer's offer to voluntarily contribute $650 to the City's Tree Compensation Fund for the removal of the City-owned tree (tag# 434) and the planting of replacement trees at/near the subject site.
5. Submission of a Tree Survival Security to the City in the amount of $19,570 for the trees to be retained ($15,000 for on-site trees (tag# 220 & 224) and $4,570 for the City-owned tree (tag# 435)).
6. Installation of appropriate tree protection fencing around all trees to be retained as part of the development prior to any construction activities, including building demolition, occurring on-site.
7. Registration of a flood indemnity covenant on title.
8. Registration of a cross-access easement, statutory right-of-way, property right-of-passage, and/or other legal agreements or measures, as determined to the satisfaction of the Director of Development, over the entry driveway to the site and entire length of all internal drive aisles, in favour of the future developments located to the south of the subject development, to permit shared use. The legal agreement is to include that the City will not be responsible for maintenance or liability, no permanent structures are to be placed at the south end of the north-south drive aisle, and the intent and existence of the legal agreements is to be made known to the purchasers of any unit(s) and the strata council of this development.
9. The submission and processing of a Development Permit* completed to a level deemed acceptable by the Director of Development.
10. City acceptance of the developer's offer to voluntarily contribute $0.85 per buildable square foot (e.g. $15,256.13) to the City's public art fund.
11. Contribution of $1,600 per dwelling unit (e.g. $20,800) in-lieu of on-site indoor amenity space.
12. City acceptance of the developer's offer to voluntarily contribute $8.50 per buildable square foot (e.g. $152,561.32) to the City's affordable housing fund.
13. Registration of a legal agreement on Title, as determined to the satisfaction of the Director of Development, to ensure that:
    a) no final Building Permit inspection is granted until one secondary suite is constructed on-site, to the satisfaction of the City in accordance with the BC Building Code and the City's Zoning Bylaw; and
    b) the secondary suite cannot be stratified or otherwise held under separate title.
14. City acceptance of the developer's offer to voluntary contribute $30,000 towards the purchase and installation of a City design standard bus shelter.
15. City acceptance of the developer's offer to voluntary contribute $8,726 towards the upgrade of the existing special crosswalk at the Garden City Road and Glenallan Gate intersection. The upgrade works include new LED street lights, new amber flashers, and new standard Audible Pedestrian Signal pushbuttons.
16. Enter into a Servicing Agreement* for the design and construction of required site servicing and frontage improvements. A Letter of Credit or cash security for the value of the Service Agreement works, as determined by the

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City, will be required as part of entering into the Servicing Agreement. Works include, but may not be limited to, the following:

Water Works:

a) Using the OCP Model, there is 222.0 L/s of water available at a 20 psi residual at the Garden City Road frontage. Based on your proposed development, your site requires a minimum fire flow of 220 L/s.
b) At Developer's cost, the Developer is required to:
   i) Submit Fire Underwriter Survey (FUS) or International Organization for Standardization (ISO) fire flow calculations to confirm development has adequate fire flow for onsite fire protection. Calculations must be signed and sealed by a Professional Engineer and be based on Building Permit Stage building designs.
   ii) Review hydrant spacing on all road frontages and install new fire hydrants as required to meet City spacing requirements for multi-family land use.
   iii) Provide a right-of-way for the water meter. Minimum right-of-way dimensions to be the size of the meter box (from the City of Richmond supplementary specifications) + any appurtenances (for example, the bypass on W2o-SD) + 0.5 m on all sides. Exact right-of-way dimensions to be finalized during the building permit process (or via the servicing agreement process, if one is required).
   iv) Upgrade approximately 40 m of existing 150 mm water main along the Glenallan Gate frontage to 200 mm, from the east property line of the development site on Glenallan Gate to the new 200 mm water main installed via the City's Capital Project at Garden City Road. The new water main shall be located in the roadway in the alignment established by the City's Capital Watermain Project.
   v) Remove the existing AC water mains along the Garden City Road and Glenallan Gate frontages and legally dispose offsite.
   vi) Install a new water connection complete with water meter and meter box to serve the proposed development.
c) At Developer's cost, the City will:
   i) Complete all tie-ins for the proposed works to existing City infrastructure.
   ii) Cap and remove all existing water connections and water meters to the development site.

Storm Sewer Works:

d) At Developer's cost, the Developer is required to:
   i) Upgrade approximately 60 m of 600 mm storm sewer to 900 mm along the Glenallan Gate frontage of the development frontage, from the east property line of the development site to the existing box culvert on the west side of Garden City Road. The new storm sewer shall be located in the roadway near the centerline.
   ii) Install a new storm service connection off of the proposed storm sewer, complete with inspection chamber, to serve the proposed development.
   iii) Remove the existing storm sewer along Glenallan Gate to the extents of the proposed upgrades.
   iv) Confirm the proposed storm sewer size via a capacity analysis. The analysis shall be included in the servicing agreement drawings.
   v) Provide an erosion and sediment control plan for all on-site and off-site works, to be reviewed as part of the servicing agreement design.
   vi) Cap and remove all existing storm connections to the development site. Inspection chamber STIC45540 at the south property line, and inspection chamber STIC59080 at the east property line, shall be retained to serve 9540/9520 Garden City Road and 9040 Glenallan Gate, respectively. If the inspection chamber(s) are located within the development site, the developer is required to provide a right-of-way for the inspection chamber(s).
e) At Developer's cost, the City will:
   i) Complete all tie-ins for the proposed works to existing City infrastructure.
   ii) Tie in all existing storm service connections to the proposed storm sewer.

Sanitary Sewer Works:

f) At Developer's cost, the Developer is required to:
   i) Replace approximately 55 m of 200 mm AC sanitary sewer located in the rear-yard SRW with PVC, from manhole SMH1742 to the south property line of the development site.
   ii) Fill and abandon existing sanitary sewer to the extent of the upgrades.
   iii) Not start onsite excavation or foundation construction until completion of rear-yard sanitary works by City crews.

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iv) Install a new sanitary service connection to serve the proposed development. No inspection chamber is required if it ties directly into a manhole. The new sanitary connection shall be located at or near the south property line of the development site.
v) Remove all existing sanitary connections to the development site.

g) At Developer's cost, the City will:
i) Reconnect all existing sanitary connections to the proposed sanitary sewer.
ii) Complete all tie-ins for the proposed works to existing City infrastructure.

Frontage Improvements:

h) Transportation requirements include, but are not limited to, the following:
i) For both Glenallan Gate and Garden City Road development frontages, the following improvements are required: (i) remove the existing sidewalk and construct a new 1.5 m wide concrete sidewalk next to the fronting property line; and (ii) construct a new grass boulevard with street trees over the remaining width between the new sidewalk and the existing fronting road curb. The new sidewalk and boulevard will incorporate the required tree protection and transition to meet the existing frontage treatments to the east and south of the subject site. The behind-the-curb frontage improvements, along both Garden City Road and Glenallan Gate site frontages, shall have the following cross section (measuring from the fronting property line of the site):
(1) 1.5 m wide concrete sidewalk (the sidewalk may have to be designed to go around trees intended for retention).
(2) 2.4 m wide grass boulevard with street trees.
(3) 0.15 m wide curb.
The exact dimensions of these frontage works are to be determined based on legal surveys.
ii) All existing driveways along the Garden City Road and Glenallan Gate development frontages are to be closed permanently. The Developer is responsible for the removal of the existing driveway let-downs and the replacement with barrier curb/gutter, boulevard with street trees and concrete sidewalk per standards described under Item above.
iii) Construct a new driveway to the site at the site's Garden City frontage. The new driveway is to be constructed in accordance to the following criteria:
(1) The driveway is to be located 35 m to 50 m from the Glenallan Gat/Garden City Road intersection.
(2) The location of the driveway is to be established so that the north-south and east-west drive aisles can form a "hammer head" T-intersection to accommodate on-site truck turn-around movements.
(3) City driveway design standards are to be followed.
iv) Provide a 1.5 m wide concrete walkway to connect the north-south drive aisle to the new sidewalk along the site's Glenallan Gate frontage.
v) The Developer is required to upgrade the existing northbound bus stop on Garden City Road at Glenallan Gate (Bus Stop ID #56860) to these standards: concrete landing pad (3.0 m x 9.0 m) for installation of bus shelter; bus bench and garbage/recycling receptacles; and conduit pre-ducting for electrical connections. The bus pad is to be constructed to meet TransLink Accessible Bus Stops standards. Contact City Traffic Operations staff to confirm the accessible bus pad location and dimensions before commencement of construction.
vi) The Developer is required to provide, for all residential parking spaces (excluding visitor parking), Level 2 EV charging outlets (208V to 240V AC and current of 16A to 80A).

i) At Developer's cost, the Developer is required to:
i) Coordinate with BC Hydro, Telus and other private communication service providers:
(1) To pre-duct for future hydro, telephone and cable utilities along all road frontages.
(2) Before relocating/modifying any of the existing power poles and/or guy wires within the property frontages.
(3) To underground overhead service lines.
ii) Locate/relocate all above ground utility cabinets and kiosks required to service the proposed development, and all above ground utility cabinets and kiosks located along the development's frontages, within the developments site (see list below for examples). A functional plan showing conceptual locations for such infrastructure shall be included in the development design review process. Please coordinate with the respective private utility companies and the project's lighting and traffic signal consultants to confirm the requirements (e.g., statutory right-of-way dimensions) and the locations for the aboveground structures. If a

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private utility company does not require an aboveground structure, that company shall confirm this via a letter to be submitted to the City. The following are examples of statutory right-of-ways that shall be shown on the architectural plans/functional plan, the servicing agreement drawings, and registered prior to SA design approval:

- BC Hydro PMT – 4.0 x 5.0 m
- BC Hydro LPT – 3.5 x 3.5 m
- Street light kiosk – 1.5 x 1.5 m
- Traffic signal kiosk – 2.0 x 1.5 m
- Traffic signal UPS – 1.0 x 1.0 m
- Shaw cable kiosk – 1.0 x 1.0 m
- Telus FDH cabinet – 1.1 x 1.0 m

iii) Review street lighting levels along all road frontages, and upgrade as required.

General Items:

j) At Developer's cost, the Developer is required to:

i) Provide, prior to start of site preparation works or within the first servicing agreement submission, whichever comes first, a preload plan and geotechnical assessment of preload, dewatering, and soil preparation impacts on the existing utilities fronting the development site and provide mitigation recommendations.

ii) Provide a video inspection report of the existing storm and sanitary sewers along the development frontages prior to start of site preparation works or within the first servicing agreement submission, whichever comes first. A follow-up video inspection, complete with a civil engineer's signed and sealed recommendation letter, is required after site preparation works are complete (i.e. pre-load removal, completion of dewatering, etc.) to assess the condition of the existing utilities and provide recommendations to retain, replace, or repair. Any utilities damaged by the pre-load, de-watering, or other ground preparation shall be replaced or repaired at the Developer's cost.

iii) Conduct pre- and post-preload elevation surveys of all surrounding roads, utilities, and structures. Any damage, nuisance, or other impact to be repaired at the developer's cost. The post-preload elevation survey shall be incorporated within the servicing agreement design.

iv) Monitor the settlement at the adjacent utilities and structures during pre-loading, dewatering, and soil preparation works per a geotechnical engineer's recommendations, and report the settlement amounts to the City for approval.

v) Not encroach into City rights-of-ways with any proposed trees, retaining walls, or other non-removable structures.

vi) Enter into, if required, additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering, including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.

Prior to a Development Permit* being forwarded to the Development Permit Panel for consideration, the developer is required to:

1. Submission of a Landscape Plan, prepared by Registered Landscape Architect, to the satisfaction of the Director of Development.

Prior to Development Permit* issuance, the developer must complete the following requirements:

1. Submission of a Landscape Security based on 100% of the cost estimate provided by the Landscape Architect, including all hard and soft materials, installation and a 10% contingency.

Prior to Building Permit Issuance, the developer must complete the following requirements:

1. Submission of a Construction Parking and Traffic Management Plan to the Transportation Department. Management Plan shall include location for parking for services, deliveries, workers, loading, application for any lane closures, and proper construction traffic controls as per Traffic Control Manual for works on Roadways (by Ministry of Transportation) and MMCD Traffic Regulation Section 01570.

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2. Incorporation of energy efficiency, CPTED, sustainability, and accessibility measures in Building Permit (BP) plans as determined via the Rezoning and/or Development Permit processes.
3. If applicable, payment of latecomer agreement charges, plus applicable interest associated with eligible latecomer works.
4. If applicable, obtain a Building Permit (BP) for any construction hoarding. If construction hoarding is required to temporarily occupy a public street, the air space above a public street, or any part thereof, additional City approvals and associated fees may be required as part of the Building Permit. For additional information, contact the Building Approvals Department at 604-276-4285.

Note:

* This requires a separate application.

- Where the Director of Development deems appropriate, the preceding agreements are to be drawn not only as personal covenants of the property owner but also as covenants pursuant to Section 219 of the Land Title Act.

  All agreements to be registered in the Land Title Office shall have priority over all such liens, charges and encumbrances as is considered advisable by the Director of Development. All agreements to be registered in the Land Title Office shall, unless the Director of Development determines otherwise, be fully registered in the Land Title Office prior to enactment of the appropriate bylaw.

  The preceding agreements shall provide security to the City including indemnities, warranties, equitable/rent charges, letters of credit and withholding permits, as deemed necessary or advisable by the Director of Development. All agreements shall be in a form and content satisfactory to the Director of Development.

- Additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering may be required including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.

- Applicants for all City Permits are required to comply at all times with the conditions of the Provincial *Wildlife Act* and Federal *Migratory Birds Convention Act*, which contain prohibitions on the removal or disturbance of both birds and their nests. Issuance of Municipal permits does not give an individual authority to contravene these legislations. The City of Richmond recommends that where significant trees or vegetation exists on site, the services of a Qualified Environmental Professional (QEP) be secured to perform a survey and ensure that development activities are in compliance with all relevant legislation.

[Signed copy on file]

Signed Date

City of Richmond

Bylaw 10047

Richmond Zoning Bylaw 8500 Amendment Bylaw 10047 (RZ 18-829032) 9020 Glenallan Gate, 9460, 9480 & 9500 Garden City Road

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

1. The Zoning Map of the City of Richmond, which accompanies and forms part of Richmond Zoning Bylaw 8500, is amended by repealing the existing zoning designation of the following area and by designating it **"LOW DENSITY TOWNHOUSES (RTL4)".**

   P.I.D. 003-349-306
   Lot 277 Section 27 Block 4 North Range 6 West New Westminster District Plan 35222

   P.I.D. 004-231-775
   Lot 278 Section 27 Block 4 North Range 6 West New Westminster District Plan 35222

   P.I.D. 004-058-887
   Lot 279 Section 27 Block 4 North Range 6 West New Westminster District Plan 35222

   P.I.D. 007-151-071
   Lot 280 Section 27 Block 4 North Range 6 West New Westminster District Plan 35222

2. This Bylaw may be cited as **"Richmond Zoning Bylaw 8500, Amendment Bylaw 10047".**

FIRST READING	
A PUBLIC HEARING WAS HELD ON	
SECOND READING	
THIRD READING	
OTHER CONDITIONS SATISFIED	
ADOPTED	

CITY OF RICHMOND
APPROVED by
APPROVED by Director or Solicitor

MAYOR

CORPORATE OFFICER

City of Richmond

Report to Committee

To:	Planning Committee	**Date:**	May 28, 2019
From:	Wayne Craig Director, Development	**File:**	RZ 17-790958
Re:	**Application by 1116559 B.C. LTD. for Rezoning at 9340 General Currie Road from Single Detached (RS1/F) to Town Housing (ZT45) - Gilbert Road, Acheson - Bennett Sub-Area, St. Albans Sub-Area, South McLennan (City Centre)**		

Staff Recommendation

That Richmond Zoning Bylaw 8500, Amendment Bylaw 10048, for the rezoning of 9340 General Currie Road from "Single Detached (RS1/F)" to "Town Housing (ZT45) - Gilbert Road, Acheson - Bennett Sub-Area, St. Albans Sub-Area, South McLennan (City Centre)", to allow the development of five (5) townhouse units, be introduced and given first reading.

Wayne Craig
Director, Development

WC:mp
Att. 13

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Affordable Housing	☑	

Staff Report

Origin

1116559 B.C. LTD. has applied to the City of Richmond for permission to rezone the property at 9340 General Currie Road from the "Single Detached (RS1/F)" zone to the "Town Housing (ZT45) - Gilbert Road, Acheson - Bennett Sub-Area, St. Albans Sub-Area, South McLennan (City Centre)" zone to allow the development of five (5) townhouse units with vehicle access from General Currie Road. A location map and an aerial photo are provided in Attachment 1.

Findings of Fact

The Development Application Data Sheet providing details about the development proposal is provided in Attachment 2. Preliminary development plans are provided in Attachment 3.

The subject site is 954 m^2 (10,269 ft^2) in size and is located on the south side of General Currie Road, between Heather Street and Ash Street.

Subject Site Existing Housing Profile

The applicant has submitted a housing profile for the subject property. The submission indicates that the existing single-family dwelling is currently rented, and does not contain a secondary suite. The building will be removed at a future development stage.

Surrounding Development

Existing development immediately surrounding the subject site is as follows:

To the North: Two two-storey, detached dwelling units on each of two subdivided lots zoned "Town Housing (ZT45) - Gilbert Road, Acheson - Bennett Sub-Area, St. Albans Sub-Area, South McLennan (City Centre)"

To the South: The Paulik Neighbourhood Park

To the East: A single detached house on a property zoned "Single Detached (RS1/F)"

To the West: Two two-storey, detached dwelling units on each of two subdivided lots zoned "Town Housing (ZT45) - Gilbert Road, Acheson - Bennett Sub-Area, St. Albans Sub-Area, South McLennan (City Centre)".

Related Policies & Studies

Official Community Plan/McLennan South Sub-Area Plan

In the Official Community Plan (OCP), the subject property is designated "Neighbourhood Residential (NRES)", which allows for single family, two-family and multiple family housing including townhouses.

In the McLennan South Sub-Area Plan under the City Centre Area Plan, the subject property is designated as "Residential, 2 ½ storeys", which allows a 0.6 base Floor Area Ratio and a typical (3 storeys maximum) townhouse, triplex, duplex and single family housing. The McLennan South Sub-Area Plan Land Use Map is included in Attachment 4. The proposed townhouse development is consistent with the land use designation in the McLennan South Sub-Area Plan.

Floodplain Management Implementation Strategy

The proposed redevelopment must meet the requirements of the Richmond Flood Plain Designation and Protection Bylaw 8204. Registration of a flood indemnity covenant on Title is required prior to final adoption of the rezoning bylaw.

Public Consultation

A rezoning sign has been installed on the subject property. In response to the rezoning sign, an email inquiry was received from a property owner asking about ways to object to the rezoning application (Attachment 5). Subsequently, the inquirer, who identified himself as a property owner in the immediate neighbourhood, contacted staff by phone but did not elaborate his concerns nor was any further correspondence received from the inquirer to date.

The applicant also delivered a letter (Attachment 6) to 15 properties in the immediate area (Attachment 7) to seek comments on the proposed development, and to invite them to a public information meeting. The public information meeting was held on December 19, 2018, Wednesday, at 9100 Blundell Road, Unit 550, which is within walking distance of the subject property. The meeting was an open house format and participants could drop in anytime between 6:00 pm and 8:00 pm.

A summary of the information meeting prepared by the applicant and a copy of the sign-in sheet are included in Attachment 8. The summary notes that three (3) groups of people (a total of four people) attended the meeting. None of the attendees raised significant concerns regarding the proposed development, but wanted to learn more about the project timeframe, and obtain more information about the proposed landscaping details.

Two emails were received from the owners of 9337 General Currie Road and 7411 Ash Street in response to the letter delivered by the applicant (Attachment 9). The main concerns noted in the emails are summarized below with responses to each of the concerns identified in bold italics:

1. Concern regarding the Height of the Proposed Building

   The McLennan South Sub-Are Plan envisions a mix of 2, 2 1/2 and 3 storey townhouses in the inner portion of the western half of the neighbourhood, as shown on the McLennan South Sub-Area Plan Land Use Map included in Attachment 4. The proposed building height is consistent with the height permitted in the McLennan South Sub-Are Plan (2 ½ to 3 storey maximum) for the subject site.

   In order to provide a smoother transition to the immediately neighbouring properties, wider side yard setbacks are proposed on both sides:

- *On the west side, 1.8 m is proposed to the first and second storeys, and 4 m is proposed to the top storey except for the space reserved for a future elevator in the proposed convertible unit.*

- *On the east side, a driveway access and outdoor amenity area are provided. For the building on the north side, 7.5 m is proposed to the first and second storeys, and 9.5 m is proposed to the top storey. For the building on the south side, 2.55 m is proposed to the first and second storeys and 4.8 m is proposed to the top storey.*

Also, the top storey is mostly enclosed under pitched roof with dormers to reduce the apparent building massing and height, and mitigate potential impact to neighbours.

2. Concern regarding the Proposed Density/Number of Units and Parking

The subject site is designated "Residential, 2 ½ storeys", which allows a 0.6 base Floor Area Ratio (FAR) and a typical (3 storeys maximum) townhouse, triplex, duplex and single family housing. The applicant proposes five units with a FAR 0.7, which is appropriate considering the existing townhouse developments with similar density in the immediate neighbourhood, which are also zoned "Town Housing (ZT45) - Gilbert Road, Acheson - Bennett Sub-Area, St. Albans Sub-Area, South McLennan (City Centre)"

To achieve 0.7 FAR, the applicant has agreed to provide the following:

- *A contribution in the amount of $61,225.5 ($8.50 per buildable square foot) to the City's affordable housing fund;*
- *Provision of a convertible housing unit; and*
- *A voluntary contribution in the amount of $8,500 towards the upgrade of the pedestrian signals to install Audible Pedestrian Signal (APS) at the intersection of Ash Street and Blundell Road, and the intersection of General Currie Road and Garden City Road.*

All the proposed units are provided with two-car garages except for one smaller unit in the building on the south side, and the number of parking spaces provided (9 spaces) exceeds the minimum required number of parking spaces (7 spaces) under the Zoning Bylaw.

3. Landscaping and Accessibility

The comments have been shared with the applicant, and they will be further considered when more detailed landscape plans are developed as part of the Development Permit application review process.

4. Project Timeline and Construction Management

The comments have been shared with the applicant, and any concerns from neighbours during the construction process will be managed as part of a building permit application process. The applicant has indicated that they are aware of the City's Good Neighbour Program and intend to proceed with construction as soon as the Development Permit and building permit permits are issued.

Should the Planning Committee endorse this application and Council grant 1st reading to the rezoning bylaw, the bylaw will be forwarded to a Public Hearing, where any area resident or interested party will have an opportunity to comment. Public notification for the Public Hearing will be provided as per the *Local Government Act*.

Analysis

Official Community Plan and McLennan South Sub-Area Plan Compliance

The McLennan South Sub-Area Plan encourages new townhouse and multi-family developments of sufficient site assembly size, including area and frontage, to support high quality development. Along the local or collector roads such as General Currie Road, the required minimum frontage width is 40 m and the required minimum lot area is 2,000 m^2 (0.5 ac). The Plan also notes that new development may deviate from the minimum site assembly sizes where an existing lot is isolated (orphaned) and is not able to consolidate with adjacent properties (e.g., surrounding lots recently developed in accordance with Area Plan designation), and it can be demonstrated that high quality development can be achieved in full compliance with Area Plan Policies, Objectives, and Development Permit Guidelines.

The subject site is 954 m^2 (10,268.8 ft^2) in size and the frontage of the subject site are 23 m. The area and frontage of the subject site do not meet the minimum requirements.

However, staff support the proposed development based on the following:

- The applicant has advised that efforts were made to acquire the two neighbouring properties to the east in order to achieve sufficient site assemble size and frontage, but has not been successful. The adjacent property owner who owns both the neighbouring single family properties to the east is not interested in redeveloping the properties at this time. A confirmation email from the applicant is included in Attachment 10. The proposed development will not restrict redevelopment of the adjacent properties to the east as the adjacent properties will have sufficient size and frontage if combined.
- The inner portion of the western half of the McLennan South Sub-Area allows for a mix of 2, 2 ½ and 3 storey townhouses. The proposed development is consistent with the McLennan South Sub-Area land use designation.
- The proposed townhouse development is consistent with the use and housing form permitted under the existing ZT45 zone in the neighbourhood. There are a few existing townhouse developments zoned ZT45 in the neighbourhood.
- The proposed density 0.7 meets the maximum density permitted in the existing ZT45 zone and is compatible with the existing developments with similar density in the neighbourhood. The properties immediately to the west and to the north are zoned ZT45 with 0.7 FAR, and the existing three-storey townhouse development at the northeast corner of General Currie Road and Heather Street is also zoned ZT45 with 0.67 FAR. To achieve 0.7 FAR, the applicant has agreed to provide the following:
    - A contribution in the amount of $61,225.5 ($8.50 per buildable square foot) to the City's affordable housing fund;
    - Provision of a convertible housing unit; and

  - A voluntary contribution in the amount of $8,500 towards the upgrade of the pedestrian signals to install Audible Pedestrian Signal (APS) at the intersection of Ash Street and Blundell Road, and the intersection of General Currie Road and Garden City Road.
- The proposed housing forms creates an interesting rhythm and a varied streetscape, and provides opportunities for a variety of housing types in the neighbourhood as envisioned in the McLennan South Sub-Area Plan.
- A Statutory Right-of-Way on the subject site will be secured to provide vehicle access to potential future development to the east to limit the number of driveways on General Curries Road and help achieve a more pedestrian-friendly environment.

Built Form and Architectural Character

The proposed development consists of five (5) townhouse units arranged in two buildings. Two units in the north building will front General Currie Road and the three units in the south building are oriented towards an east-west internal drive aisle.

The proposed buildings are all three storeys with the habitable space of the top storey being smaller than the other two floors (approximately 52% of the habitable space of the second storey). The proposed building form and character respects the existing single family scale and character of the neighbourhood by incorporating a varied, sloped roof form, and the building massing of the townhouse units are reduced by enclosing most of the top storey under a pitched roof.

In order to achieve a better transition and mitigate potential impacts on the two-storey buildings to the west, a wider side yard setback is proposed: 1.8 m to the first and second storeys, and 4 m to the top storey except for the space reserved for a future elevator in the proposed convertible unit in the north building.

The outdoor amenity area is proposed at the southeast corner of the site and will be directly connected to the adjacent park to the south by a pedestrian pathway. The proposed outdoor amenity area is proposed to facilitate children's play and a bench to permit observation of children and social activities. Registration of a cross-access easement on title will be required to allow shared use and access to/from the future development to the east over the outdoor amenity area, so the proposed outdoor amenity space can be expanded in the future should the adjacent properties to the east be redeveloped.

One convertible unit is proposed in the north building. The unit includes space designed for the future installation of an elevator and a side-by-side, two-car garage, which is wide enough to accommodate an accessible parking space.

Further details of the site plan, architectural character of the proposed development, and landscape design including the outdoor amenity area design will be reviewed through the Development Permit application process.

Transportation and Site Access

Access to the site is provided from General Currie Road. As described above, a Statutory Right-of-Way will be required to be registered on title as part of the rezoning requirements to allow the drive aisle to be shared with the future residential development on the adjacent property to the east.

The proposed vehicle and bicycle parking spaces meet the Zoning Bylaw 8500 requirements. The required number of residential parking spaces is seven (7), and the proposed development includes nine (9) residential parking spaces. All units, save for one with a one-car garage, will have side-by-side, two car garages.

One visitor parking space and garbage/recycling collection area are provided and accessed through the internal drive aisle.

The applicant has also agreed to provide a voluntary cash contribution to upgrade the pedestrian signals to install Audible Pedestrian Signal (APS) in the neighbourhood as follows:

- $5,000 for the upgrade of signalized crosswalk infrastructure at the intersection of Ash Street and Blundell Road (Account: 3550-10-556-55134-0000); and
- $3,500 for the upgrade of special crosswalk infrastructure at the intersection of General Currie Road and Garden City Road (Account 3550-10-556-55131-0000).

Tree Retention and Replacement

The applicant has submitted a Certified Arborist's Report; which identifies on-site and off-site tree species, assesses tree structure and condition, and provides recommendations on tree retention and removal relative to the proposed development. The Report assesses three (3) bylaw-sized trees on the subject property, and one (1) street tree on City property. The Tree Survey plan is included in Attachment 11.

The City's Tree Preservation Coordinator has reviewed the Arborist's Report and supports the Arborist's findings, with the following comments:

- Three (3) trees (tag # 776, #777 and one tree with no tag) are located on the development site.
- One (1) walnut tree (tag# 777) is in marginal condition and in conflict with the development. Remove and replace.
- Two (2) trees (one (1) cherry tree (tag #776) and one (1) tree with no tag) are in very poor condition. The cherry tree is a failure in progress and is currently guyed to assist in preventing a full collapse of the tree. The tree with no tag has historically failed, and is in contact with the ground and cannot be remediated via arboricultural treatments. Remove and replace.
- Replacement trees should be specified at 2:1 ratio as per the OCP.

Also, the City's Parks staff assessed the condition of the existing western redcedar located on the City property (tag# 775). The tree is in good condition and should be protected.

Tree Replacement

The applicant wishes to remove three (3) on-site trees (Trees tag # 776, #777 and one tree with no tag). The 2:1 replacement ratio would require a total of six (6) replacement trees. The preliminary landscape plan shows that eight (8) trees will be planted on the site. The size and species of replacement trees, and overall landscape design will be reviewed in detail through the Development Permit application review process.

Tree Protection

One tree (1) on City property is to be retained and protected. The applicant has submitted a tree protection plan showing the trees to be retained and the measures taken to protect them during development stage (Attachment 12). To ensure that the tree identified for retention is protected at development stage, the applicant is required to complete the following items:

- Prior to final adoption of the rezoning bylaw, submission of a $2,600 Tree Survival Security;
- Prior to final adoption of the rezoning bylaw, submission to the City of a contract with a Certified Arborist for the supervision of all works conducted within or in close proximity to tree protection zone. The contract must include the scope of work required, the number of proposed monitoring inspections at specified stages of construction, any special measures required to ensure tree protection, and a provision for the arborist to submit a post-construction impact assessment to the City for review.
- Prior to demolition of the existing dwelling on the subject site, installation of tree protection fencing around the tree to be retained. Tree protection fencing must be installed to City standard in accordance with the City's Tree Protection Information Bulletin Tree-03 prior to any works being conducted on-site, and remain in place until construction and landscaping on-site is completed.

Variance Requested

The applicant has requested to vary Section 7.5.13 to allow four small car parking spaces (one small car parking stall in each of the side-by-side garages in four units). Section 7.5.13 requires that all spaces provided be standard spaces for on-site parking in developments which contain fewer than 31 spaces. As the proposed development contains fewer than 31 spaces, no small car space is permitted. Staff are supportive of the proposed variance to permit four (4) small car parking spaces as it enables two extra parking spaces be provided within the garages in a side-by-side arrangement.

The total required number of residential parking spaces is seven (7) and the total proposed number of residential parking spaces to be provided is nine (9), which exceeds the minimum requirement.

The variance will be addressed through the associated Development Permit application and will be further reviewed at the Development Permit application review stage.

Affordable Housing Strategy

The applicant is required to comply with the City's Affordable Housing Strategy, which requires either provision of units or a cash contribution to the City's Affordable Housing Fund. In accordance with the Strategy, prior to rezoning bylaw adoption, a cash contribution of $61,225.5 ($8.50 per buildable square foot) is required.

BC Energy Step Code

On July 26, 2018, Council adopted BC Energy Step Code requirements for all new residential developments. The proposed development consists of townhouses that staff anticipates would be designed and built in accordance with Part 9 of the BC Building Code. Therefore, this development would be expected to achieve Step 3 of the Energy Step Code for Part 9 construction.

Amenity Space

Consistent with the Official Community Plan, the applicant is proposing to provide cash contribution in the amount of $1,600 per unit for a total of $8,000 in lieu of providing indoor amenity space.

The proposed outdoor amenity space area is 44.3 m^2 (477 ft^2) in area, which exceeds the required minimum area of 30 m^2 (323 ft^2), and the outdoor amenity space provides a direct link to the adjacent park.

Site Servicing and Frontage Improvements

The applicant is required to enter into a Servicing Agreement at Building Permit stage for the design and construction of the required site servicing and frontage improvements, as described in the attached Rezoning Consideration (Attachment 11). Frontage improvements include, but may not be limited to, the following:

- Provide 8.5 m wide pavement along the development frontage to meet local road design standards. The centre line of the 8.5 m wide pavement is to be consistent with the centre line of the 20.12 m wide road right-of-way.
- Removal of the existing driveway and construction of a new 2.0m wide sidewalk, 3.85 m wide boulevard with street trees, 0.15 wide curb. The new sidewalk and boulevard are to transition to meet the existing frontage treatments to the east and west of the subject site.
- Undergrounding of the overhead service lines.

Development Permit Application

A Development Permit application is required to be processed to a satisfactory level prior to final adoption of the rezoning bylaw. Further refinements to architectural, landscape and urban design will be completed as part of the Development Permit application review process, including, but not limited to, the following:

- Compliance with the Development Permit Guidelines for multi-family developments and McLennan South Sub-Area Plan Development Permit Guidelines;
- Refinement of the character and form of building elevations including materials to create an interesting streetscape along General Currie Road;
- Review of the size and species of replacement trees, and landscape plan to ensure bylaw compliance and to achieve a mix of conifer and deciduous trees on site and along the frontage;
- Refinement of the outdoor amenity area design;
- Review of aging-in-place features and the design of the convertible unit; and
- Review of a sustainability strategy for the development including measures to achieve BC Energy Step Code requirements.

Additional issues may be identified as part of the Development Permit application review process.

Financial Impact or Economic Impact

The rezoning application results in an insignificant Operational Budget Impact (OBI) for off-site City infrastructure (such as roadworks, waterworks, storm sewers, sanitary sewers, street lights, street trees and traffic signals).

Conclusion

The purpose of this application is to rezone the property at 9340 General Currie Road from the "Single Detached (RS1/F)" zone to the "Town Housing (ZT45) - Gilbert Road, Acheson - Bennett Sub-Area, St. Albans Sub-Area, South McLennan (City Centre)" zone, to develop five townhouse units with vehicle access from General Currie Road.

The rezoning application is consistent with the land use designation and applicable policies contained in the City Centre McLennan South Sub-Area Plan for the subject site.

The list of rezoning considerations is included in Attachment 13; which have been agreed to by the applicant (signed concurrence on file).

It is recommended that Richmond Zoning Bylaw 8500, Amendment Bylaw 10048 be introduced and given first reading.

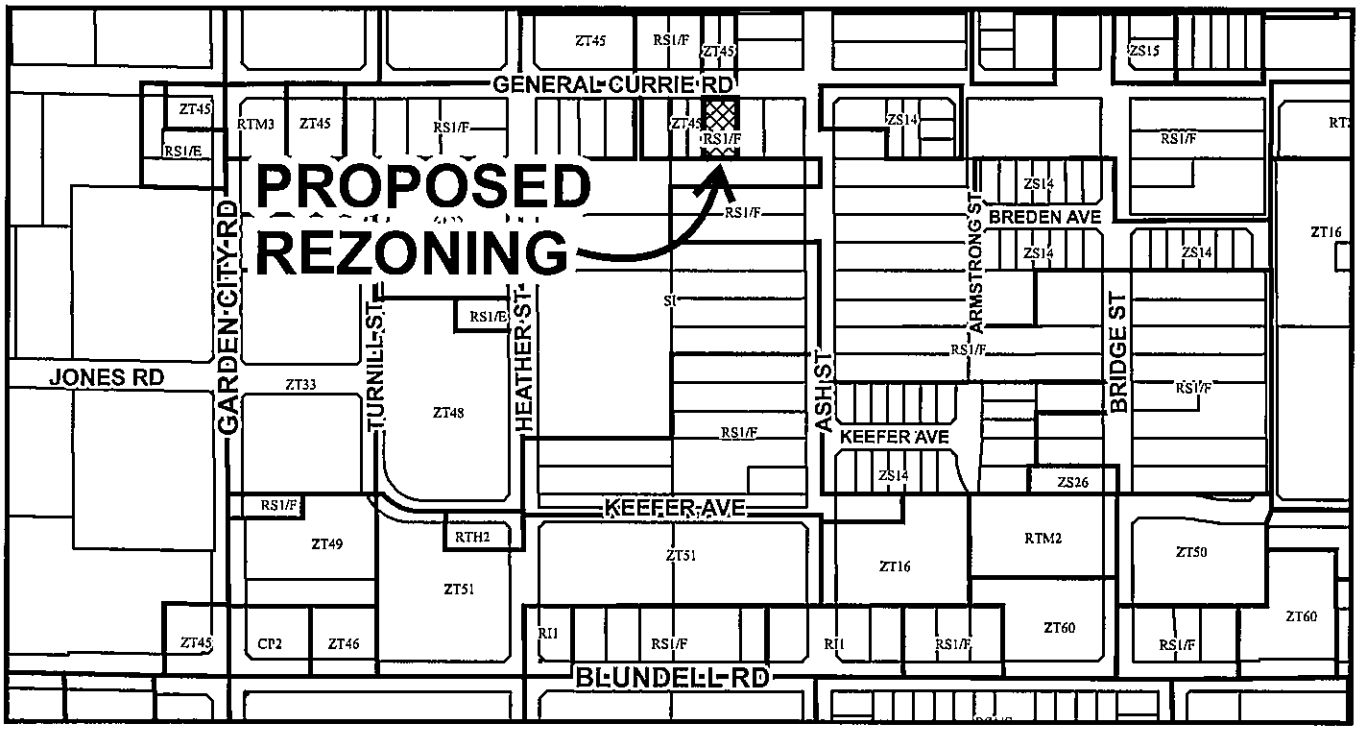
Minhee Park
Planner 2

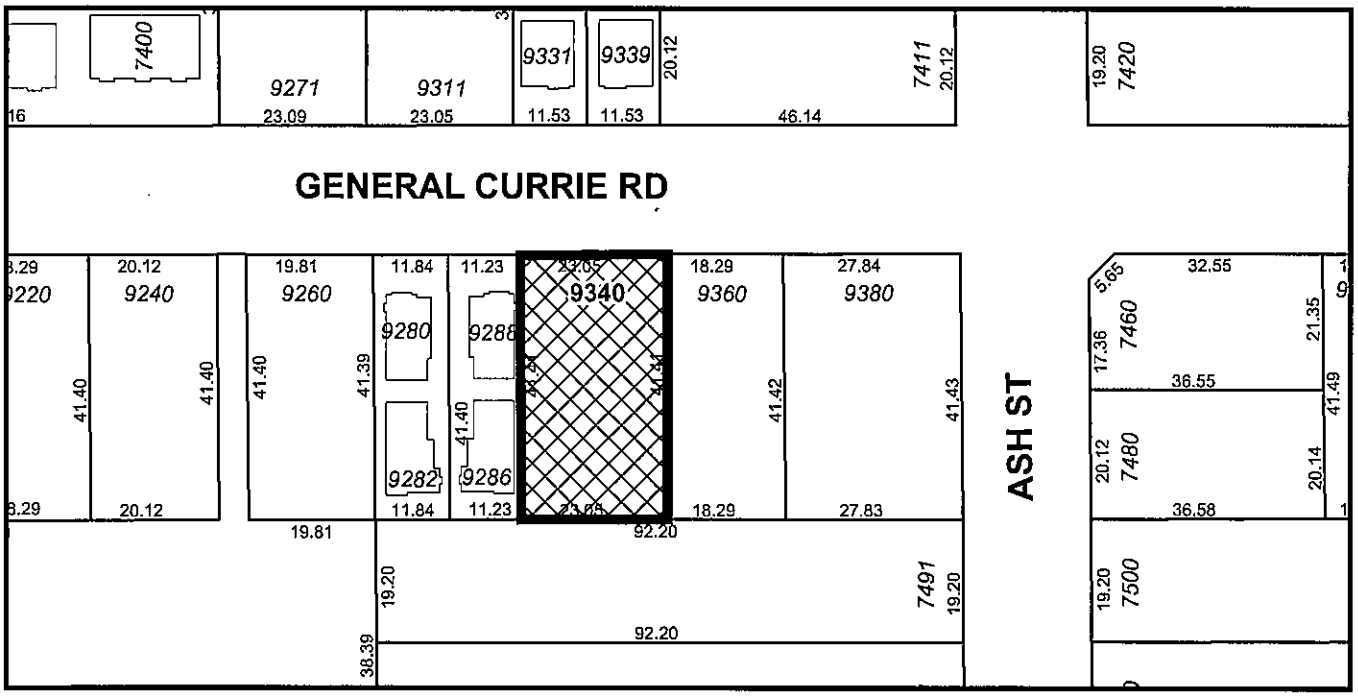
MP:cas

Attachment 1: Location Map and Aerial Photo
Attachment 2: Development Application Data Sheet

Attachment 3: Preliminary Plans
Attachment 4: McLennan South Sub-Area Plan Land Use Map
Attachment 5: Correspondence from Neighbour to City Clerk's Office
Attachment 6: Letter to Neighbours from the Applicant
Attachment 7: Notification Area Map
Attachment 8: Public Information Meeting Summary
Attachment 9: Written Comments from Neighbours
Attachment 10: Confirmation Email from Applicant
Attachment 11: Tree Survey Plan
Attachment 12: Tree Management Plan
Attachment 13: Rezoning Considerations

City of Richmond





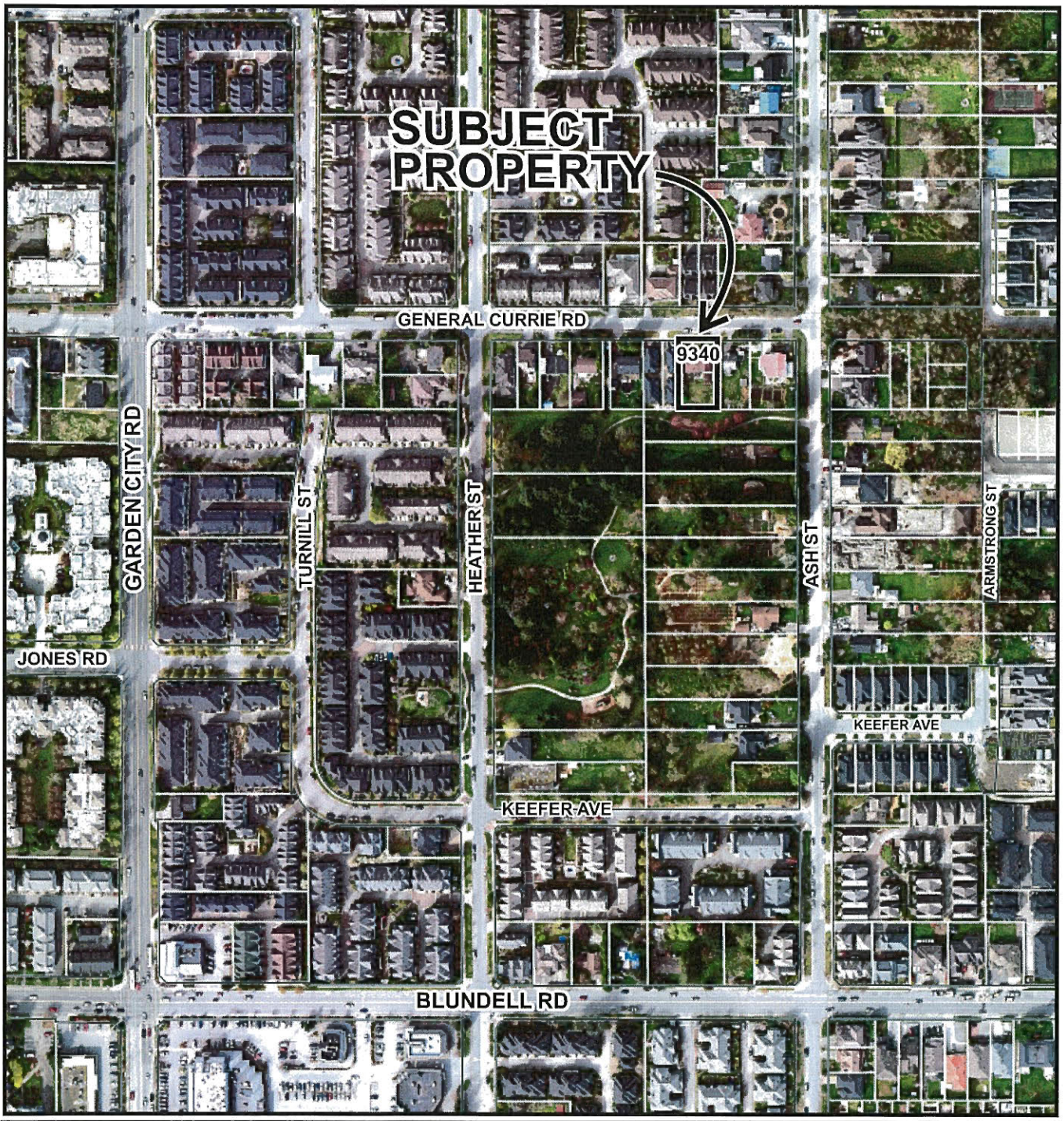
RZ 17-790958

Original Date: 11/16/17

Revision Date:

Note: Dimensions are in METRES

City of Richmond



RZ 17-790958

Original Date: 11/16/17

Revision Date:

Note: Dimensions are in METRES

City of Richmond

Development Application Data Sheet

Development Applications Department

RZ 17-790958 **Attachment 2**

Address: 9340 General Currie Road

Applicant: 1116559 B.C.LTD.

Planning Area(s): McLennan South Sub-Area

	Existing	Proposed
Owner:	1116559 B.C. LTD.	No Change
Site Size:	954 m^2 (10,268.8 ft^2)	No Change
Land Uses:	Single Detached Dwelling	Townhouses
OCP Designation:	Neighbourhood Residential	No Change
Area Plan Designation:	Residential	No Change
Zoning:	Single Detached (RS1/F)	Town Housing (ZT45) - Gilbert Road, Acheson - Bennett Sub-Area, St. Albans Sub-Area, South McLennan (City Centre)
Number of Units:	1	5

On Future Subdivided Lots	Bylaw Requirement	Proposed	Variance
Floor Area Ratio:	Max. 0.7	0.7	none permitted
Buildable Floor Area (m^2):*	669.2 m^2	668.7m^2	none permitted
Lot Coverage (% of lot area):	Building: Max. 45% Non-porous Surfaces: Max. 65% Landscaping: Min. 25%	Building: Max. 38.3% Non-porous Surfaces: Max. 64.34% Landscaping: Min. 25%	none
Lot Size:	360 m^2	954 m^2	none
Lot Dimensions (m):	N/A	Width: 23 m Depth: 41.4 m	none
Setbacks (m):	General Currie: Min. 6 m Rear: Min. 1.2 m Interior Side: Min. 1.2 m	General Currie: 6 m Rear: 4.7 m Interior Side (West):1.2 m Interior Side (East): 2.5 m	none
Height (m):	12 m	10.3 m	none
Off-street Parking Spaces – Total:	7 (R) and 1 (V)	9 (R) and 1 (V)	none
Tandem Parking Spaces:	Permitted – Maximum of 50% of required spaces	0	none

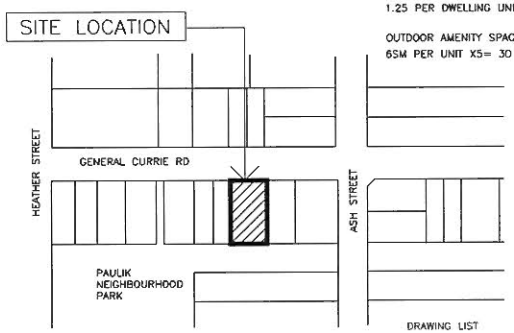
On Future Subdivided Lots	Bylaw Requirement	Proposed	Variance
Small Car Spaces	None permitted for parking area which contains fewer than 31 spaces	4	Variance
Bicycle Parking Spaces – Class 1	7	7	none
Bicycle Parking Spaces – Class 2	1	1	none
Amenity Space – Indoor:	Min. 50m^2 or $1,600/unit cash-in-lieu	$8,000 ($1,600/unit) cash-in-lieu	none
Amenity Space – Outdoor:	30 m^2	44.3 m^2	none

* Preliminary estimate; not inclusive of garage; exact building size to be determined through zoning bylaw compliance review at Building Permit stage.

REZONING FOR PROPOSED TOWNHOUSE DEVELOPMENT AT 9340 GENERAL CURRIE ROAD, RICHMOND, BC

DEVELOPMENT DATA

(A) CIVIC ADDRESS:	9340 GENERAL CURRIE ROAD, RICHMOND, BC		
(B) LEGAL DESCRIPTION:	EAST HALF OF THE WEST HALF OF LOT 20 BLOCK 'G' SECTION 15 BLOCK 4 NORTH RANGE 6 WEST NEW WESTMINSTER DISTRICT PLAN 1207		
(C) LOT AREA:	956 SM (10,290 SF)		
(D) ZONING USE	CURRENT: RS1/F, PROPOSED: ZT45		
	CURRENT ZONING (UNDER RS1/F ZONING)	PROPOSED REZONING (ZT45)	PROPOSED
(E) FLOOR AREA RATIO	0.55 TO 454.5 SM 0.3 TO REST OF SITE AREA	0.70 TOTAL GROSS FLOOR AREA 0.70 X956 SM = 669.2 SM (7,203 SF)	0.7 7198 SF GROSS FLOOR AREA
(F) NUMBER OF UNIT:	1 PER LOT	62 UNITS / HECTARE (107,639SF) (5.9 UNITS IN 10,290SF)	5 UNITS
(G) BUILDING COVERAGE:	MAX – 45%	MAX – 45% (4,630SF) LIVE PLANT AREA – MIN 25% IMPERMEABLE AREA – MAX 65%	38.3% (3946 SQ. FT.) LIVE PLANT AREA : 25.07% (SEE LANDSCAPE) IMPERMEABLE AREA: 64.34% (SEE LANDSCAPE)
(H) BUILDING HEIGHT: (H) SETBACK:	MAX HEIGHT – 9M FRONTYARD – 6M SIDEYARD – 2M REARYARD – 6M	MAX MAIN BUILDING HEIGHT – 12M FRONTYARD FACING GENERAL CURRIE RD – 6M EAST AND WEST SIDEYARD – 1.2M REAR YARD – 1.2M	BUILDING HEIGHT – 10.33M FRONT YARD FACING GENERAL CURRIE – 6.0M (19'8") EAST SIDEYARD – 2.55M (8'5") WEST SIDEYARD – 1.25M (4'1") REAR YARD – 4.77M (15'8")
(I) PARKING:	2 PER DWELLING UNIT	1.4 PER DWELLING UNITS X5 = 7 0.2 VISITOR PARKING / UNIT X5 = 1 ZT45 ZONING ALLOW TANDEM PARKING VISITOR BICYCLE 0.2 PER DWELLING UNIT X5= 1 RESIDENTIAL BICYCLE STORAGE 1.25 PER DWELLING UNIT X5=7 OUTDOOR AMENITY SPACE 6SM PER UNIT X5= 30 SM (323SF)	RESIDENTIAL PARKING: 5 REGULAR PARKING 4 SMALL PARKING TOTAL = 9 (VARIANCE REQUIRED FOR SMALL PARKING) VISITOR PARKING: 1 REGULAR BICYCLE VISITOR BIKE RACK 1 TOWNHOUSE 7 (INSIDE GARAGE) OUTDOOR AMENITY SPACE PROVIDED: CHILDREN PLAYGROUND: 477 SQ. FT. 44.3 SM



DRAWING LIST

A1– DEVELOPMENT SUMMARY
A2– SITE PLAN (1/F)
A2A–PARKING PLAN
A3– SITE PLAN (2/F & 3/F)
A4– UNIT PLAN
A5– UNIT PLANS
A6– ELEVATIONS
A7– ELEVATIONS
A8– OPEN SPACE DIAGRAM
A9– FAR DIAGRAM

ALL THE UNITS IN THIS PROJECT SHALL INCORPORATE THE FOLLOWING FEATURES IN THE UNITS

(1) PROVIDE PRE-DUCTING TO ACCOMMODATE FUTURE SOLAR HOT WATER HEATING
(2) AGING IN PLACE FEATURES SHALL BE PROVIDED TO ALL UNITS:
(a) STAIRWELL HANDRAILS
(b) LEVER TYPE HANDLES FOR PLUMBING FIXTURE AND DOOR HANDLES
(c) SOLID BLOCKING IN WASHROOM WALLS TO FACILITATE FUTURE GRAB BAR INSTALLATION BESIDE TOILETS, BATHTUBS AND SHOWERS

THIS TOWNHOUSE SHALL MEET CITY'S ENERGY STEP CODE REQUIREMENTS

RZ 17–790958

ERIC LAW ARCHITECT

215 288 16TH AVENUE VANCOUVER BC V5Y1N5

TEL: (604) 508-2089
FAX: (604) 908-2697

ISSUED	
1	2017.11.03 FOR REZONING APPLICATION
2	2018.06.13 FOR CITY COMMENT
3	2018.09.28 FOR CITY COMMENT
4	2018.11.13 FOR CITY COMMENT
5	2019.03.06 FOR CITY REVIEW

REVISION	
3	2019.03.01 IN RESPONSE TO CITY COMMENT LETTER
2	2018.11.17 BLDG MASSING
1	2018.09.28 BLDG MASSING

PROPOSED TOWNHOUSE AT 9340 GENERAL CURRIE RD RICHMOND BC

DEVELOPMENT SUMMARY

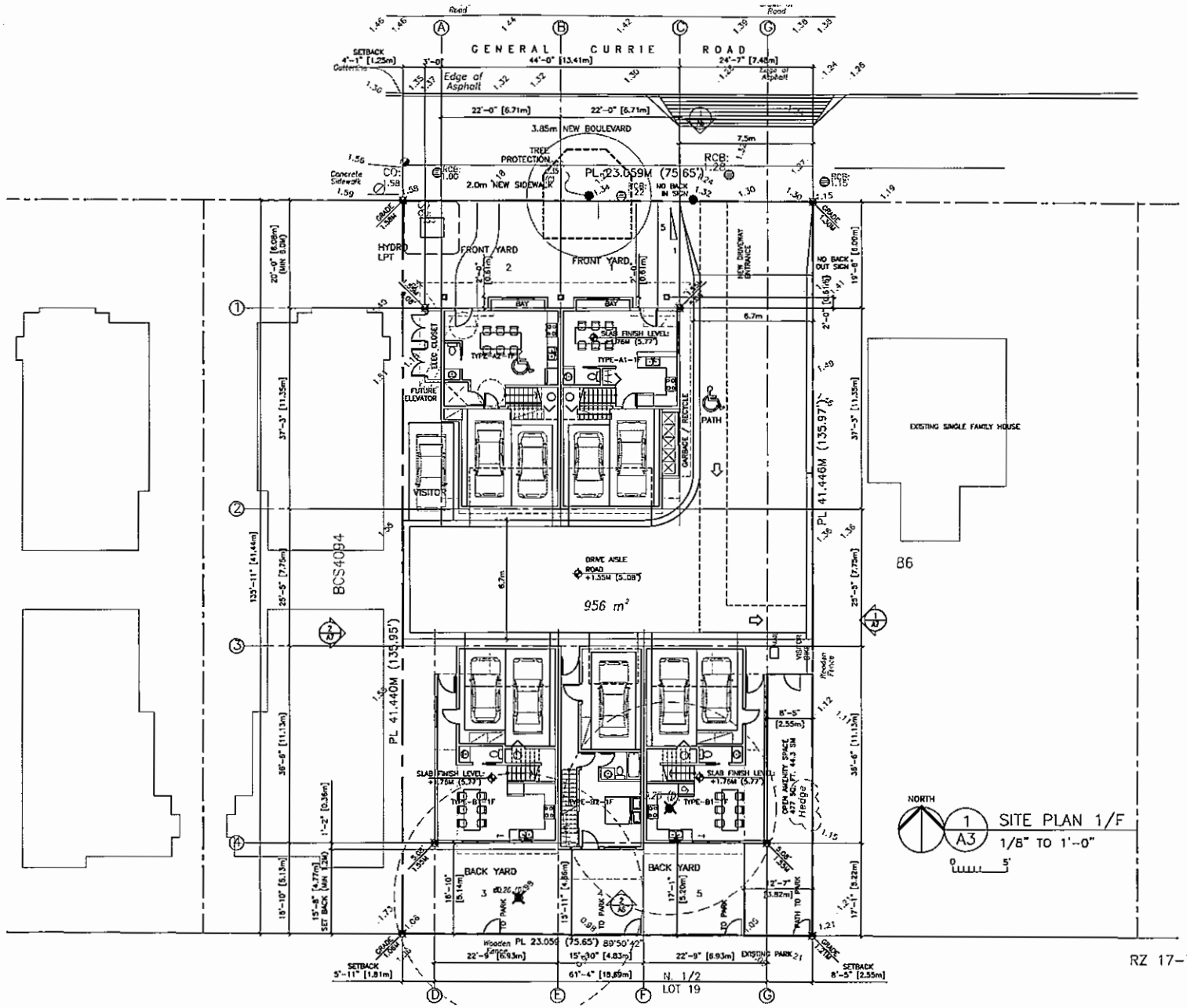
PROJECT NUMBER:	17–11
ISSUED:	3/6/2019
DRAWN BY:	EL
CHECKED BY:	EL
FILENAME:	17-11_NGC_190306-RZ.DWG

A1

REZONE

CNCL - 492

ATTACHMENT 3



CNCL - 493

RZ 17-790958

ERIC LAW ARCHITECT

1	ISSUED
2	2017.11.03 FOR REZONING APPLICATION
3	2018.08.13 FOR CITY COMMENT
4	2018.09.28 FOR CITY COMMENT
5	2018.11.13 FOR CITY COMMENT
6	2019.03.06 FOR CITY REVIEW

3	2019.05.01 IN RESPONSE TO CITY COMMENT LETTER
2	2018.11.12 BLDG SUBMISSION
1	2018.08.28 BLDG SUBMISSION

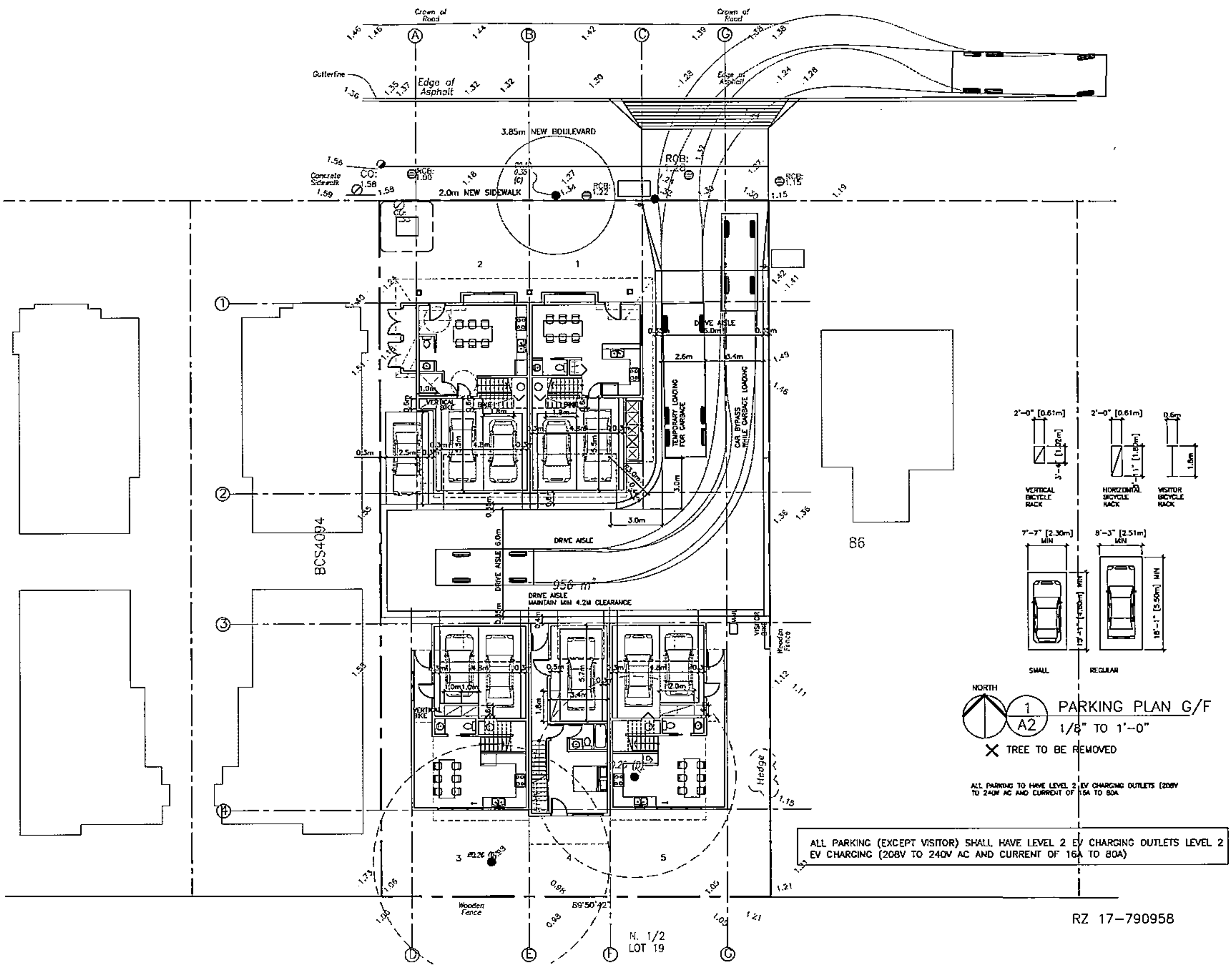
PROPOSED TOWNHOUSE
AT 9340
GENERAL CURRIE RD
RICHMOND BC

SITE PLAN (1/F)

PROJECT NUMBER:	17-11
ISSUED:	3/6/2019
DRAWN BY:	EL
CHECKED BY:	EL
FILENAME:	17-11_MDC_190306-RZ.DWG

A2

REZONE



ERIC LAW ARCHITECT

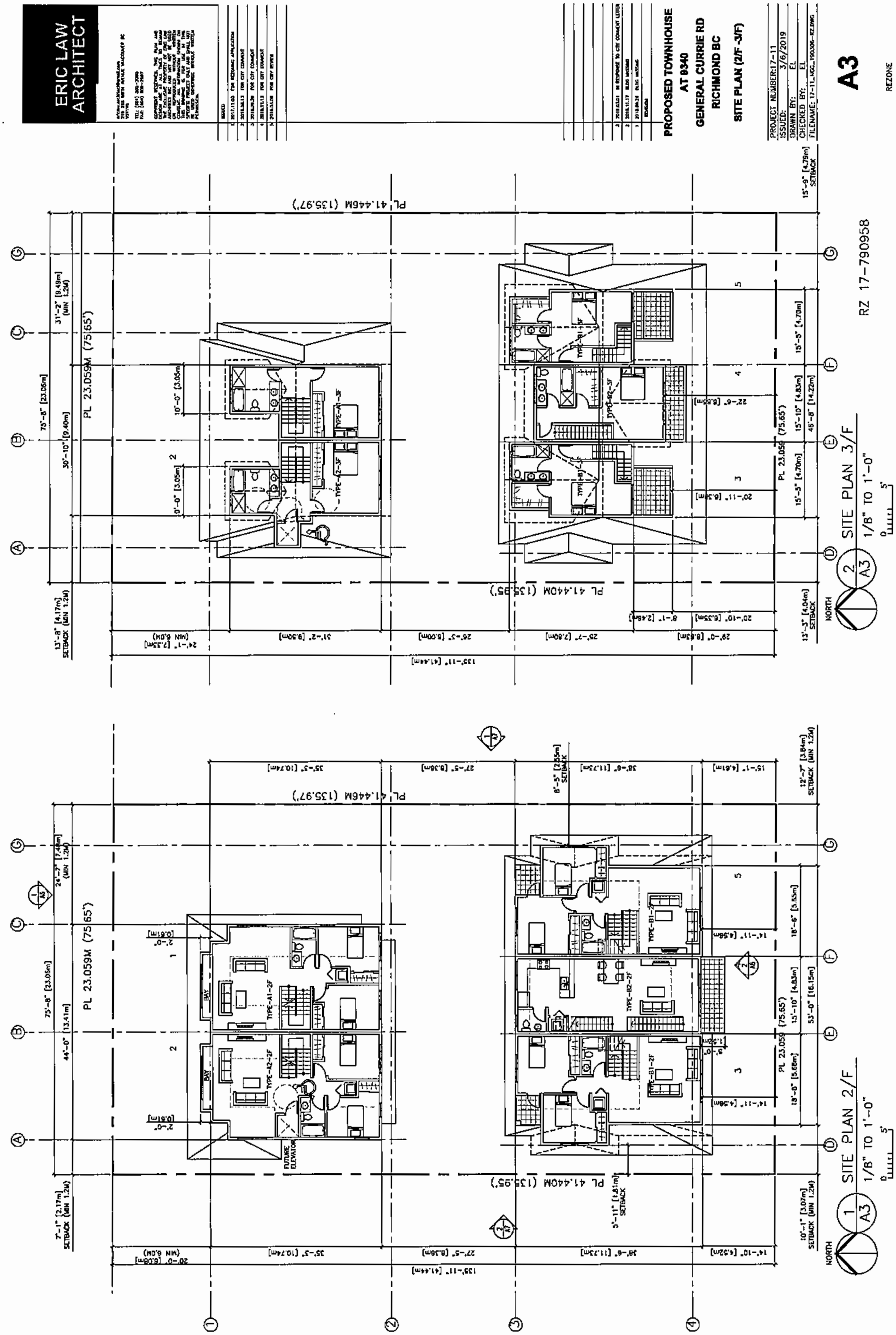
PROPOSED TOWNHOUSE AT 9340 GENERAL CURRIE RD RICHMOND BC

PARKING PLAN

PROJECT NUMBER: 17-11
ISSUED: 3/6/2019
DRAWN BY: EL
CHECKED BY: EL
FILENAME: 17-11_NGC_190306-RZ.DWG

A2A

REZONE


ERIC LAW ARCHITECT
PROPOSED TOWNHOUSE
AT 9340
GENERAL CURRIE RD
RICHMOND BC
SITE PLAN (2/F -3/F)
PROJECT NUMBER: 17-11
ISSUED: 3/6/2019
DRAWN BY: EL
CHECKED BY: EL
A3
REZONE
RZ 17-790958
SITE PLAN 3/F
1/8" TO 1'-0"
SITE PLAN 2/F
1/8" TO 1'-0"
NORTH
PL 41.446M (135.97')
PL 41.440M (135.95')
PL 23.059M (75.65')
FUTURE ELEVATOR

1 A6 NORTH ELEVATION & CONTEXT (FACING GENERAL CURRIE RD)

1/8" TO 1'-0"

2 A6 SOUTH ELEVATION & CONTEXT (FACING PARK)

1/8" TO 1' 0"

NEIGHBOUR HOUSE SITE

NEIGHBOUR 2 STOREY MULTI-FAMILY BUILDING

CONTEXT PHOTO VIEW FROM GENERAL CURRIE ROAD

RZ 17-790958

CNCL - 496

ERIC LAW ARCHITECT

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219 288 WEST AVENUE VANCOUVER BC V5Y1A5

TEL: (604) 305-2089
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ISSUES	
1	2017.11.03 FOR REZONING APPLICATION
2	2018.06.13 FOR CITY COMMENT
3	2018.09.28 FOR CITY COMMENT
4	2018.11.13 FOR CITY COMMENT
5	2019.03.06 FOR CITY REVIEW

REVISION	
3	2019.03.01 IN RESPONSE TO CITY COMMENT LETTER
2	2018.11.17 BLDG MISSING
1	2018.09.28 BLDG MISSING

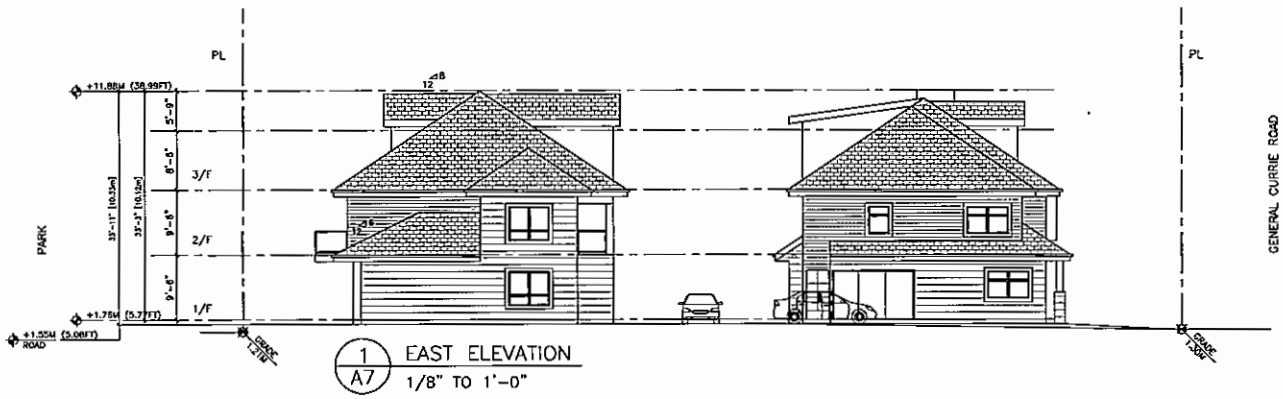
PROPOSED TOWNHOUSE AT 9340 GENERAL CURRIE RD RICHMOND BC

ELEVATIONS

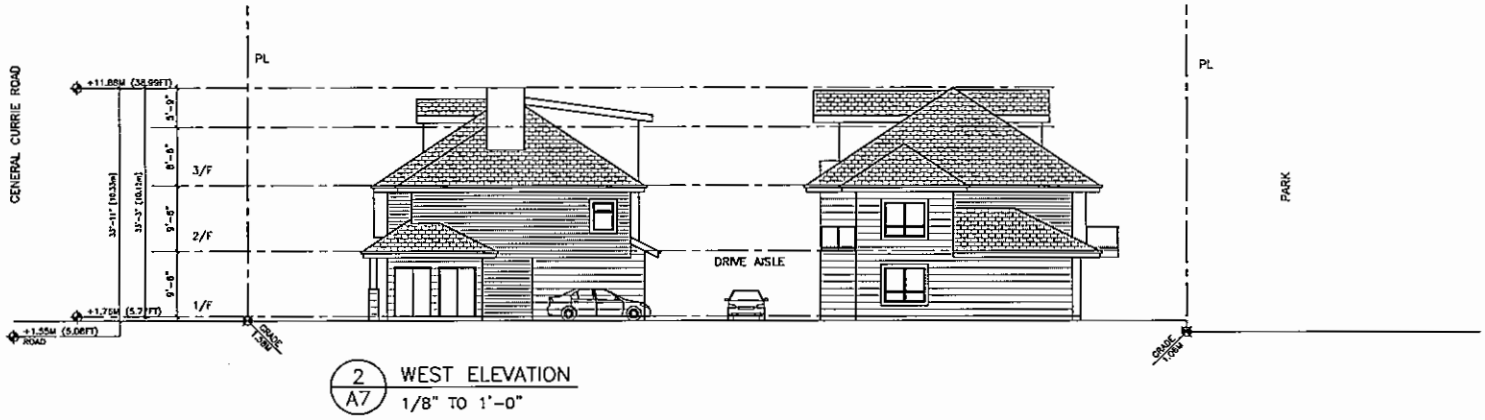
PROJECT NUMBER:	17-11
ISSUED:	3/6/2019
DRAWN BY:	EL
CHECKED BY:	EL
FILENAME:	17-11_NGC_190306-RZ.DWG

A6

REZONE



1/A7 EAST ELEVATION
1/8" TO 1'-0"



2/A7 WEST ELEVATION
1/8" TO 1'-0"

CNCL - 497

RZ 17-790958

ERIC LAW ARCHITECT

1	2017.11.03 FOR REZONING APPLICATION
2	2018.06.13 FOR CITY COMMENT
3	2018.08.28 FOR CITY COMMENT
4	2018.11.13 FOR CITY COMMENT
5	2019.03.06 FOR CITY REVIEW
3	2019.03.01 IN RESPONSE TO CITY COMMENT LETTER
2	2018.11.27 BLDG MASSING
1	2018.08.28 BLDG MASSING

PROPOSED TOWNHOUSE
AT 9340
GENERAL CURRIE RD
RICHMOND BC

ELEVATIONS

PROJECT NUMBER:	17-11
ISSUED:	3/6/2019
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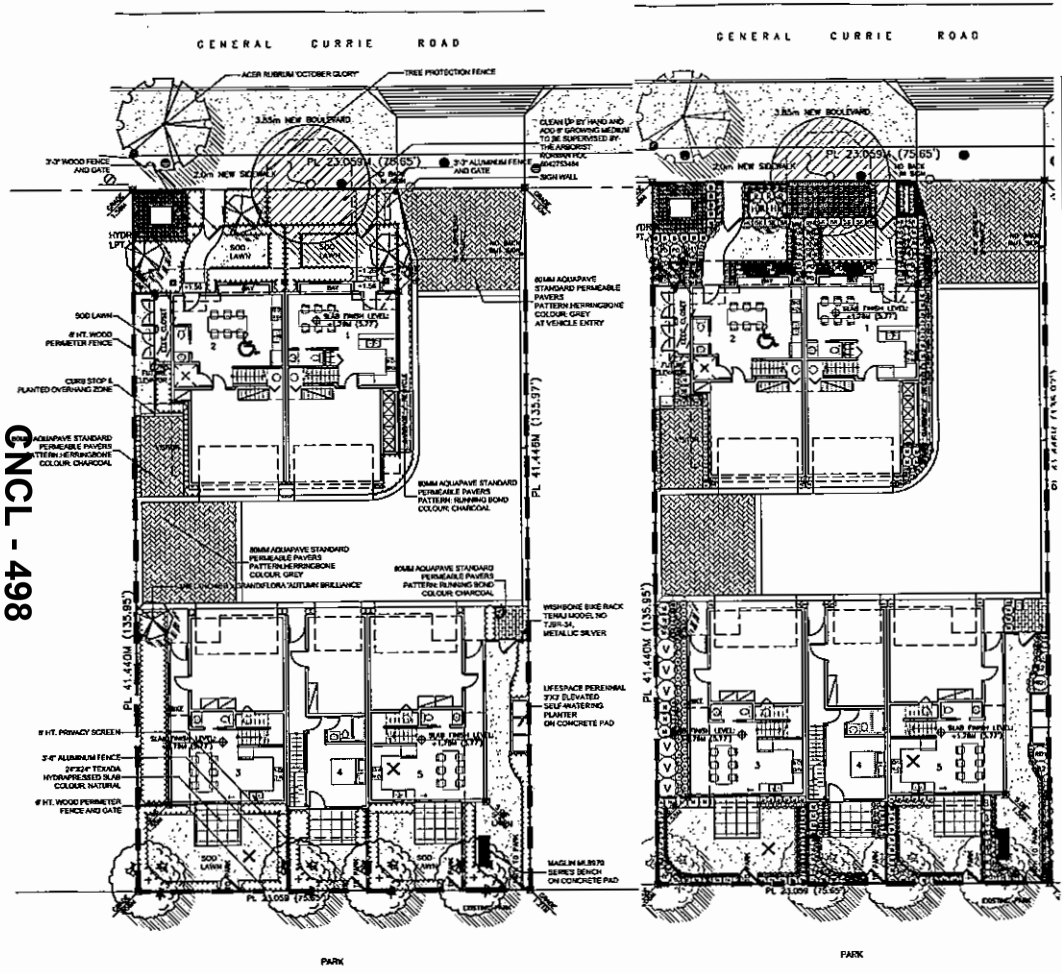
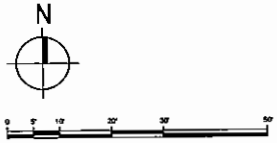
REZONE





PLANT SCHEDULE - OFFSITE

PMG PROJECT NUMBER: 19-020

KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANTED SIZE / REMARKS
	1	ACER RUBRUM 'OCTOBER GLORY'	OCTOBER GLORY MAPLE	6CM CAL; 2M STD; B&B

NOTES: * PLANT SIZES IN THIS LIST ARE SPECIFIED ACCORDING TO THE BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD, LATEST EDITION. CONTAINER SIZES SPECIFIED AS PER CNLA STANDARD. BOTH PLANT SIZE AND CONTAINER SIZE ARE THE MINIMUM ACCEPTABLE SIZES. * REFER TO SPECIFICATIONS FOR DEFINED CONTAINER MEASUREMENTS AND OTHER PLANT MATERIAL REQUIREMENTS. * SEARCH AND REVIEW: MAKE PLANT MATERIAL AVAILABLE FOR OPTIONAL REVIEW BY LANDSCAPE ARCHITECT AT SOURCE OF SUPPLY. AREA OF SEARCH TO INCLUDE LOWER MAINLAND AND FRASER VALLEY. * SUBSTITUTIONS: OBTAIN WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT PRIOR TO MAKING ANY SUBSTITUTIONS. TO THE SPECIFIED MATERIAL. UNAPPROVED SUBSTITUTIONS WILL BE REJECTED. ALLOW A MINIMUM OF FIVE DAYS PRIOR TO DELIVERY FOR REQUEST TO SUBSTITUTE. SUBSTITUTIONS ARE SUBJECT TO BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD - DEFINITION OF CONDITIONS OF AVAILABILITY. * ALL LANDSCAPE MATERIAL AND WORKMANSHIP MUST MEET OR EXCEED BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD LATEST EDITION. * ALL PLANT MATERIAL MUST BE PROVIDED FROM CERTIFIED DISEASE FREE NURSERY. * BIO-SOLIDS NOT PERMITTED IN GROWING MEDIUM UNLESS AUTHORIZED BY LANDSCAPE ARCHITECT.

PLANT SCHEDULE

PMG PROJECT NUMBER: 19-020

KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANTED SIZE / REMARKS
TREE				
	4	AMELANCHIER x GRANDIFLORA 'AUTUMN BRILLIANCE'	RUTUMIN BRILLIANCE SERVICEBERRY	6CM CAL; B&B; 3 STEM CLUMP
	4	CORNUS KOUSA 'CHINENSIS'	CHINESE KOUSA DOGWOOD	2.5M HT; BUSH FORM; B&B

NOTES: * PLANT SIZES IN THIS LIST ARE SPECIFIED ACCORDING TO THE BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD, LATEST EDITION. CONTAINER SIZES SPECIFIED AS PER CNLA STANDARD. BOTH PLANT SIZE AND CONTAINER SIZE ARE THE MINIMUM ACCEPTABLE SIZES. * REFER TO SPECIFICATIONS FOR DEFINED CONTAINER MEASUREMENTS AND OTHER PLANT MATERIAL REQUIREMENTS. * SEARCH AND REVIEW: MAKE PLANT MATERIAL AVAILABLE FOR OPTIONAL REVIEW BY LANDSCAPE ARCHITECT AT SOURCE OF SUPPLY. AREA OF SEARCH TO INCLUDE LOWER MAINLAND AND FRASER VALLEY. * SUBSTITUTIONS: OBTAIN WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT PRIOR TO MAKING ANY SUBSTITUTIONS. TO THE SPECIFIED MATERIAL. UNAPPROVED SUBSTITUTIONS WILL BE REJECTED. ALLOW A MINIMUM OF FIVE DAYS PRIOR TO DELIVERY FOR REQUEST TO SUBSTITUTE. SUBSTITUTIONS ARE SUBJECT TO BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD - DEFINITION OF CONDITIONS OF AVAILABILITY. * ALL LANDSCAPE MATERIAL AND WORKMANSHIP MUST MEET OR EXCEED BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD LATEST EDITION. * ALL PLANT MATERIAL MUST BE PROVIDED FROM CERTIFIED DISEASE FREE NURSERY. * BIO-SOLIDS NOT PERMITTED IN GROWING MEDIUM UNLESS AUTHORIZED BY LANDSCAPE ARCHITECT.

3 TREES REMOVED, 8 REPLACEMENT TREES

PLANT SCHEDULE

PMG PROJECT NUMBER: 19-020

KEY	QTY	BOTANICAL NAME	COMMON NAME	PLANTED SIZE / REMARKS
SHRUB				
	12	BUXUS MICROPHYLLA 'WINTER GEM'	LITTLE-LEAF BOX	#3 POT; 45CM
	2	HYDRANGEA MACROPHYLLA 'MOOG BLUE'	BIGLEAF HYDRANGEA (BLUE)	#3 POT; 80CM
	2	HYDRANGEA MACROPHYLLA 'SISTER THERESA'	BIGLEAF HYDRANGEA; WHITE	#2 POT; 50CM
	3	KALMIA LATIFOLIA 'ELF'	DWARF MOUNTAIN LAUREL	#3 POT; 90CM
	1	MAHONIA NERVOSA	LONGLEAF MAHONIA	#2 POT; 40CM
	17	NANDINA DOMESTICA 'MOONBAY'	DWARF HEAVENLY BAMBOO	#3 POT; 90CM
	3	RHODODENDRON 'WOW BELLS'	RHODODENDRON	#2 POT; 90CM
	7	RHODODENDRON 'P.J.M.'	RHODODENDRON; LIGHT PURPLE; E. MAY	#3 POT; 50CM
	5	ROSA MEIDILAND 'BONICA'	BONICA ROSE	#2 POT; 40CM
	1	ROSA MEIDILAND 'RED'	MEIDILAND ROSE; RED	#2 POT; 40CM
	11	SKIMMIA JAPONICA (FOR MALE)	JAPANESE SKIMMIA	#2 POT; 30CM
	56	TAXUS X MEDIA 'HILLII'	HILLII YEW	1.5M B&B
	4	VACCINIUM 'POLARIS'	POLARIS BLUEBERRY	#3 POT; 60CM
	4	VACCINIUM 'SUNSHINE BLUE'	BLUEBERRY	#2 POT; 50CM
	7	VIBURNUM DAVIDII	DAVID'S VIBURNUM	#3 POT; 50CM
GRASS				
	24	CAREX OSHIMENSIS 'EVERGOLD'	EVERGOLD JAPANESE SEDGE	#1 POT
	61	FESTUCA OVINA 'GLAUCA'	BLUE FESCUE	#1 POT
	16	MISCANTHUS SINENSIS 'ADAGIO'	ADAGIO DWARF JAP. SILVER GRASS	#2 POT
	68	OPHIOPOGON JAPONICUS	MONDO GRASS	#1 POT
	38	PENNISETUM ALOPECUROIDES 'LITTLE BUNNY'	FOUNTAIN GRASS	#1 POT
VINE				
	14	JASMINUM NUDIFLORUM	WINTER JASMINE; YELLOW	#2 POT; 40CM; STAKED
PERENNIAL				
	98	GERANIUM SANGUINEUM 'JOHN ELSLEY'	GERANIUM; MAGENTA	15CM POT
	6	HELLEBORUS x HYBRIDUS	LENTEN ROSE	15CM POT
	29	HEMEROCALLIS 'WHITE TEMPATION'	DAYLILY; WHITE	#1 POT; 20CM
	16	HOSTA 'PATRIOT'	HOSTA; GREEN AND WHITE VARIEGATED	#1 POT; 1 EYE
	23	LAVENDULA ANGUSTIFOLIA 'MUNSTEAD'	ENGLISH LAVENDER; COMPACT; VIOLET-BLUE	#1 POT
	125	LIRIOPE MUSCARI	BLUE LILY-TURF	#1 POT
	21	STACHYS BYZANTINA 'SILVER CARPET'	LAMB'S EAR	15CM POT
GROUND COVER				
	28	FRAGARIA x ANANASSA	GARDEN STRAWBERRY	9CM POT
	118	PACHYSANDRA TERMINALIS	JAPANESE SPURGE	#1 POT; 15CM
	15	POLYSTICHUM MUNITUM	WESTERN SWORD FERN	#1 POT; 25CM

NOTES: * PLANT SIZES IN THIS LIST ARE SPECIFIED ACCORDING TO THE BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD, LATEST EDITION. CONTAINER SIZES SPECIFIED AS PER CNLA STANDARD. BOTH PLANT SIZE AND CONTAINER SIZE ARE THE MINIMUM ACCEPTABLE SIZES. * REFER TO SPECIFICATIONS FOR DEFINED CONTAINER MEASUREMENTS AND OTHER PLANT MATERIAL REQUIREMENTS. * SEARCH AND REVIEW: MAKE PLANT MATERIAL AVAILABLE FOR OPTIONAL REVIEW BY LANDSCAPE ARCHITECT AT SOURCE OF SUPPLY. AREA OF SEARCH TO INCLUDE LOWER MAINLAND AND FRASER VALLEY. * SUBSTITUTIONS: OBTAIN WRITTEN APPROVAL FROM THE LANDSCAPE ARCHITECT PRIOR TO MAKING ANY SUBSTITUTIONS. TO THE SPECIFIED MATERIAL. UNAPPROVED SUBSTITUTIONS WILL BE REJECTED. ALLOW A MINIMUM OF FIVE DAYS PRIOR TO DELIVERY FOR REQUEST TO SUBSTITUTE. SUBSTITUTIONS ARE SUBJECT TO BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD - DEFINITION OF CONDITIONS OF AVAILABILITY. * ALL LANDSCAPE MATERIAL AND WORKMANSHIP MUST MEET OR EXCEED BC LANDSCAPE STANDARD AND CANADIAN LANDSCAPE STANDARD LATEST EDITION. * ALL PLANT MATERIAL MUST BE PROVIDED FROM CERTIFIED DISEASE FREE NURSERY. * BIO-SOLIDS NOT PERMITTED IN GROWING MEDIUM UNLESS AUTHORIZED BY LANDSCAPE ARCHITECT.

pmg LANDSCAPE ARCHITECTS
Suite C100 - 4185 Still Creek Drive
Burnaby, British Columbia, V5C 6G9
p: 604 294-0011 ; F: 604 294-0022

SEAL:

NO.	DATE	REVISION DESCRIPTION	DR.

CLIENT:

PROJECT:

5 UNIT TOWNHOUSE DEVELOPMENT

9340 GENERAL CURRIE ROAD
RICHMOND, BC

DRAWING TITLE:

LANDSCAPE PLAN

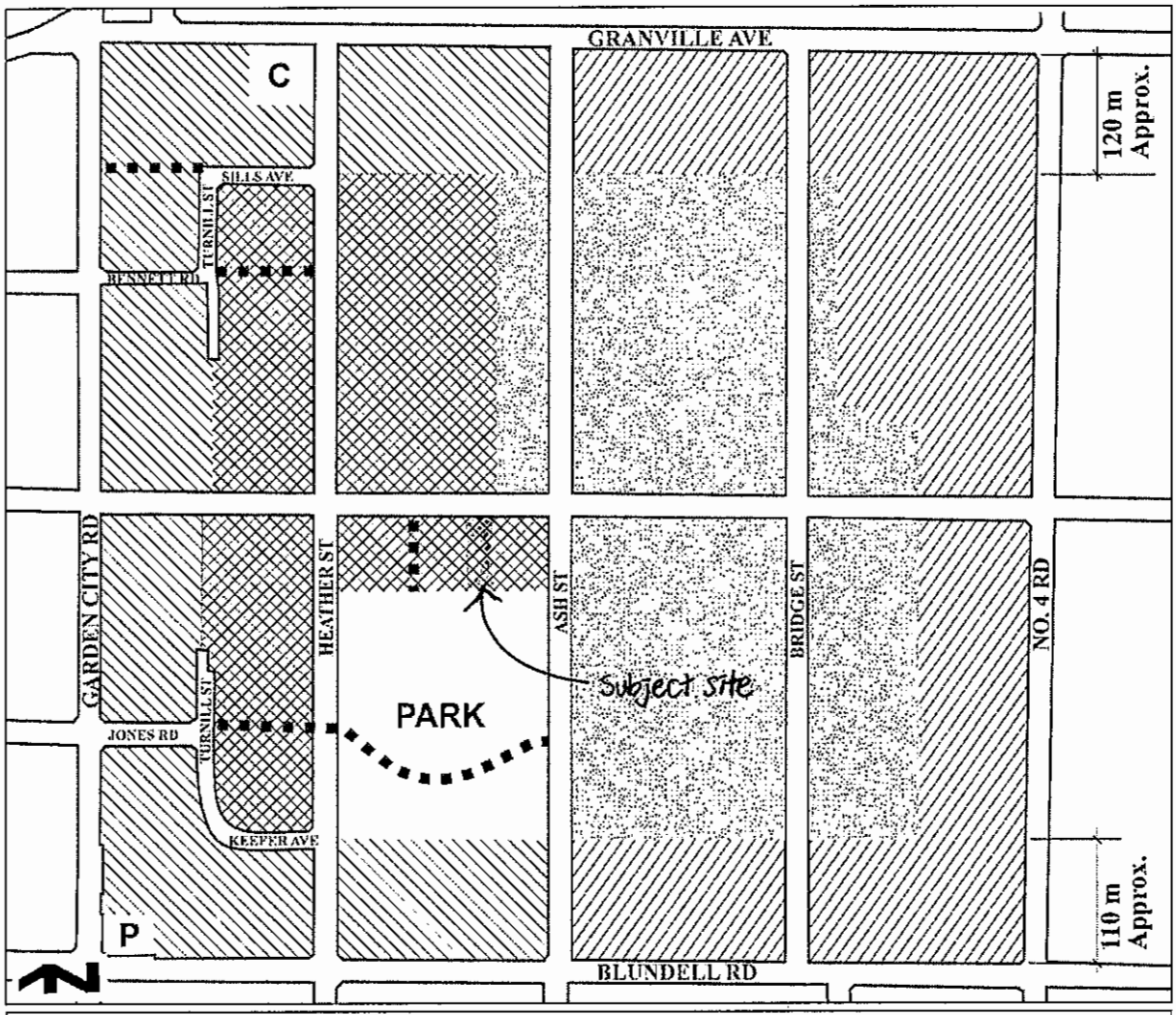
DATE:	19. FEB. 21	DRAWING NUMBER:
SCALE:	1/32"=1'-0"	**L1**
DRAWN:	RJ	
DESIGN:	RJ	
CHK'D:	PCM	OF 4

19020-1.ZP

PMG PROJECT NUMBER: 19-020

Land Use Map

Bylaw 9106
2015/09/14



Residential, Townhouse up to **3 storeys** over 1 parking level, Triplex, Duplex, Single-Family **0.75 base F.A.R.**

Residential, 2 ½ storeys typical (3 storeys maximum) Townhouse, Triplex, Duplex, Single-Family **0.60 base F.A.R.**

Residential, 2 ½ storeys typical (3 storeys maximum), predominantly Triplex, Duplex, Single-Family **0.55 base F.A.R.**

Residential, Historic Single-Family, **2 ½ storeys** maximum **0.55 base F.A.R.**, Lot size along Bridge and Ash Streets:

- Large-sized lots (e.g. 18 m/59 ft. min. frontage and 550 m^2/ 5,920 ft^2 min. area)

Elsewhere:

- Medium-sized lots (e.g. 11.3 m/ 37 ft. min. frontage and 320 m^2/ 3,444 ft^2 min. area), with access from new roads and General Currie Road;

Provided that the corner lot shall be considered to front the shorter of its two boundaries regardless of the orientation of the dwelling.

Trail/Walkway

C Church

P Neighbourhood Pub

Note: Sills Avenue, Le Chow Street, Keefer Avenue, and Turnill Street are commonly referred to as the "ring road".

Park,Minhee

From: CityClerk
Sent: Thursday, 3 May 2018 16:00
To: 'willie huang'
Subject: RE: Inquiry for objection against rezoning application

Follow Up Flag: Follow up
Flag Status: Completed

Hello,

This application is currently with staff in the Planning and Development Division. Minhee Park, Planner 1, may be reached at 604-276-4188.
You may correspond with her regarding your objection.

If you have any other questions, please feel free to contact me.

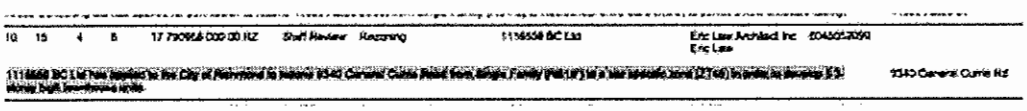
Thank you,
Hanieh

Hanieh Berg | Legislative Services
City Clerk's Office | City of Richmond
6911 No. 3 Road, Richmond, BC V6Y 2C1
Direct (604) 276-4163 · Fax (604) 278-5139

From: willie huang [mailto:huang.h.willie@gmail.com]
Sent: Tuesday, 1 May 2018 22:24
To: CityClerk
Subject: Re: Inquiry for objection against rezoning application

Dear Clerks Staff:

Here is the associated information for the rezoning application which we are objecting to. If you need more information, feel free to contact me. Sincerely



On Tue, May 1, 2018 at 10:37 AM, CityClerk <CityClerk@richmond.ca> wrote:

Hello,

This is to acknowledge and thank you for your email.

Can you please provide a bylaw number or rezoning number associated with the project?

Thank you,

Hanieh

Hanieh Berg | Acting Manager, Legislative Services

City Clerk's Office | City of Richmond

6911 No. 3 Road, Richmond, BC V6Y 2C1

From: Lum,Robert
Sent: Tuesday, 1 May 2018 08:56
To: CityClerk
Subject: FW: Inquiry for objection against rezoning application

Hi Clerks staff:

Could you please provide response to Mr. Huang regarding the process for objecting a rezoning as stated below?

Thanks,

Robert

From: willie huang [mailto:huang.h.willie@gmail.com]
Sent: Tuesday, 1 May 2018 00:04
To: Lum,Robert
Subject: Inquiry for objection against rezoning application

To Whom it may concern,

I am writing to inquire about the process or method to object against a rezoning application in my neighbourhood. I am wondering who to write the letter to and if there is any specific formats to follow (we have multiple neighbours willing to sign to object against a rezoning application)

/sincerely

NOTICE: PROPOSED TOWNHOUSE DEVELOPMENT AT 9340 GENERAL CURRIE ROAD

December 11, 2018

Dear Neighbour,

We would like to invite you to an open house to share information about our proposed townhouse development at **9340 General Currie Road** and obtain your feedback. We would like to identify any comments or questions you may have in order to address them early in the process.

We have submitted a rezoning application for 5 townhouses to the City of Richmond for **9340 General Currie Road**.

This development will be built according to the city's regulations under a specific ZT45 zoning. There will be total of 5 townhouse units with total of 9 parking spots and 1 visitor parking. There will be two buildings with 2 units at front and 3 units at back building, and each townhouse unit will have 3 bedrooms with 2 and a half bathrooms.

OPEN HOUSE MEETING to be held at:

#550 – 9100 Blundell Road, Richmond BC V6Y 2N9

Time: 6 pm to 8 pm

Date: December 19, 2018

Included in the envelope is a preliminary plan of this project and a 3D rendering so you can see what the townhouses will look like.

If you cannot make it in person, you can send your comments directly to 9340generalcurrieroad@gmail.com or Mail your comments to our address below.

Ajit Thaliwal
#2240-4871 Shell Rd. Richmond BC V6X 3Z6

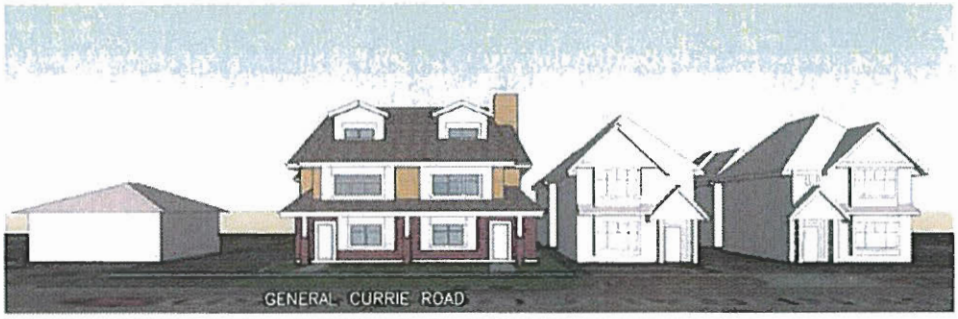
Your thoughts, comments, questions and time are greatly appreciated. We do need your comments by January 11, 2019.

City Contact
Minhee Park, Planner 2
Policy Planning Department
City of Richmond
Tel. (604) 276-4188
mpark@richmond.ca

Sincerely,

Ajit Thaliwal
1116559 BC LTD
#2240-4871 Shell Rd
Richmond BC V6X 3Z6
t: 604-727-5166
f: 604-304-0426
9340generalcurrieroad@gmail.com

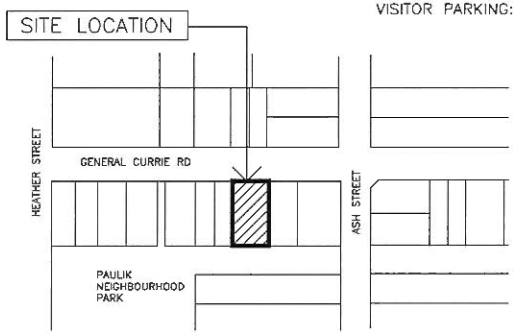
9340 General Currie Road - 3D Rendering of The 5 Units Townhouse Development



PROPOSED TOWNHOUSE DEVELOPMENT AT 9340 GENERAL CURRIE ROAD, RICHMOND, BC

PROPOSED

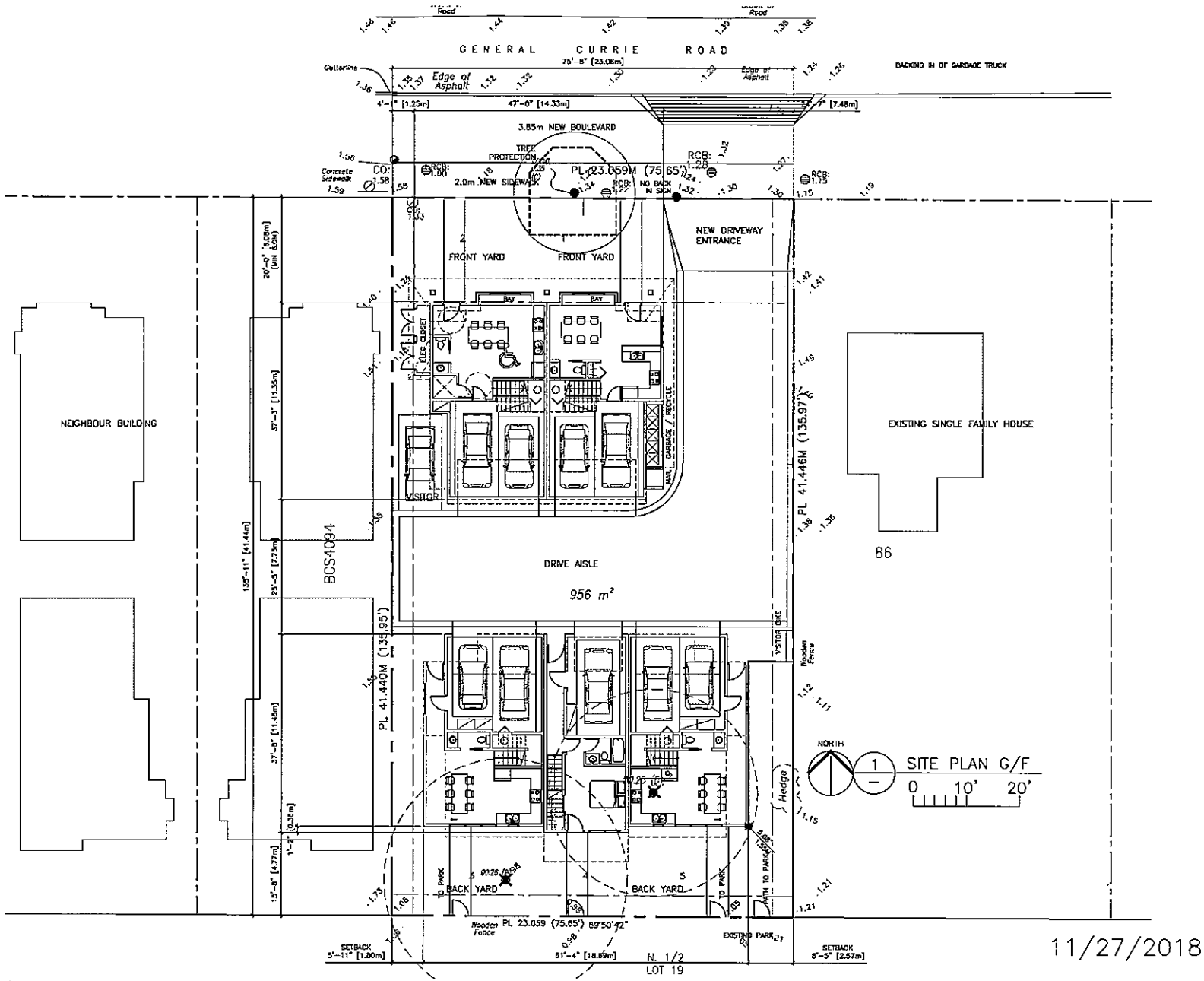
(1) FLOOR AREA RATIO:	0.7 7198 SF GROSS FLOOR AREA
(2) NUMBER OF UNIT:	5 UNITS
(3) SITE COVERAGE:	38.3%
(4) BUILDING HEIGHT	BUILDING HEIGHT – 10.33M
(5) SETBACK	FRONTYARD FACING GENERAL CURRIE – 6.0M (19'8") EAST SIDEYARD – 2.57M (8'5") WEST SIDEYARD – 1.25M (4'1") REAR YARD – 4.77M (15'8")
(6) PARKING	RESIDENTIAL PARKING: 5 REGULAR PARKING 4 SMALL PARKING TOTAL = 9
	VISITOR PARKING: 1 REGULAR



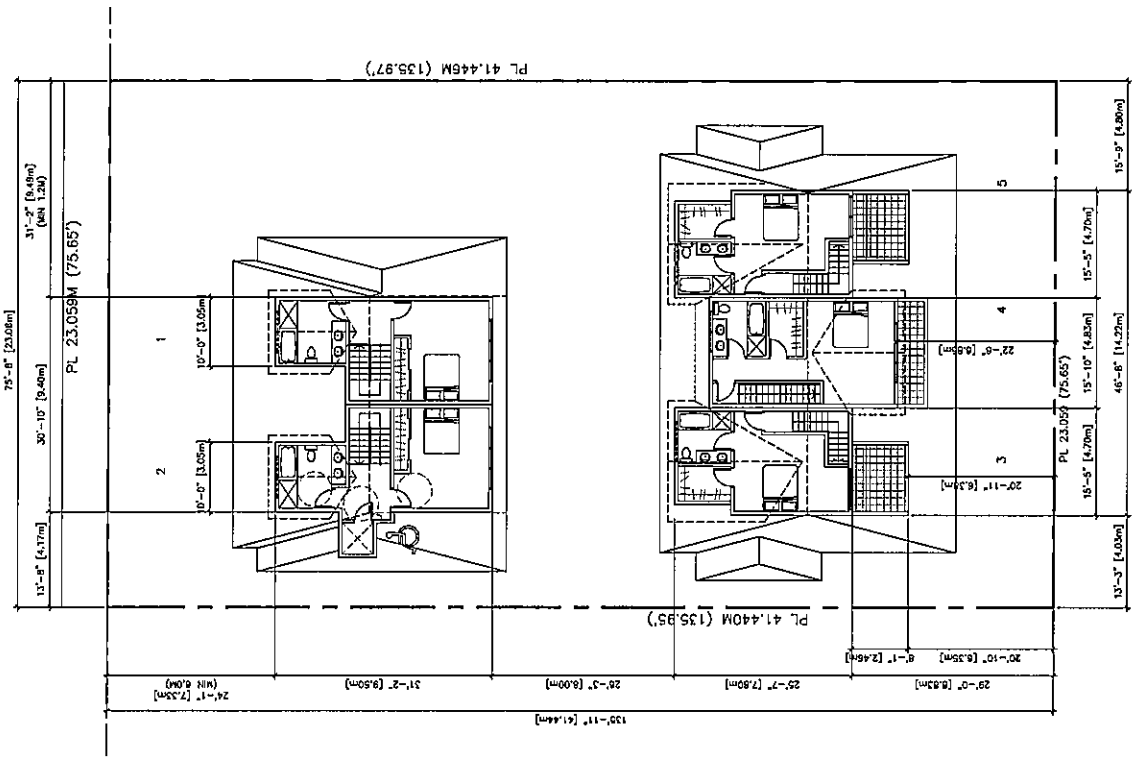
1 LOCATION MAP
NTS

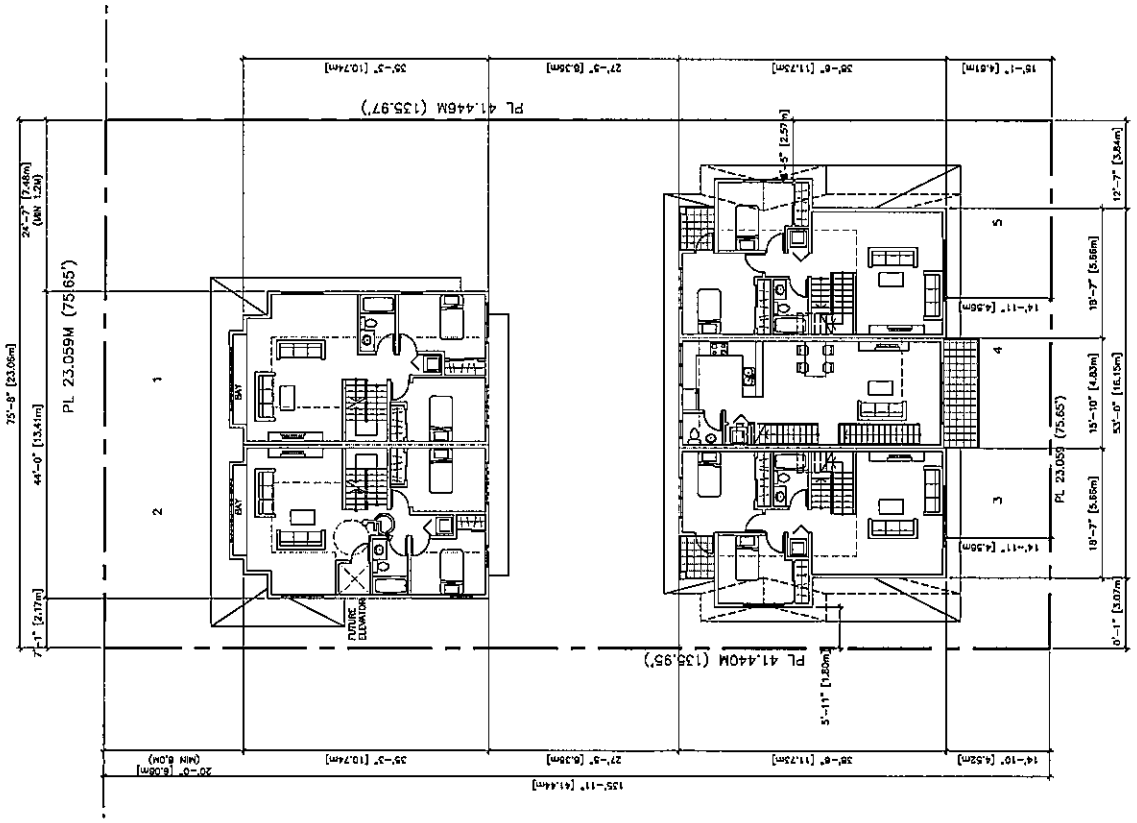
11/27/2018

CNCL - 506



11/27/2018


PL 41.446M (135.97')
PL 23.059M (75.65')
PL 41.440M (135.95')
SITE PLAN 3/F
11/27/2018
NORTH
0 10' 20'


PL 41.446M (135.97')
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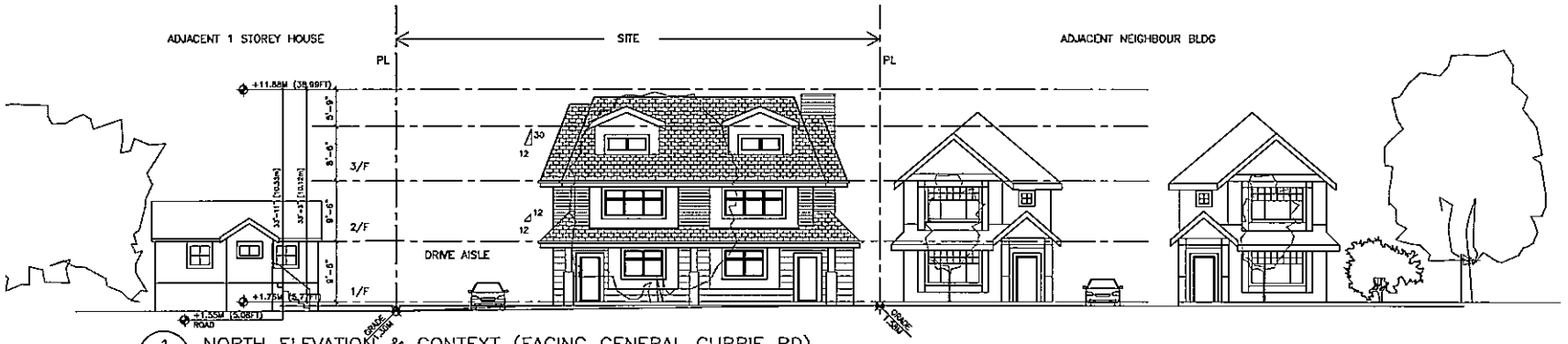
PL 41.440M (135.95')
SITE PLAN 2/F
NORTH
0 10' 20'



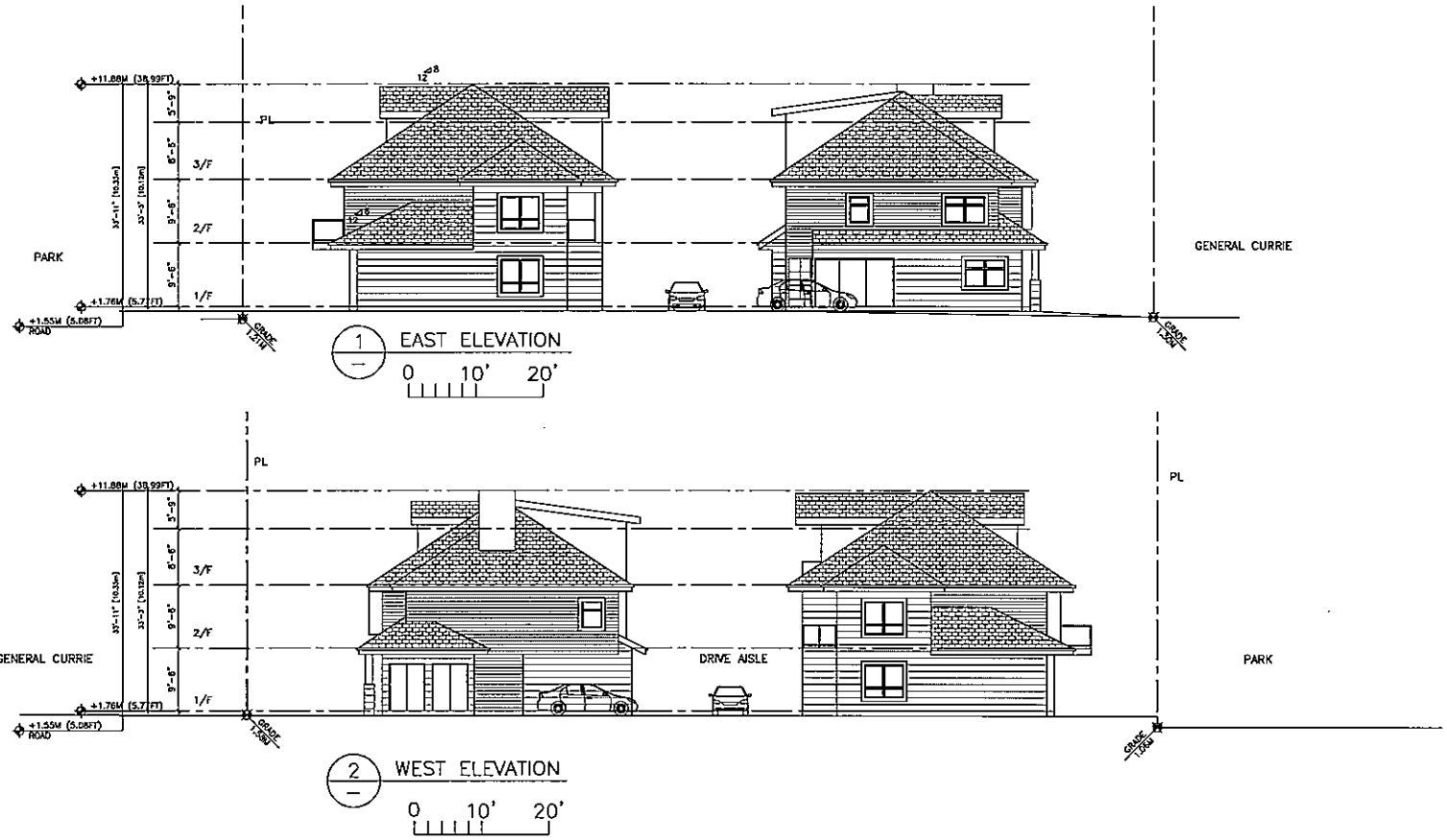
1 — NORTH ELEVATION & CONTEXT (FACING GENERAL CURRIE RD)

0 10' 20'

2 — SOUTH ELEVATION & CONTEXT (FACING PARK)

0 10' 20'

11/27/2018

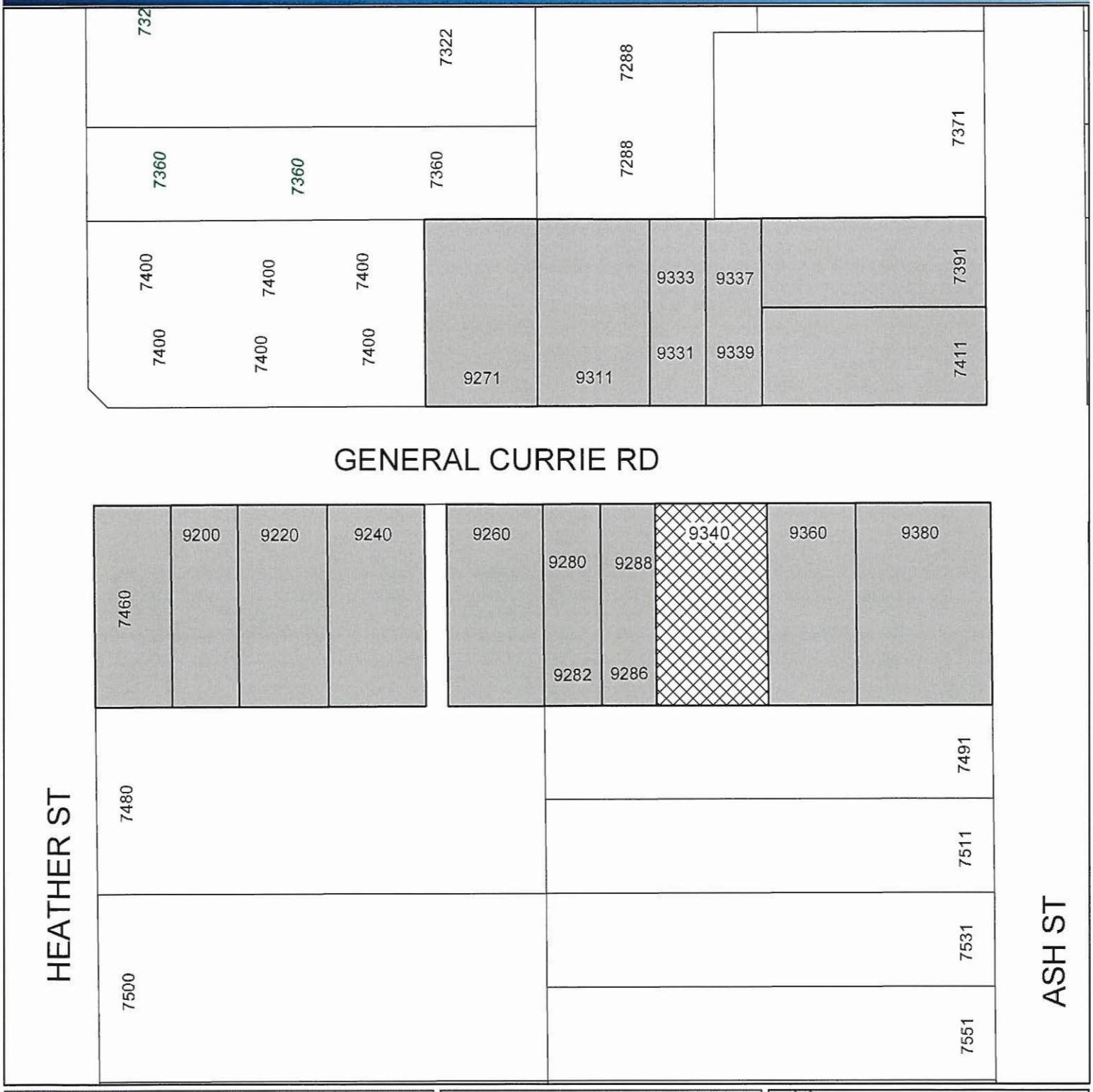


CNCL - 509

11/27/2018

ATTACHMENT 7

RZ17 - 790958: Notification Area Map



Legend

- Subject Property
- Notified Properties
- Parcels

Note:
The information shown on this map is compiled from various sources and the City makes no warranties, expressed or implied, as to the accuracy or completeness of the information.
Users are reminded that lot sizes and legal description must be confirmed at the Land Title office in New Westminster.
This IS NOT a legal document, and is published for information and convenience purposes only.

1:1,098

City of Richmond

Park,Minhee

From: Ajit Thaliwal <ajitt@sutton.com>
Sent: Thursday, 20 December 2018 16:56
To: Park,Minhee
Cc: Raman Kooner
Subject: FW: 9340 General Currie Rd - Open House Meeting Dec 17. 2018
Attachments: 20181219_180157.jpg; 20181219_180202.jpg; 20181219_180011.jpg; 20181219_180017.jpg; 20181219_181403.jpg; 20181219_181007.jpg; 9340 General Currie Rd - Open House Meeting Sign Up Sheet.pdf

Hello Minhee

In respect to the open house meeting we had last night.

We had total of 3 groups attend

1. Neigbour to the east attended with his wife, they were very comfortable with the project, just wanted to make sure we put a fence up for their privacy. We agreed

2. Cindy – lives few doors to the west she did not have any issues with our site/project and wanted know if her site would get the same zoning also.

3. Sharon from 7411 Ash Street – she did not have any issues with the development in general asked about timeframe and was more concerned about the landscaping and tree planting on the site. We advised that we would consult her on this aspect once the landscape architect has given us a drawing and she was happy to hear this.

Please find attached some pics of last nights open house and sign in sheet for your records.

Thanks
Ajit

9340 General Currie Road - Open House Sign Up Sheet

	Home Owner Name	Address	Phone	Email
1	Michael Schroeder	9360 Gen. Currie	604-244-5855	
2	Sharon MacGougan	7411 Ash street	604. 618-8866	
3	Cindy Miller	9260 General Currie	604 278-1644	
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Park,Minhee

From: Mark Thompson <mr.lark@gmail.com>
Sent: Saturday, 29 December 2018 22:56
To: Park,Minhee
Cc: 9340generalcurrieroad@gmail.com
Subject: Re: 9340 General Currie Road

Follow Up Flag: Follow up
Flag Status: Completed

Hello,
thanks for your reply about the rezoning of this property and the opportunity to further discuss the application.

I now have had the chance to review the drawings of the proposed complex and have a couple of comment/questions. First, the height of the new building seems considerably higher than the neighbours' homes (and mine). That does seem to be out of character for this small area of the neighbourhood.
Second, there are five homes proposed. Again, this seems to be out of character for this area. The neighbouring complex to the west has only four residences. Where I live at 9331-9339 General Currie, we have only four homes. To effectively "cram" five residences where the surrounding homes have only four creates crowding issues, parking problems, and smaller things like a lot of extra garbage/recycling boxes weekly. Even now, with the existing house which is rented-likely 4-6 tenants, parking problems have been created despite that the driveway has room for three or four cars. I can imagine much bigger problems if five homes are permitted with 2-3 cars per residence.

Thank you for listening to my concerns,

Mark Thompson

On Wed, 19 Dec 2018 at 08:44, Park,Minhee <MPark@richmond.ca> wrote:
Hi Mr. Thompson,

Thanks for your email.

The rezoning application is still under staff review, and the applicant is trying to obtain input from neighbours early in the application process.

If you need more information about the application or have any questions, I would be more than happy to meet with you early in the new year. Also, I encourage you to send me your comments by email if you have any comments.

Please feel free to contact me to set up a meeting or obtain further information regarding the proposed development. Thank you.

Minhee Park, Planner 2
Policy Planning Department

City of Richmond
Tel. (604) 276-4188
Fax. (604) 276-4052

-----Original Message-----
From: Mark [mailto:mr.lark@gmail.com]
Sent: Tuesday, 18 December 2018 18:58
To: 9340generalcurrieroad@gmail.com
Cc: Park,Minhee
Subject: 9340 General Currie Road

Gentlemen,
I reside at 9337 General Currie Road, Richmond, B.C. V6Y 1M7. I just received notice of this meeting yesterday together with various diagrams relating to the proposed project.

As much as I would like to attend the open house, I will be unable to because of the short notice and other commitments for that evening.

Thank you,

Mark Thompson

Park,Minhee

From: Sharon MacGougan <sharonmacg@telus.net>
Sent: Friday, 11 January 2019 16:57
To: Park,Minhee
Subject: 9340 General Currie Road

PROPOSED TOWNHOUSE DEVELOPMENT AT 9340 GENERAL CURRIE ROAD January 11, 2018

Submitted by:
Sharon MacGougan
President, Garden City Conservation Society and resident of 7411 Ash Street
C. 604.618-8866

Process:
Having the opportunity to meet with the developer early on in the process is a wonderful one! I'm hoping that this becomes a standard requirement because it fosters respect and better understanding on both sides. Well done!

These are some of the comments I made to developers at the Open House they facilitated on December 19, 2018.

RESPECT FOR THE NEIGHBOURHOOD

Bird Habitat:
I advised the developer that the city boulevard (close to and across from their site) is designated bird habitat. There is a City of Richmond Adopt-a-Bird Habitat "for the love of birds" sign at the corner of Ash and General Currie Roads. Half of my property and the city's boulevard next to my property are trees and lower growth.

I have asked the developer to respect this area and please ensure that their various work crews do not dump garbage here.

I suggested providing a garbage can for employee use and ensure that ALL workers use it.

Ecology:
I suggested that the developer plant native to BC species of trees and plants on their site. Please no palm trees, banana trees, palm plants or other non-native species. We have lost a lot of native ecology through development in our area and it is almost universally not being replaced.

Accessibility:
It is neighbourly for the developer to be easily accessible in case of problem AND respond/rectify in a reasonable amount of time.

Time-lines:
I suggest that development completes in a reasonable amount of time.
Is the developer running simultaneous developments? What this means for a neighbourhood is that the disruption is dragged out for years (in multiple neighbourhoods).

Fencing:
The faux brick concrete pillar fencing style is unfriendly and and leaves less space for planted material. I am happy to supply photos of "friendlier" fencing with hedge examples from my neighbourhood, when appropriate.

Park,Minhee

From: Raman Kooner <ramankooner@gmail.com>
Sent: Monday, 3 June 2019 08:39
To: Park,Minhee
Subject: 9340 General Currie Road

Hi Minhee

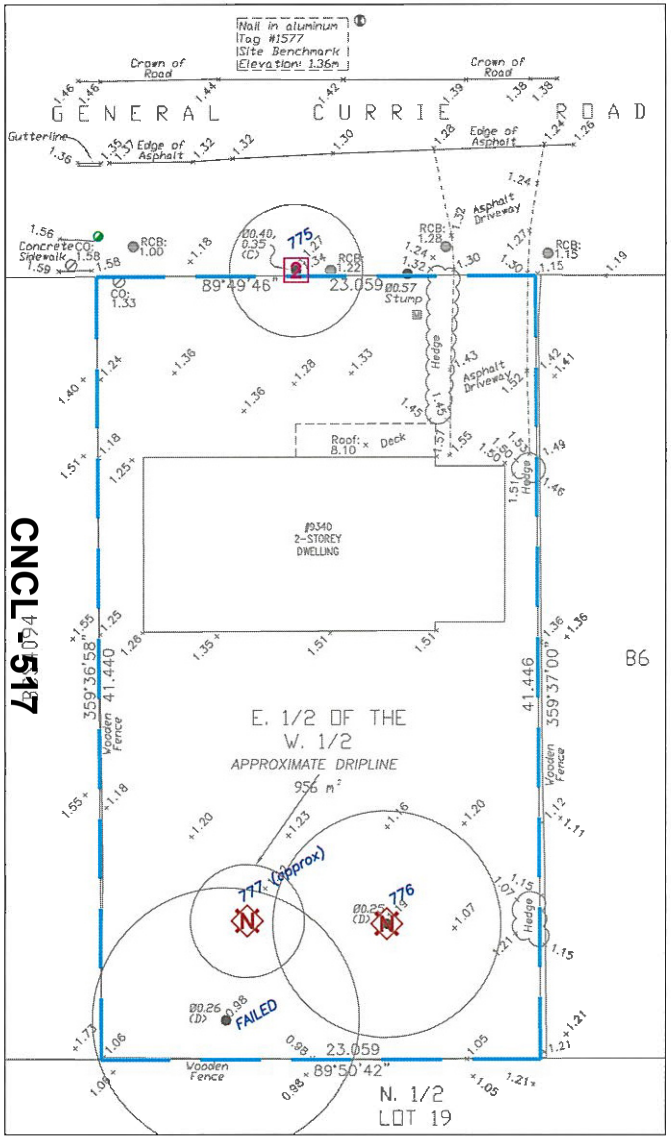
Just wanted to follow up your phone call with an email.

We had tried to approach the neighbors to purchase their property some time ago through a realtor Steve Baker, he had gone to their residence on at least 2 maybe 3 different occasions. I believe you already have the contracts and some voice notes from Mr.Baker. Ajit had also talked to them on a different occasion and brought up them potentially selling the property to us. The neighbors at 9360 (right next door) are the relatives of the owner of both adjacent properties who lives at 9380 General Currie, I believe it is her son that lives next door. They did actually expressed interest but the mother, whom is the owner of both properties did not want to sell at the current time, they were very nice and complimentary of the development. They had some requests of us to help them out with their fencing and potential driveway location, and we have addressed their concerns.

If you need anything further please let us know.

Thank You

Raman Kooner
#2240-4871 Shell Rd
Richmond BC, V6X 3Z6
o: 604.273.3155
c: 604.825.4433
f: 604.304.0426
e: ramankooner@gmail.com



CNCL 5147

094

Tree Inventory Legend:

Tag/ID denotes the serial numbered aluminum tag affixed to the tree or a reference ID as referenced in report and on drawing.
Loc denotes the ownership of trees based on the survey and project plans provided;
On denotes On-Site Tree, **Off** denotes private Neighbour Tree, **Shared** denotes Joint Ownership Tree (details in comments section) **City** denotes Street Tree or tree within proposed Park or ESA
Survey denotes tree is surveyed or not (Y/N)
Dbh denotes the diameter of the trunk measured in cm, at 1.4 m above grade or to arboricultural standards (i.e. below scaff union). If multiple stems attach at or below the root crown, only the largest stem is shown.
Ht denotes the height of the tree in metres as measured or estimated by the assessor.
Spr denotes the spread RADIUS of the branches and foliage (dripline) in metres as measured or estimated by the assessor.
Suitability is the suitability for retention considering the condition, tolerance and other factors based on the general land use proposed; **U** denotes Unsuitable, **M** denotes Marginal, **S** denotes Suitable
Value is the assessors opinion of the location, contribution and functional landscape amenity that the tree provides to the proposed land use; **L** denotes Low, **M** denotes Medium, **H** denotes High
Priority denotes a numerical rating assigned for tree retention planning consideration only, considering suitability and value. See tree assessment drawing and report for further context.
Comments are restricted to only a brief summary describing overt defects or noteworthy growing condition observations.
Action denotes proposed treatment in context to the current project design; **RETAIN, REMOVE or PROTECT**. Shared and Off-Site trees proposed as REMOVE **require owner consent.**
CPZ and **RPZ** are assigned setbacks for Crown and Root protection Together, these form the tree protection zone. A working space setback (**WSS**) applies to the tree protection zone.

Tag/ID	Loc	Survey	Common name, (*Botanical*)	Dbh	Ht	Spr	Suitability	Value	Priority	Comments	Action	Rationale	CPZ	RPZ
775	CITY	Y	Western redcedar (Thuja plicata)	36	6	3	M	M	N/A	• Twins stems joining at the root crown. • Topiary created through regular topping and shear prunnig to a hedge like form.	PROTECT	City tree.	4	
776	ON	Y	Chery (*Prunus* sp.)	20	7	3	U	M	NIL	• Leans south due to a partial root mat failure in progress.	REMOVE	Condition		
777	ON	Y	Black walnut (Juglans nigra)	20	10	3	U	M	NIL	• Topped at 6 m above grade with small replacement leaders and excessive epicormic growth as a response, indicative of health stress. • The tree has limited remaining life, is not well suited to long term retention and is proposed to be removed.	REMOVE	Condition		
FAILED TREE	ON	Y	Apple (*Malus sp.*)	26			U	L	NIL	• Historically failed and in contact with the ground.	REMOVE	Condition		

LEGEND-TREE ASSESSMENT AND VIABILITY:

- XXX denotes **TAG NUMBER** or **ID REFERENCE**
- 1 denotes **PRIORITY 1** tree **SUITABLE** for preservation (retainable if design can accommodate it)
- 2 denotes **PRIORITY 2** tree **MARGINAL** for preservation. (possible candidate subject to design and other conditions)
- N denotes **PRIORITY NIL** tree in **UNSUITABLE CONDITION** (not viable for retention)
- denotes **UNDERSIZE TREE** that is exempt from permitting (based on municipal bylaw)
- denotes **OFF-SITE** tree (requires protection or approval from city/owner before removing)
- denotes **OPTIMAL TREE PROTECTION SETBACK** (for planning and design consideration)
- denotes **6 TIMES DBH SETBACK** (for reference only – not a specification)

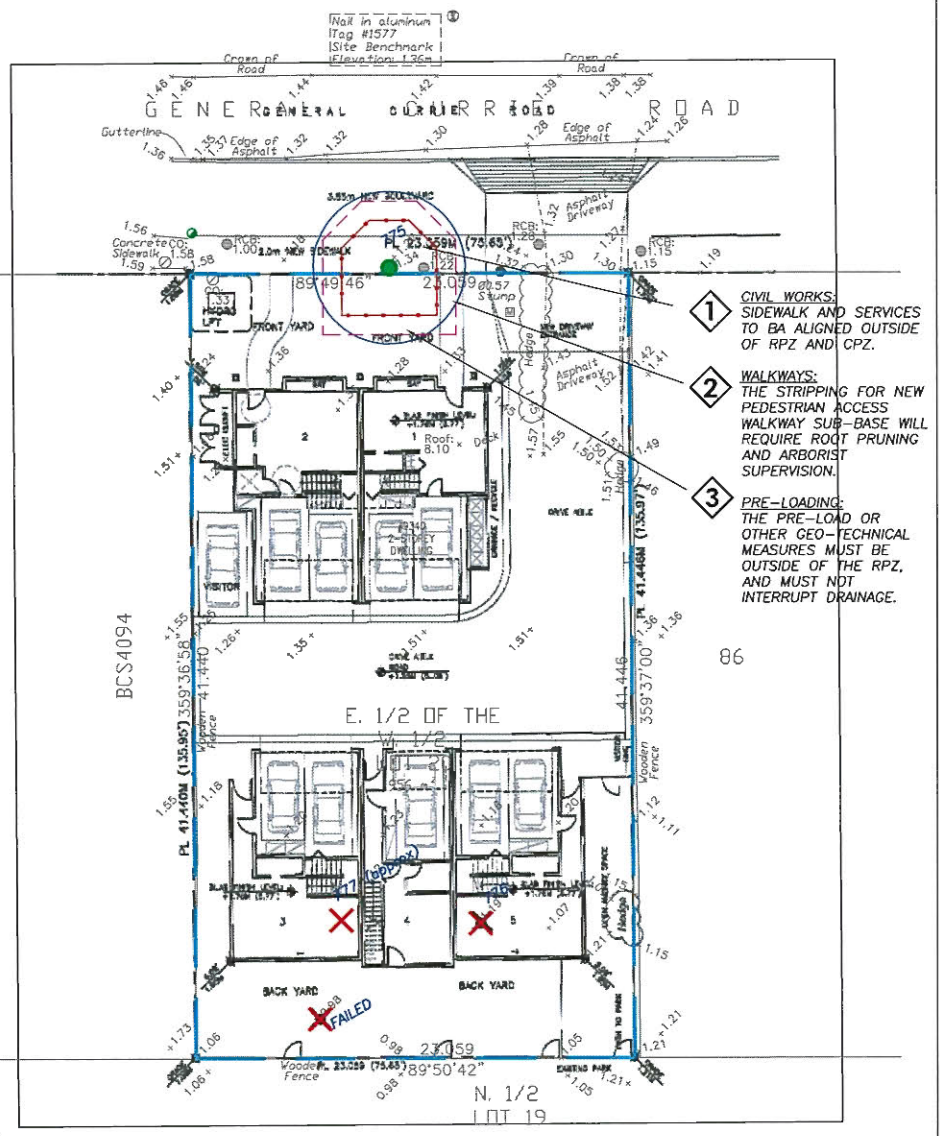
TREE ASSESSMENT DETAIL

APPENDIX C: TREE MANAGEMENT DRAWING - SHEET 1

aclgroup.ca
ARBORTECH CONSULTING
SUITE 145 - 12051 HORSESHOE WAY, RICHMOND, BC V7A 4V4 604 275 3484

PROJECT:	TOWNHOUSE DEVELOPMENT				
ADDRESS:	9340 GENERAL CURRIE RD RICHMOND BC				
CLIENT:	AJIT THALIWAL				
CITY REF:				ACL FILE:	17268
PLOT SIZE:	11"X17"	REV #:	1	DATE:	MAY 29, 2019

ATTACHMENT 11



1. *CIVIL WORKS:* SIDEWALK AND SERVICES TO BA ALIGNED OUTSIDE OF RPZ AND CPZ.
2. *WALKWAYS:* THE STRIPPING FOR NEW PEDESTRIAN ACCESS WALKWAY SUB-BASE WILL REQUIRE ROOT PRUNING AND ARBORIST SUPERVISION.
3. *PRE-LOADING:* THE PRE-LOAD OR OTHER GEO-TECHNICAL MEASURES MUST BE OUTSIDE OF THE RPZ, AND MUST NOT INTERRUPT DRAINAGE.

TREE MANAGEMENT DETAIL

CNCL - 518

DRAWING USE AND COORDINATION:

- This drawing relies on information and drawings supplied by the client or their consultants. Refer to original drawings from the consultants (i.e. surveyor, engineer, architect or other design professionals) for accurate locations and dimension of site features.
- All tree protection measures specified herein should be included and coordinated with the designs for the project, including but not limited to: architectural, landscape, civil and geo-technical. It is the responsibility of each design professional to understand and review the tree protection measures and determine any conflicts. If conflicts are identified, the design professional and/or the client should bring those to the attention of the project arborist from this office to review and resolve.
- Tendering and contracts for site preparation, land clearing, civil works and/or construction should include specifications for tree protection measures to be implemented as per this drawing and any reference documents.
- It is the responsibility of the owner or their agent to obtain all necessary approvals for the tree retention and removal scheme presented herein. Any changes that the municipality requests should be brought to the attention of the project arborist from this office to review and resolve.
- Some existing trees may not be shown on this drawing (i.e. undersize or bylaw exempt trees, or grouped trees). It is the responsibility of the contractor(s) to confirm that all necessary municipal approvals are in place, and to determine the full scope of tree removal work. Only the trees shown to be retained and protected are to remain on site, unless otherwise directed by the owner.
- Trees and stumps to be removed from within the tree protection zone (including CPZ, RPZ and WSS) are to be removed as directed and with on-site supervision from an arborist from this office.
- Stump grinding may be required for the removal of trees within the tree protection zone, at the discretion of an arborist from this office.
- Certain tree removals in proximity of retained trees or power lines may require assistance from a suitably qualified professional, such as but not limited to:
  - ISA Certified Arborist (tree removal, rigging, pruning and other tree service work) working to ANSI A300 and ANSI Z133 Standards and Best Management Practices.
  - Certified Utility Arborist (tree removals, pruning and other tree service work) working to ANSI A300 and ANSI Z133 Standards and Best Management Practices and following BC Hydro policies and procedures.

LEGEND-TREE MANAGEMENT FOR PROJECT:

See arborist report for further details.

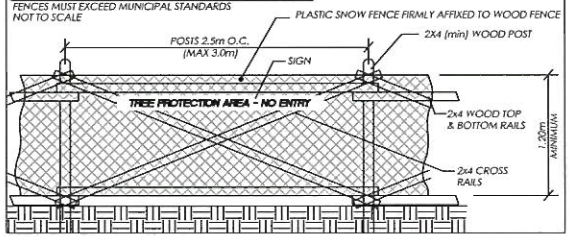
- XXX denotes **TAG NUMBER** or **ID REFERENCE** (see tree inventory and assessment list)
- denotes **RETENTION** tree (protection measures required)
- denotes **REMOVAL** tree (permit or approvals required)
- denotes **REMOVAL** tree for **HIGH RISK MITIGATION** (permit or approvals required)
- denotes **OFF-SITE** tree (requires protection or approval from city/owner before removing)

LEGEND-TREE PROTECTION:

- denotes **WINDFIRM BOUNDARY** relative to the Environmentally Sensitive Area aligned tree to tree (centre of trunk). See below for root protection zone.
- denotes **CROWN PROTECTION ZONE - CPZ** Exclusion zone – no aerial encroachment of buildings to within 1.0m min)
- denotes **ROOT PROTECTION ZONE - RPZ** This is the minimum alignment for **TREE PROTECTION BARRIERS**
- denotes **WORKING SPACE SETBACK (WSS)** to 1.5m offset from RPZ or as specified where **MANAGED WORK ACTIVITIES** requires coordination and on-site supervision by the Project Arborist
- denotes **INTERIM BARRIER ALIGNMENT** to be installed until certain specified works are completed (subject to arborist supervision)
- denotes **SPECIAL MEASURES** required (subject to arborist supervision and as noted and detailed herein and in arborist report)

TREE PROTECTION BARRIER DETAIL - SAMPLE:

FENCES MUST EXCEED MUNICIPAL STANDARDS
NOT TO SCALE



TREE PROTECTION ZONE RESTRICTIONS:

Trees that are specified to be retained must be protected from damage during all phases of development related work on the site. Any access or construction related work within the TPZ (CPZ, RPZ and/or WSS) requires advance approval, guidance and on-site direction or supervision by the project arborist. General restrictions in the **TPZ** are as follows:

- No soil disturbance of any scope or to any depth for cuts or fills, including but not limited to: trenching, stripping of over-burden, bulk excavation, fill placement, site preparation, grade transitions, topsoil placement, etc.,
- No passage or operation of machinery, trucks, vehicles or equipment (including small track machines, skid steers, lifts, etc), except as approved and directed by the project arborist, and subject to special measures.
- No storage of soil, spoil, gravel, construction materials, waste materials, etc.,
- No waste or washing of concrete, stucco, drywall, paint, or other potentially harmful materials,
- No placement of temporary structures or services.
- No affixing lights, signs, cables or any other device to retained trees,
- No pruning or cutting of retained trees, except as approved and directed by the project arborist, and performed by a qualified tree service firm employing ISA Certified Arborists and working to ANSI A300 and ANSI Z133 Standards.

APPENDIX C: TREE MANAGEMENT DRAWING - SHEET 2

aclgroup.ca
ARBORTECH CONSULTING
SUITE 145 - 12051 HORSESHOE WAY, RICHMOND, BC V7A 4V4 604 275 3484

PROJECT:	TOWNHOUSE DEVELOPMENT			
ADDRESS:	9340 GENERAL CURRIE RD RICHMOND BC			
CLIENT:	AJIT THALIWAL			
CITY REF:			ACL FILE:	17268
PLOT SIZE:	11"X17"	REV #: 2	DATE:	MAY 29, 2019

ATTACHMENT 12

City of Richmond

Rezoning Considerations

Development Applications Department
6911 No. 3 Road, Richmond, BC V6Y 2C1

Address: 9340 General Currie Road **File No.:** RZ 17-790958

Prior to final adoption of Richmond Zoning Bylaw 8500, Amendment Bylaw 10048, the developer is required to complete the following:

1. The submission and processing of a Development Permit* completed to a level deemed acceptable by the Director of Development.
2. Registration of a flood indemnity covenant on title.
3. Submission of a Contract entered into between the applicant and a Certified Arborist for supervision of any on-site works conducted within the tree protection zone of the trees to be retained. The Contract should include the scope of work to be undertaken, including: the proposed number of site monitoring inspections, and a provision for the Arborist to submit a post-construction assessment report to the City for review.
4. Submission of a Tree Survival Security to the City in the amount of $2,600 for one tree located on the City property to be retained. The security is release upon a satisfactory report by a Certified Arborist after the completion of the construction.
5. Registration of a cross-access easement, Statutory Right-of-Way (SRW), and/or other legal agreements or measures, as determined to the satisfaction of the Director of Development, over the internal drive-aisle in favour of the future development to the east. Language should be included in the SRW document that the City will be not responsible for maintenance or liability within the SRW and that utility SRW under the drive aisle is not required.
6. Registration of a cross-access easement, and/or other legal agreements or measures, as determined to the satisfaction of the Director of Development, to allow sharing of the outdoor amenity space on the subject site in favour of the neighbouring future development to the east.
7. City acceptance of the developer's offer to voluntarily contribute $8.50 per buildable square foot (e.g. $61,225.5) to the City's affordable housing fund.
8. Contribution of $8,000 ($1,600 per dwelling unit) in lieu of on-site indoor amenity space.
9. City's acceptance of the developer's offer to voluntarily contribute a total of $8,500 towards the upgrade of the pedestrian signals to install Audible Pedestrian Signal (APS) in the neighbourhood as follows:
   a) $5,000 for the upgrade of signalized crosswalk infrastructure at the intersection of Ash Street and Blundell Road (Account: 3550-10-556-55134-0000); and
   b) $3,500 for the upgrade of special crosswalk infrastructure at the intersection of General Currie Road and Garden City Road (Account: 3550-10-556-55131-0000).

Prior to a Development Permit* being forwarded to the Development Permit Panel for consideration, the developer is required to:

1. Submission of a Landscape Plan, prepared by a Registered Landscape Architect, to the satisfaction of the Director of Development. The Landscape Plan should:
   - comply with the guidelines of the OCP's Arterial Road Policy and should not include hedges along the front property line;
   - include a mix of coniferous and deciduous trees;
   - include the dimensions of tree protection fencing as illustrated on the Tree Retention Plan attached to this report; and
   - include the six (6) required replacement trees with the following minimum sizes:

No. of Replacement Trees	Minimum Caliper of Deciduous Tree	or	Minimum Height of Coniferous Tree
2	6 cm		3.5 m

Prior to Development Permit* Issuance, the developer must complete the following requirements:

1. Submission of a landscape security based on 100% of the cost estimate provided by the landscape architect.

Initial: _____

Prior to Demolition Permit* Issuance, the developer must complete the following requirements:

1. Installation of appropriate tree protection fencing around all trees to be retained as part of the development prior to any construction activities, including building demolition, occurring on-site. Tree protection function must be installed to City standard in accordance with the City's Tree Protection information Bulletin Tree-03 prior to any works being conducted on-site and remain in place until construction and landscaping on-site is completed.

Prior to Building Permit* Issuance, the developer must complete the following requirements:

1. Submission of a Construction Parking and Traffic Management Plan to the Transportation Department. Management Plan shall include location for parking for services, deliveries, workers, loading, application for any lane closures, and proper construction traffic controls as per Traffic Control Manual for works on Roadways (by Ministry of Transportation) and MMCD Traffic Regulation Section 01570.
2. Incorporation of accessibility measures in Building Permit (BP) plans as determined via the Rezoning and/or Development Permit processes.
3. Enter into a Servicing Agreement* for the design and construction of engineering infrastructure and frontage improvements. A Letter of Credit or cash security for the value of the Service Agreement works, as determined by the City, will be required as part of entering into the Servicing Agreement. Works include, but may not be limited to:

Water Works

a) Using the OCP Model, there is 308.0 L/s of water available at a 20 psi residual at the General Currie Road frontage. Based on your proposed development, your site requires a minimum fire flow of 220 L/s.

b) At Developer's cost, the Developer is required to:
   i) Submit Fire Underwriter Survey (FUS) or International Organization for Standardization (ISO) fire flow calculations to confirm development has adequate fire flow for onsite fire protection. Calculations must be signed and sealed by a Professional Engineer and be based on Building Permit Stage building designs.
   ii) Provide a right-of-way for the water meter. Exact right-of-way dimensions to be finalized during the servicing agreement process.

c) At Developer's cost, the City is to:
   i) Cut, cap and remove the existing water service connection and meter.
   ii) Install a new water service connection, complete with metre and metre box. The metre is to be located on-site in a right of way.

Storm Sewer Works

a) At Developer's cost, the City is to:
   i) Cut, cap, and remove the three existing storm connections and inspection chambers to the development site. The storm inspection chamber located within the tree protection zone may be considered for abandonment instead of removal, subject to suitability.
   ii) Install a new storm connection, complete with inspection chamber, to serve the proposed development.

Sanitary Sewer Works

a) At Developer's cost, the City is to:
   i) Cut, cap, and remove the existing sanitary connection and inspection chamber to the development site. The cap shall be made at the wye into the adjacent lot's service connection, to ensure that the lot directly west of 9340 General Currie Road remains in service.
   ii) Install a new sanitary connection, complete with inspection chamber, to serve the proposed development.

Frontage Improvements

a) At Developer's cost, the Developer is required to:
   i) Coordinate with BC Hydro, Telus and other private communication service providers:
      (1) To pre-duct for future hydro, telephone and cable utilities along all road frontages.

Initial: _____

(2) Before relocating/modifying any of the existing power poles and/or guy wires within the property frontages.

(3) To underground overhead service lines.

(4) To locate/relocate all above ground utility cabinets and kiosks required to service the proposed development, and all above ground utility cabinets and kiosks located along the development's frontages, within the developments site (see list below for examples). A functional plan showing conceptual locations for such infrastructure shall be included in the development design review process. Please coordinate with the respective private utility companies and the project's lighting and traffic signal consultants to confirm the requirements (e.g., statutory right-of-way dimensions) and the locations for the aboveground structures. If a private utility company does not require an aboveground structure, that company shall confirm this via a letter to be submitted to the City. The following are examples of statutory right-of-ways that shall be shown on the architectural plans/functional plan, the servicing agreement drawings (if applicable), and registered prior to SA design approval:

- BC Hydro PMT – 4.0 x 5.0 m
- BC Hydro LPT – 3.5 x 3.5 m
- Street light kiosk – 1.5 x 1.5 m
- Traffic signal kiosk – 2.0 x 1.5 m
- Traffic signal UPS – 1.0 x 1.0 m
- Shaw cable kiosk – 1.0 x 1.0 m
- Telus FDH cabinet – 1.1 x 1.0 m

ii) Review street lighting levels along the General Currie Road frontage, and upgrade as required.

iii) Provide other frontage improvements as per Transportation's requirements including:

(1) Curb-to-Curb Road works

- Provide 8.5 m wide pavement along the development frontage to meet local road design standards. The centre line of the 8.5 m wide pavement is to be consistent with the centre line of the 20.12 m wide road right-of-way.
- As necessary, the widened pavement is to include taper sections (20:1) to meet the existing edges of pavement to the east and west of the subject site. Behind each tapered section, a 1.0 m wide gravel shoulder is required.

(2) Behind the curb frontage improvements

- The cross section elements are to include:
  a. South property line of the General Currie Road right-of-way.
  b. 2.0 m wide sidewalk. (The sidewalk may be designed to "meander" around any existing trees that have been identified for protection. As much as possible, the full width of the sidewalk is to be maintained.).
  c. 3.85 m wide boulevard with street trees.
  d. 0.15 m wide curb.
  e. As necessary, the new sidewalk and boulevard are to transition to meet the existing frontage treatments to the east and west of the subject site.

(3) All existing driveways along the General Currie Road development frontage are to be closed permanently. The Developer is responsible for the removal of the existing driveway let-downs and the replacement with barrier curb/gutter, boulevard with street trees and concrete sidewalk per standards described under Items (1) and (2) above.

(4) The exact dimensions of road works and frontage improvements described under Items 1/2/3 are to be confirmed through the Servicing Agreement detailed design process and legal surveys. Road dedications would be required if the existing road right-of-way is not adequate to support the required works.

(5) All above ground hydro/telephone kiosks and other third party equipment must not be placed within any frontage works area including sidewalk and boulevard. On-site SRW's are to be secured for the placement of this equipment.

General Items:

a) At Developer's cost, the Developer is required to:

i) Monitor the settlement at the adjacent utilities and structures during pre-loading, dewatering, and soil preparation works per a geotechnical engineer's recommendations, and report the settlement amounts to the City for approval.

ii) Enter into, if required, additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering, including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.

4. Obtain a Building Permit (BP) for any construction hoarding. If construction hoarding is required to temporarily occupy a public street, the air space above a public street, or any part thereof, additional City approvals and associated fees may be required as part of the Building Permit. For additional information, contact the Building Approvals Department at 604-276-4285.

Note:

* This requires a separate application.

- Where the Director of Development deems appropriate, the preceding agreements are to be drawn not only as personal covenants of the property owner but also as covenants pursuant to Section 219 of the Land Title Act.

  All agreements to be registered in the Land Title Office shall have priority over all such liens, charges and encumbrances as is considered advisable by the Director of Development. All agreements to be registered in the Land Title Office shall, unless the Director of Development determines otherwise, be fully registered in the Land Title Office prior to enactment of the appropriate bylaw.

  The preceding agreements shall provide security to the City including indemnities, warranties, equitable/rent charges, letters of credit and withholding permits, as deemed necessary or advisable by the Director of Development. All agreements shall be in a form and content satisfactory to the Director of Development.

- Additional legal agreements, as determined via the subject development's Servicing Agreement(s) and/or Development Permit(s), and/or Building Permit(s) to the satisfaction of the Director of Engineering may be required including, but not limited to, site investigation, testing, monitoring, site preparation, de-watering, drilling, underpinning, anchoring, shoring, piling, pre-loading, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.

- Applicants for all City Permits are required to comply at all times with the conditions of the Provincial *Wildlife Act* and Federal *Migratory Birds Convention Act*, which contain prohibitions on the removal or disturbance of both birds and their nests. Issuance of Municipal permits does not give an individual authority to contravene these legislations. The City of Richmond recommends that where significant trees or vegetation exists on site, the services of a Qualified Environmental Professional (QEP) be secured to perform a survey and ensure that development activities are in compliance with all relevant legislation.

_____ _____

Signed Date

City of Richmond

Bylaw 10048

Richmond Zoning Bylaw 8500 Amendment Bylaw 10048 (RZ17-790958) 9340 General Currie Road

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

1. The Zoning Map of the City of Richmond, which accompanies and forms part of Richmond Zoning Bylaw 8500, is amended by repealing the existing zoning designation of the following area and by designating it **"Town Housing (ZT45) - Gilbert Road, Acheson - Bennett Sub-Area, St. Albans Sub-Area, South McLennan (City Centre)".**

   P.I.D. 003-995-011

   East Half of the West Half Lot 20 Block "G" Section 15 Block 4 North Range 6 West New Westminster District Plan 1207

2. This Bylaw may be cited as **"Richmond Zoning Bylaw 8500, Amendment Bylaw 10048".**

FIRST READING	
A PUBLIC HEARING WAS HELD ON	
SECOND READING	
THIRD READING	
OTHER CONDITIONS SATISFIED	
ADOPTED	

CITY OF RICHMOND
APPROVED by
MP
APPROVED by Director or Solicitor

MAYOR

CORPORATE OFFICER

City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	June 4, 2019
From:	Lloyd Bie, P.Eng. Director, Transportation	**File:**	12-8275-06/2019-Vol 01
Re:	**Multi-Passenger Bicycle Business Proposal**		

Staff Recommendation

That a sole business licence for a quadricycle to be operated by Brew Bike Tours as a pilot program in Steveston Village be issued subject to the terms and conditions outlined in the attached staff report titled "Multi-Passenger Bicycle Business Proposal" dated June 4, 2019 from the Director, Transportation.

Lloyd Bie, P.Eng.
Director, Transportation
(604-276-4131)

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Economic Development	☑	
Law	☑	
Risk Management	☑	
Parks Services	☑	
Business Licences	☑	
Community Bylaws	☑	
RCMP	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** CJ	**APPROVED BY CAO**

Staff Report

Origin

The City has received a business licence request from Brew Bike Tours Ltd. to provide guided tours using a multi-person quadricycle in the Steveston Village area from July to October 2019. This report outlines the necessary terms and conditions required of the proponent in order to grant a business license for this service as a pilot program in Richmond.

Findings of Fact

What is a Quadricycle?

The BC *Bicycle Safety Helmet Exemption Regulation* that is part of the BC *Motor Vehicle Act* defines a quadricycle (Figure 1) as a cycle that:

(a) has a track width of not less than 1 metre,
(b) has a rear track width that is greater than the height of the seat frame as measured from level ground to the seat frame,
(c) is equipped with at least 2 sets of pedals for motive power,
(d) is equipped with disc or drum brakes, and
(e) is controlled by a single operator.

Figure 1: 15-person Quadricycle

Per the Regulation, the operator of, and each passenger carried by, a quadricycle is exempt from the requirement to wear a bicycle helmet.

A quadricycle typically has a wooden, rectangular shaped central counter around which guests sit facing each other. For a 15-person unit, there are six seats on either side, five of them having pedals and two non-pedal seats located above the rear wheels. There is also a three-person bench on the rear of the quadricycle.

Operation of the quadricycle involves a driver who sits in the front middle section and controls the brakes and steering. Passengers provide the energy to move the bike by pedalling simultaneously. The travel speed of the quadricyle is typically eight to twelve kilometres per hour.

Analysis

Brew Bike Tours

Brew Bike Tours has been providing guided tours using a quadricycle as Smile Cycle Tours in Kelowna (since Spring 2017) and Penticton (since Spring 2018). Similar businesses operate in Victoria, North Vancouver, Kelowna, and Calgary. Prospective guests book their tours online or in person. A typical tour is two hours with guests riding for 5-10 minutes at a time between multiple stops. The business will not be serving, providing or allowing customers to drink alcoholic beverages on board.

The proposed quadricycle will accommodate up to 15 passengers; a minimum of six passengers are required to propel the bike but the recommended number is eight to 10 passengers. The driver/tour guide will be a Brew Bike Tours employee and must have a driver's licence. The unit will include storage for repair tools, first-aid kit and a fire extinguisher. The driver has a brake near the right foot and there is a handbrake to the right of the driver's seat. The unit has LED turn-signals and running lights to provide enhance visibility for motorists. Helmets are mandatory for guests 16 years of age or younger and optional for those over 16 years of age.

Proposal for Steveston Village

Brew Bike Tours is proposing three themed guided tours in the Steveston Village area with various stops including both private businesses and tourist sites (e.g., Gulf of Georgia Cannery, Steveston Tram Barn). At each stop, passengers will disembark for 20-25 minutes and the driver will remain with the unit at all times. The service will operate seven days per week from 9:00 am to early evening (typically 8:00 pm). The business will not operate at night. The quadricycle will operate only in vehicle lanes and driveways (i.e., no use of off-street pathways or sidewalks).

Staff met with Brew Bike Tours to confirm the prescribed routes for each tour and the parking spaces for the unit while on tour and when not in service. The routes are confined to the Steveston Village area and designed to minimize travel on those roads with relatively higher traffic volumes and avoid sections with relatively higher levels of bus activity (Attachment 1). The business will operate completely within the area where the speed limit is restricted to 30 km/h. All stops must be accommodated either off-street or, if on-street, cannot impact any existing vehicle parking spaces.

Stakeholder Consultation

Brew Bike Tours has established relationships with some businesses in Steveston as they will be stops on the tours. The company discussed its proposed business with the Steveston Merchants Association on May 2, 2019 and has received a letter of support. The operators also met with the Steveston 20/20 Group on May 23, 2019 who are supportive and did not identify any concerns. The company has additional letters of support from Tourism Richmond and the Gulf of Georgia Cannery.

Proposed Conditions of Business Licence

The City's *Business Licence Bylaw* and *Business Regulation – Vehicle for Hire Bylaw* currently do not define Brew Bike Tour's proposed business. To facilitate the timely operation of the service for the coming Summer season, staff propose that a sole business licence be issued to Brew Bike Tours as a pilot program subject to the following terms and conditions:

- License valid from July 2, 2019 to October 1, 2019;
- Compliance with all City bylaws and provincial regulations pertaining to the operation of this business;
- Mandatory helmets for passengers 16 years of age or younger and optional for passengers over 16 years of age;
- No alcohol or cannabis to be consumed on the quadricycle;
- No use of transit stops, taxi/tour bus stops, loading zones/bays, or vehicle, motorcycle or accessible parking spaces;
- Operation in the vehicle lane and driveway only;
- Hours of operation from 9:00 am to 7:00 pm;
- Operation restricted to Steveston Village only on routes approved by the City;
- Any deviation from the approved routes or stop-over locations to be approved by the City;
- Minimum driver age of 19 years;
- $10 million liability insurance with City named as additional insured; and
- City's ability to terminate the pilot at any time should the conditions of the licence not be fulfilled by the operator.

Should the pilot program be successful, staff would bring forth the required amendments to the *Business Licence Bylaw* and *Business Regulation – Vehicle for Hire Bylaw*, which would allow other operators to provide a similar service.

Financial Impact

None.

Conclusion

Brew Bike Tours' proposal offers an interactive and environmentally friendly means of touring Steveston Village and learning about the history, culture and heritage of the area. Staff recommend that a sole business licence with conditions be issued to Brew Bike Tours as a pilot program for 2019 only.

Joan Caravan
Transportation Planner
(604-276-4035)

Sonali Hingorani, P.Eng.
Transportation Engineer
(604-276-4049)

JC:jc

Att. 1: Streets in Steveston Permitted to be Used by Quadricycle


Steveston Quadricycle Permitted Streets
English Ave
Eastthope Ave
South Arm Fraser River
No.1 Rd
Richmond St
Broadway St
1st Ave
Chatham St
Moncton St
Bayview St
2nd Ave
3rd Ave
4th Ave
5th Ave
6th Ave
7th Ave

City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	May 17, 2019
From:	Lloyd Bie, P.Eng. Director, Transportation	**File:**	10-6450-09-01/2019-Vol 01
Re:	**Review of Collision Prone Intersections**		

Staff Recommendation

1. That the proposed short-term improvements, with respect to the top 20 high collision intersections in Richmond, be included in the 5 Year (2020-2024) Financial Plan, as outlined in the staff report titled "Review of Collision Prone Intersections" dated May 17, 2019 from the Director, Transportation; and,

2. That the City request the Minister of Public Safety and Solicitor General to provide automated speed enforcement technology at those intersections where the data indicates that speeding is a contributing factor to collisions.

Lloyd Bie, P.Eng.
Director, Transportation
(604-276-4131)

Att. 3

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Engineering RCMP	☑ ☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:**	**APPROVED BY CAO**

Staff Report

Origin

At the November 21, 2018 meeting of the Public Works and Transportation Committee, the following referral was carried:

That staff investigate:

(1) potential options to improve the left turn lanes in the intersections of No. 5 Road and Cambie Road and Cambie Road and Jacombs Road including cycling lanes; and

(2) other intersections with high incident rates;

and report back.

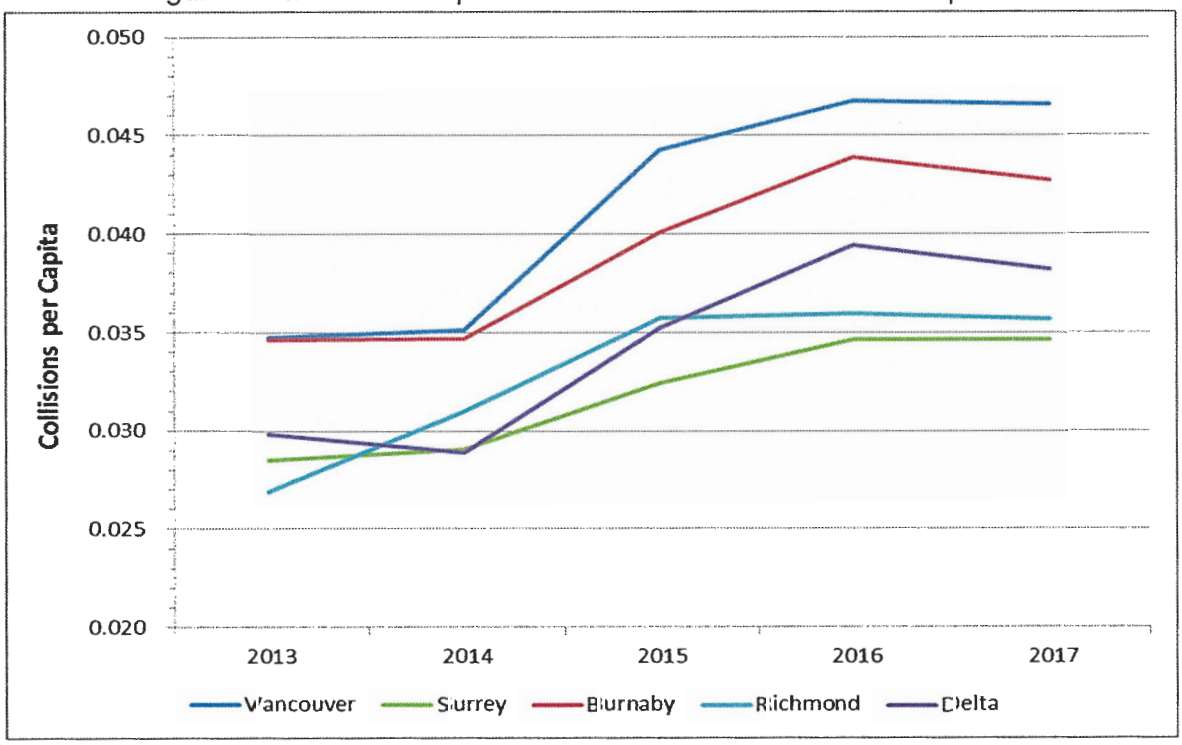
This report responds to Part (2) of the referral. Part (1) of the referral is addressed in a separate report.

Analysis

City-Wide Collision Data

Roadway collision data for Richmond and four other municipalities (Vancouver, Surrey, Delta, and Burnaby) was obtained from ICBC for the period from January 2013 to December 2017. Figure 1 illustrates the annual per capita collision rate for all collision types (fatality, injury and property damage only) for the five municipalities reviewed.

Figure 1: Annual Per Capita Collision Rate for Selected Municipalities



Notes:
(1) Data only includes crashes where sufficient location information is available to determine a latitude and longitude.
(2) Crashes on boundaries appear for both cities.

Richmond's annual per capita collision rate is on the low end for the municipalities reviewed. The highest crash locations in Richmond are at water crossings (i.e., bridges and the George Massey Tunnel) plus the on- and off-ramps for Highways 91 and 99, which are not within the City's jurisdiction. The network screening process described below focuses on City-controlled intersections with the long-term goal of decreasing the per capita collision rate for the city.

Network Screening Study

The City currently reviews the traffic safety performance of individual intersections as issues arise. A Network Screening Study is an opportunity for a holistic city-wide review of all intersections to identify those locations with the highest risk of collisions. The City partnered with ICBC on the Network Screening Study (the Study) to identify and prioritize high collision locations in order to determine where road safety improvement investments should be directed to achieve the greatest safety benefits.

The Study employs a systematic process based on the *Transportation Association of Canada Canadian Guide to In-service Road Safety Review.* Specifically, the Study uses insurance claims records and traffic volume data to assess the risk and potential to mitigate motorist, pedestrian and cyclist collisions. The output of the network screening process is a list of prioritized collision prone intersections and the identification of potential short-term and medium/long term improvements that will reduce crash rates. This information helps to determine where road safety resources can be most optimally allocated.

The Executive Summary of the Study is found in Attachment 1. The methodology and key outcomes are described briefly below.

Study Methodology

The Study was conducted in two phases; an initial screening and a secondary screening to ultimately identify a short list of the top 20 collision prone intersections.

Initial Screening

Table 1 provides a breakdown of the total number of intersections in Richmond. The initial screening began with the 818 intersections (50% of all intersections) for which ICBC collision data is available (total of 22,373 claims for the 2013-2017 period). As the five-year claims data indicated that 82% of the collisions (18,288) occurred at signalized intersections, subsequent analysis was focused on these 161 signalized intersections. Of the total number of collisions at these 161 signalized intersections, 0.08% were fatalities (14), 38% were injuries (6,946) and 62% were property damage only (11,328).

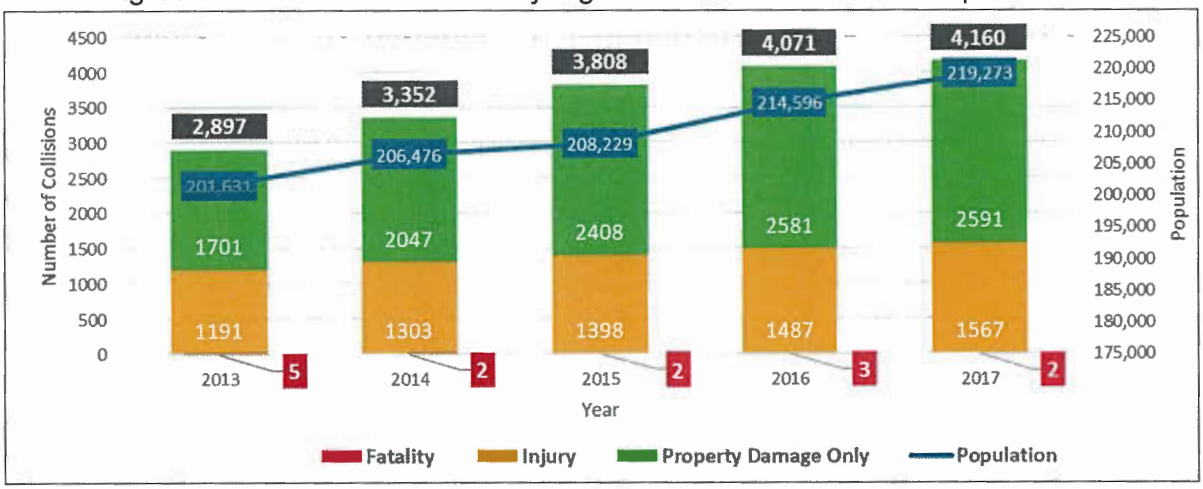
Table 1: Intersections in Richmond by Type

Intersection Type[(1)]	# of City Intersections			# of City Intersections with ICBC Data		
	Signalized	Non-signalized	Total	Signalized	Non-signalized	Total
City-MoTI	6	2	8	6	2	8
Major-Major	113	32	145	113	25	138
Major-Minor	43	391	434	42	326	368
Minor-Minor	0	1,030	1,030	0	304	304
Total	**162**	**1,455**	**1,617**	**161**	**657**	**818**

Notes:
(1) City-MoTI: Shared jurisdiction between City and Ministry of Transportation and Infrastructure (MoTI).
(2) Major: roadway is classified as an arterial or collector road.
(3) Minor: roadway is a local street.

Figure 2 illustrates that the annual number of collisions at the 161 signalized intersections increased from 2013 (2,897 collisions) to 2017 (4,160 collisions), indicating an 8.7% annual growth rate that outpaces the population annual growth rate of 1.7%.

Figure 2: Annual Collisions at City Signalized Intersections and Population Trend



The Study then focuses on intersections with an annual collision frequency equal to or greater than 25 collisions in the five-year period. This step resulted in 47 high collision intersections. These 47 intersections represent 29% of the 161 signalized intersections but account for 65% of the collisions.

Secondary Screening

The preliminary list of 47 high collision intersections was further prioritized using:

(1) Collision Severity Index: measures whether or not a location experiences more severe crashes (i.e., injury or fatality versus property damage only) than the City average for all intersections.

(2) Observed Collision Rate > Critical Collision Rate: this measure accounts for collision pattern randomness to ensure that only statistically meaningful locations are selected.

(3) Pedestrian-Involved Collisions: the number of pedestrian-involved collisions greater than five for the 2013-2017 period,

The Secondary Screening resulted in 20 intersections (2.4% of all Richmond intersections with collision data), which account for 23% of all ICBC claims in Richmond over the five-year period.

Intersection Safety Review Reports

Field reviews of the selected 20 intersections as well as a detailed collision analysis for the top 20 intersections were conducted using three-year data (2015-2017) to establish the most up-to-date collision patterns and identify the intersection improvements. The results of the collision data reviews and field reviews were compiled and summarized in a two-page Intersection Safety Review Report for each of the 20 intersections (Attachment 2) that includes:

- intersection layout and traffic volumes;
- collision pattern, including information of fatal collisions;
- field review observation and identified safety issues; and
- potential improvements (short-term and medium-/long-term).

Recommendations and Next Steps

Short-Term Improvements

The proposed short-term infrastructure improvements involve readily implementable measures such as improved traffic/parking signage, new or refreshed pavement markings, trimming of foliage to improve sightlines, and/or traffic signal modifications (e.g., added left-turn phase, larger lenses to improve visibility, change in signal phasing to assign priority to vulnerable road uses, etc). Additional proposed improvements include increased enforcement and education.

Attachment 3 summarizes the proposed improvements and estimated costs per intersection as well as the high-level estimate of safety benefits of the proposed improvements expressed as the percent of total collisions. The total estimated cost of the short-term improvements for all 20 intersections is approximately $500,000. Staff will include these short-term improvements in the 5 Year (2020-2024) Financial Plan, which is subject to Council approval.

Enforcement of Speeding and Red Light Running

Based on the Study findings, increased enforcement is recommended for 13 of the 20 intersections to address speeding and/or red light running violations as shown in Table 2. Of these 13 intersections, four have a red light enforcement camera (Shell Road-Alderbridge Way, No. 5 Road-Westminster Hwy, No. 5 Road-Cambie Road, and Gilbert Road-Blundell Road) and one has a red light camera that will be upgraded to provide automated speed enforcement (Garden City Road-Cambie Road). These programs operate 24 hours per day, seven days per week.

The red light camera and automated speed enforcement programs are within provincial jurisdiction. Therefore, staff recommend that the City request the Minister of Public Safety and Solicitor General to upgrade the existing four red light cameras and add cameras at the remaining eight intersections in order to provide red light and automated speed enforcement at all 13 intersections where the crash history reveals that speeding is a chronic contributing factor to collisions.

Table 2: Intersections Recommended for Increased Enforcement

Intersection	Red Light Camera?
Shell Rd-Alderbridge Way/Hwy 91	✓
Garden City Rd-Sea Island Way	×
No. 2 Rd-Westminster Hwy	×
No. 4 Rd-Alderbridge Way	×
No. 5 Rd-Westminster Hwy	✓
No. 5 Rd-Cambie Rd	✓
No. 4 Rd-Westminster Hwy	×
Garden City Rd-Cambie Rd	✓*
No. 2 Rd-Blundell Rd	×
No. 4 Rd-Cambie Rd	×
Minoru Blvd-Granville Ave	×
Gilbert Rd-Blundell Rd	✓
No. 5 Rd-Blundell Rd	×

* to be upgraded to automated speed enforcement

Staff will also share the Intersection Safety Review Reports with Richmond RCMP to enhance the targeted deployment of road safety enforcement.

Medium- and Long-Term Improvements

The proposed medium- and long-term infrastructure improvements involve substantial road geometry changes such as the road widening, addition or lengthening of left-turn lanes, redesign of existing channelized right-turn lanes, completion of pedestrian and cycling connections, and relocation of driveways. Given the scope of the proposed improvements, further analysis, design and consultation with affected property owners are required. In addition, some of the identified road improvements will require additional road right-of-way and can only proceed when the necessary additional right-of-way is available.

Staff recommend that a detailed intersection safety study and/or design be undertaken for each of the 20 intersections to confirm the exact scope of medium-/long-term improvements. Implementation of the final design will be included for Council consideration in future successive 5 Year Financial Plans, with the improvements starting with the higher ranked intersections. At that time, staff will seek potential cost-share funding from external agencies such as TransLink and ICBC.

Financial Impact

None.

Conclusion

The Network Screening Study is a comprehensive road safety analysis of City intersections that follows a standardized methodology using ICBC claims data and traffic volume data to identify high collision prone intersections. The result is a prioritized list of the top 20 high crash intersections and a customized list of short-term and medium-/long-term improvements for each intersection.

The phased implementation of the proposed improvements starting with the higher ranked intersections as part of future successive 5 Year Financial Plans are anticipated to significantly improve road safety for all users.

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Joan Caravan
Transportation Planner
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FL:jc

Att. 1: Network Screening Study: Executive Summary
2: Intersection Road Safety Reports for Top 20 Intersections
3: Top 20 Intersections: Summary of Proposed Short-Term Improvements

Executive Summary

Background, Objective and Methodology

The **City of Richmond (the City)** approached the **Insurance Corporation of British Columbia (ICBC)** to undertake a joint exercise to identify high collision intersections around the City. Since 1990, ICBC has been working with the City, to invest in road safety improvements through its **Road Improvement Program (RIP)**. One of the major goals of the Program is to implement road safety improvements at collision-prone intersections in order to reduce the number of collisions and the associated claims costs to ICBC and impacts to the community as a whole.

The City and ICBC retained **ISL Engineering and Land Services (ISL)**, in association with **G. Ho Engineering Consultants (GHEC)** to undertake a **Network Screening Study** to identify collision-prone intersections within the City. The study involves a systematic process which uses insurance claims records, traffic volume data, and safety performance indicators to identify the high collision intersections. The output from the process is a list of collision-prone intersections within the City and identification of potential short-term and medium/long-term improvements.

The study methodology was comprised of three key phases: Project Initiation, Initial Screening (Selection of Candidate Intersections), and Secondary Screening (Analysis of Selected Intersections). The methodology flowchart could be found in ***Figure ES.1***.

Initial Screening

Based on the standard practice for road safety review studies, five-year of ICBC claim data for the City-wide intersections, between January 1, 2013 and December 31, 2017, was collected and reviewed. A total of **22,373** claims were identified at 818 City intersections, including 161 signalized intersections and 657 un-signalized intersections, in the five-year study period. It was found out that 18,288 collisions (82%) occurred at the signalized intersections, and high collision intersections are all controlled by traffic signals. Hence, the study focused on signalized intersections as the study intersections and their data set forms the basis of the analysis. The breakdown of the reported collisions at 161 study intersections was as follows and the collision severity summary for each intersection can be found in ***Table ES.1***:

- 14 fatal collisions (0.08% of total collisions);
- 6,946 injury collisions (38% of total collisions), which include injured drivers, passengers, cyclists, and/or pedestrians; and,
- 11,328 property damage only (PDO) collisions (62% of total collisions).

Based on the *Transportation Association of Canada Canadian Guide to In-service Road Safety Review (TAC Road Safety Review Guide)* and previous similar network screening studies in the province, the following safety performance indicator was applied to identify the high collision intersections out of the 161 study intersections:

- Annual Collision Frequency being equal or over 25 collisions (i.e. equal or over 125 collisions in five years), which accounts for collision occurrence. After filtering the collision data by removing the claims at the parking lots and unknown locations, 47 intersections were identified as high collision intersections.

Secondary Screening

Intersections with planned modifications and recent improvements (completed after the year 2013) were taken into account in selecting the top 20 collision-prone intersections; there were 6 intersections out of the 47 high collision intersections identified in Initial Screening that were removed. Based on the *TAC Road Safety Review Guide*, the remaining 41 high collision intersections were further screened based on the following safety performance indicators and process to select the top 20 collision-prone intersections:

- Collision Severity Index being greater than the City's average of 4.50, which accounts for collision severity. This resulted in 25 intersections.

The 25 intersections were shortlisted to 20 by applying the following criteria:

- Observed Collision Rate greater than the Critical Collision Rate, which accounts for collision pattern randomness. This resulted in 9 intersections.
- The number of 5-year pedestrian-involved collisions greater than 5, which accounts for the vulnerable user safety concerns. This resulted in 6 more intersections, bringing the total to 15.
- Highest Collision Severity Index. Out of the 47 intersections not yet shortlisted, the top 5 with the highest Collision Severity Index were selected to achieve the top 20 intersections.

Based on the selection criteria, the results could be found in ***Table ES.2***. ***Figure ES.2*** included the locations of the selected 20 collision-prone intersections while ***Table ES.3*** shows the safety performance indicators for these locations.

Field Review

Field reviews of the selected 20 collision-prone intersections were conducted in April 2019 by three experienced Road Safety Reviewers. All 20 selected intersections were examined by drive-through/walk-through for all intersection approaches, providing safety reviewers with driver's/pedestrian's/cyclist's perspective of potential traffic safety issues. During the field reviews, potential safety issues were identified for all road modes (passenger cars, trucks, cycling, walking, and transit vehicles), using the *Site Visit Sample Observation Report* from the *TAC Road Safety Review Guide*.

Intersection Safety Review Report

Collision analysis for the selected 20 collision-prone intersections was focused on the most recent available 3-year period (2015-2017), in order to establish the most up-to-date collision patterns and identify the most relevant intersection improvements. The results of the collision data reviews (2015-2017) and field reviews were compiled and summarized in a two-page *Safety Review Report* for each of the 20 intersections, including:

- Intersection Layout and Traffic Volumes
- Collision Pattern, including information of fatal collisions
- Field Review Observation and Identified Safety Issues
- Potential Improvements (Short-term and Medium-/Long-term)

Fatal Collisions

Although the number of fatal collisions has already been included in calculating the collision severity index at each intersection, the occurrence of fatal collisions generates significant impacts to the community as a whole. It is noted that the selected 20 collision-prone intersections include 10 out of 14 fatal collisions, and the information of these fatal collisions were reviewed and discussed in the corresponding Intersection Safety Review Report. The locations and information of the remaining fatal collisions (four collisions) at City's intersections were as follow and it is suggested that an in-depth review of the contributing factors causing these fatal collisions needs to be conducted in the future studies:

- Knight Street and Westminster Highway: *a rear-end collision occurred at the westbound approach in the afternoon of May 2013*
- Garden City Road and Westminster Highway: *an off-road collision occurred at the eastbound approach in the morning of July 2013*
- Gilbert Road and River Road: *an off-road collision occurred at the southbound approach in the morning of October 2014*
- No. 3 Road and Westminster Highway: *no details were available for a collision occurred in the afternoon of October 2016*

Conclusion and Recommendations

From the Intersection safety review reports for the selected 20 collision-prone intersections, the site-specific short-term, medium-term, and long-term improvements were identified. In general, these proposed mitigation measures could be grouped into four categories (4E's): Engineering, Enforcement, Evaluation & Monitoring, and Education & Encouragement.

Engineering – improving/designing transportation systems/facilities/ infrastructures to anticipate human error so the consequence is not death or severe injury, for example:

- Construct new infrastructure, signals, street lighting, pedestrian and bicycle facilities, etc.
- Optimize and (re) prioritize existing transportation infrastructure and operations (e.g. traffic signals, roads, etc.) to enhance safety for all road users
- Upgrade signage and pavement markings to retain visibility and conspicuity

Enforcement – working with local law enforcement to enhance education, awareness, and enforcement in adjusting high-risk behaviours (speeding, disobeying, illegal movements, etc.) by:

- Increase enforcement and education on vehicle infractions
- Increase enforcement and education on cyclist infractions
- Increase enforcement and education on pedestrian infractions

Evaluation or **Monitoring** – monitoring if road safety strategies work through observing behaviour, surveying conflicts, monitoring programs/initiatives, as well as adjusting legislation (if needed), for example:

- Review the lane configuration at intersections based on traffic volumes/delays
- Review adequate pedestrian/bicycle connections to the nearest bus stops
- Review posted speed limits to confirm appropriateness and collect speed data

Education or **Encouragement** – teaching, encouraging, engaging all road users within the community, including drivers and vulnerable users (pedestrians/cyclists – i.e. students) to change behaviours through road safety, such as:

- Encourage the use of alternate mode and provide public information (Traffic Safety Awareness Week)
- Educate campaigns to school students (STARS – Safer Traffic Around Richmond Schools)
- Encourage the importance of road safety for truck drivers

It is recommended that the City of Richmond implement the suggested short-term improvements. In addition to the suggested medium/long-term improvements, it is recommended that the City could consider the following:

- Undertake a detailed intersection safety study and/or design at each of the 20 intersections
- Conduct a corridor-wide improvement strategy that may provide a more comprehensive strategy to deal with the safety issues more effectively, compared to improvements at isolated intersections, such as Blundell Road and No. 4 Road. Corridor-wide strategies can often be expected to provide a "halo" effect (i.e. the implementation of the improvement could impact the extent of the corridor).
- Work with ICBC through its Road Improvement Program (RIP) to conduct a traffic operation and road safety review for the selected intersections or corridors.
- Continue to collaborate with partners (such as RCMP, School Board, and Province Government) on road safety programs/initiatives.

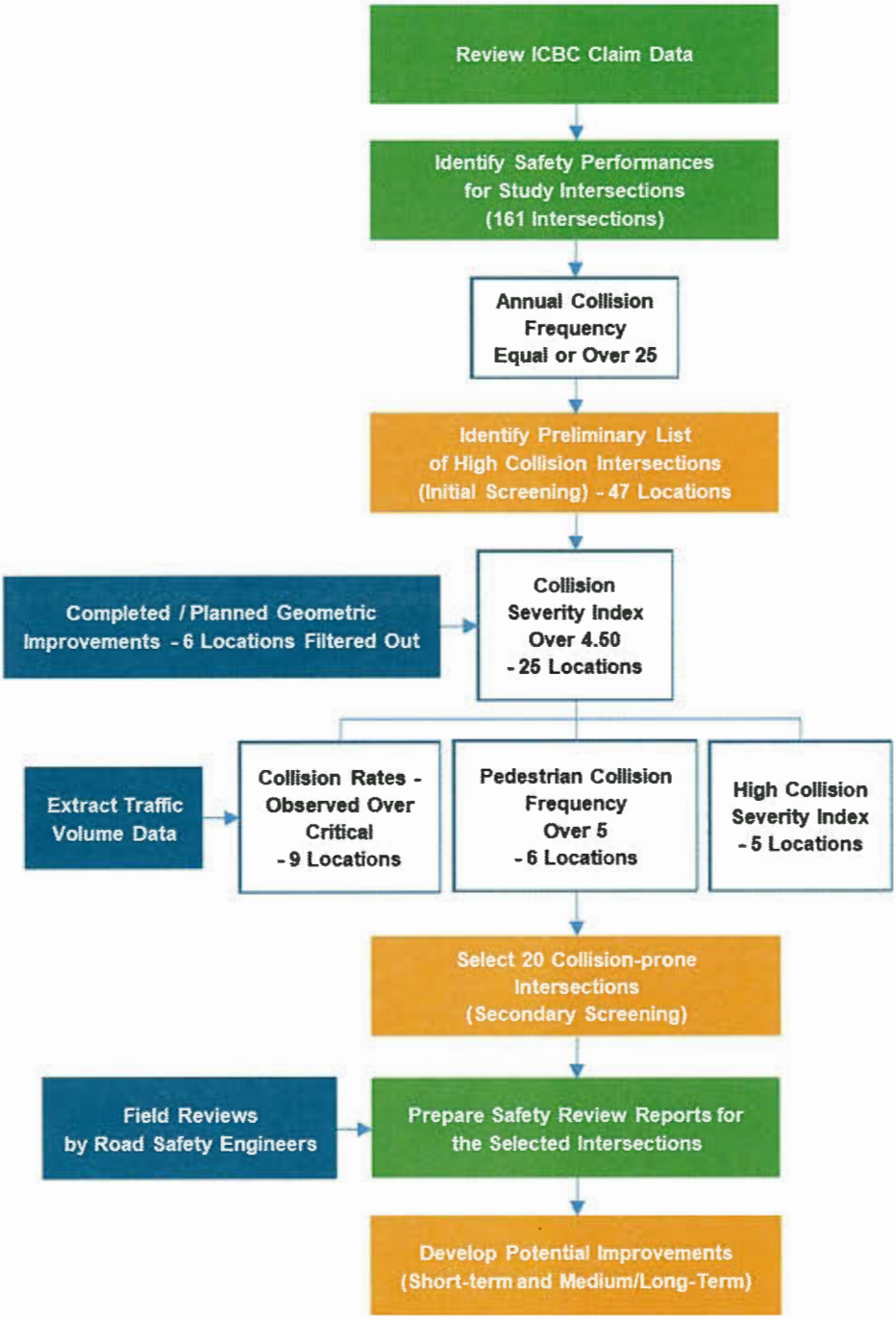


Figure ES.1 Study Methodology Flowchart

Table ES.1 Summary of 5-year ICBC Unfiltered Collision Data for Study Intersections (161 Signalized Intersections)

Collision Data		ICBC Claim Data (2013-2017)				
No.	Intersection	Fatal	Injury	Property Damage Only	Total	Annual Frequency
1	No. 5 Road & Steveston Highway		172	471	643	128.6
2	Shell Road & Alderbridge Way / Highway 91	1	267	283	551	110.2
3	Garden City Road & Westminster Highway	1	178	334	513	102.6
4	No. 3 Road & Westminster Highway	1	134	372	507	101.4
5	Garden City Road & Alderbridge Way		191	307	498	99.6
6	No. 3 Road & Alderbridge Way		131	266	397	79.4
7	Garden City Road & Sea Island Way	1	152	244	397	79.4
8	No. 2 Road & Westminster Highway		164	224	388	77.6
9	No. 5 Road & Westminster Highway		169	219	388	77.6
10	No. 4 Road & Alderbridge Way		158	224	382	76.4
11	No. 5 Road & Cambie Road	1	140	217	358	71.6
12	Great Canadian Way & Bridgeport Road		108	230	338	67.6
13	No. 4 Road & Westminster Highway	2	133	164	299	59.8
14	Garden City Road & Cambie Road	1	105	167	273	54.6
15	No. 5 Road & Bridgeport Road		89	179	268	53.6
16	No. 3 Road & Cambie Road		58	199	257	51.4
17	No. 2 Road & Blundell Road		107	146	253	50.6
18	Garden City Road & Granville Avenue		103	142	245	49.0
19	No. 3 Road & Granville Avenue	1	91	143	235	47.0
20	Sweden Way & Bridgeport Road		82	152	234	46.8
21	Minoru Boulevard & Westminster Highway		77	152	229	45.8
22	No. 3 Road & Blundell Road		76	152	228	45.6
23	Gilbert Road & Westminster Highway		74	152	226	45.2
24	No. 4 Road & Blundell Road		109	104	213	42.6
25	No. 4 Road & Cambie Road		86	111	197	39.4
26	Hazelbridge Way / Mall Access & Alderbridge Way		63	122	185	37.0
27	Garden City Road & Blundell Road	2	85	95	182	36.4
28	No. 2 Road & Granville Avenue		67	108	175	35.0
29	Minoru Boulevard & Granville Avenue		69	105	174	34.8
30	Shell Road & Bridgeport Road		85	86	171	34.2
31	No. 3 Road & Lansdowne Road		56	111	167	33.4
32	No. 3 Road & Leslie Road		41	123	164	32.8
33	No. 1 Road & Francis Road		65	95	160	32.0
34	Cooney Road & Westminster Highway		45	112	157	31.4
35	Shell Road & Cambie Road		67	89	156	31.2
36	Garden City Road & Lansdowne Road		62	92	154	30.8
37	Knight Street & Westminster Highway	1	52	94	147	29.4
38	Gilbert Road & Granville Avenue		53	88	141	28.2
39	Jacombs Road / Sidaway Road & Westminster Highway		60	81	141	28.2
40	Shell Road & Westminster Highway		56	80	136	27.2
41	Cooney Road / St. Albans Road & Granville Avenue		41	91	132	26.4
42	No. 1 Road & Steveston Highway		56	76	132	26.4
43	No. 3 Road & Saba Road		38	93	131	26.2
44	Hazelbridge Way & Cambie Road		32	98	130	26.0
45	Gilbert Road & Blundell Road		64	64	128	25.6
46	Gilbert Road & River Road (River Parkway)	1	45	82	128	25.6
47	No. 3 Road & Williams Road		52	75	127	25.4
48	No. 6 Road & Westminster Highway		55	71	126	25.2
49	No. 5 Road & Blundell Road	1	61	63	125	25.0
50	No. 3 Road & Cook Road		41	84	125	25.0
51	No. 2 Road & Francis Road		58	67	125	25.0
52	Bridgeport Road & Viking Way		44	79	123	24.6
53	Kwantlen Street & Alderbridge Way		33	90	123	24.6
54	No. 3 Road & Ackroyd Road		36	85	121	24.2
55	No. 2 Road & Steveston Highway		42	78	120	24.0
56	Alexandra Road & Hazelbridge Way		37	80	117	23.4
57	Garden City Road & Odlin Road		39	76	115	23.0
58	Nelson Road & Westminster Highway		43	71	114	22.8
59	No. 3 Road & Francis Road		51	62	113	22.6
60	No. 4 Road & Williams Road		41	71	112	22.4
61	Coppersmith Place & Steveston Highway		37	74	111	22.2
62	Ackroyd Road & Cooney Road		41	66	107	21.4
63	No. 1 Road & Blundell Road		38	68	106	21.2
64	Blundell Road & St Albans Road		44	60	104	20.8
65	Elmbridge Way & Gilbert Road		35	69	104	20.8
66	Blundell Road & Railway Avenue		52	46	98	19.6
67	Cook Road & Garden City Road		34	63	97	19.4
68	Granville Avenue & No. 4 Road		50	47	97	19.4
69	No. 4 Road & Steveston Highway		33	64	97	19.4
70	Cooney Road & Lansdowne Road / Mall Access		35	61	96	19.2
71	No. 1 Road & Westminster Highway		34	60	94	18.8
72	No. 2 Road & Williams Road		50	44	94	18.8
73	Cambie Road & No. 6 Road		39	53	92	18.4
74	Cambie Road & Jacombs Road		38	51	89	17.8
75	Cook Road & Cooney Road		39	46	85	17.0
76	Sexsmith Road & Sea Island Way		35	50	85	17.0
77	No. 1 Road & Williams Road		47	37	84	16.8
78	Shell Road & Westminster Highway		33	49	82	16.4
79	Capstan Way & Garden City Road		35	43	78	15.6
80	Alderbridge Way & Minoru Boulevard		22	53	75	15.0
81	Gilbert Road & Williams Road		35	40	75	15.0
82	Francis Road & Gilbert Road		35	38	73	14.6
83	Railway Avenue & Steveston Highway		27	45	72	14.4
84	Cambie Road & St Edwards Drive		33	38	71	14.2
85	Francis Road & Railway Avenue		40	31	71	14.2
86	Granville Avenue & No. 1 Road		37	33	70	14.0
87	No. 3 Road & Park Road & Mall Access		29	41	70	14.0
88	Capstan Way & No. 3 Road		23	45	68	13.6
89	No. 3 Road & Steveston Highway		28	40	68	13.6
90	Cambie Road & Sexsmith Road		25	42	67	13.4
91	Browngate Road & Hazelbridge Way		15	50	65	13.0
92	Alderbridge Way & Lansdowne Road		26	37	63	12.6
93	Alderbridge Way & Westminster Highway		27	36	63	12.6
94	Bridgeport Road & St EdwaRoads Drive		22	41	63	12.6
95	Alderbridge Way & Elmbridge Way		15	47	62	12.4
96	Hazelbridge Way & Leslie Road		12	50	62	12.4
97	Kwantlen Street & Lansdowne Road		27	34	61	12.2
98	Bridgeport Road & Simpson Road		29	29	58	11.6
99	Buswell Street & Granville Avenue		17	41	58	11.6
100	Gilbert Road & Lansdowne Road		22	36	58	11.6
101	Blundell Road & Minoru Boulevard		16	41	57	11.4
102	Bridgeport Road & No. 6 Road		21	36	57	11.4
103	No. 5 Road & Williams Road		26	31	57	11.4
104	No. 4 Road & Odlin Road		26	29	55	11.0
105	Gilbert Road & Steveston Highway		22	32	54	10.8
106	Browngate Road & No. 3 Road		18	35	53	10.6
107	Francis Road & GaRoaden City Road		24	27	51	10.2
108	GaRoaden Cty Road & Williams Road		24	26	50	10.0
109	Francis Road & No. 4 Road		17	32	49	9.8
110	Cambie Road & Viking Way		20	28	48	9.6
111	Lynas Lane & Westminster Highway		19	27	46	9.2
112	Graybar Road & Westminster Highway		14	31	45	9.0
113	Granville Avenue & Railway Avenue		19	25	44	8.8
114	No. 8 Road & Westminster Highway		21	23	44	8.8
115	No. 2 Road & WoodwaRoads Road		25	18	43	8.6
116	Buswell Street & Cook Road		15	27	42	8.4
117	Lansdowne Road & Minoru Boulevard		13	28	41	8.2
118	Moncton Street & No. 1 Road		4	36	40	8.0
119	Railway Avenue & Williams Road		15	25	40	8.0
120	Fraserwood Place & Westminster Highway		17	22	39	7.8
121	Hollybridge Way & River Road		16	22	38	7.6
122	Horseshoe Way & No. 5 Road & Riverside Way		6	32	38	7.6
123	Alberta Road & No. 4 Road		14	23	37	7.4
124	Garrison Road & No. 2 Road		15	20	35	7.0
125	Ackroyd Road & Elmbridge Way & Minoru Boulevard		15	18	33	6.6
126	SeawaRoad Gate & Steveston Highway		13	19	32	6.4
127	Blundell Road & No. 8 Road		10	21	31	6.2
128	Mortfield Gate & Steveston Highway		15	15	30	6.0
129	Chatham Street & No. 1 Road		7	22	29	5.8
130	Elmbridge Way & Westminster Highway		12	16	28	5.6
131	Capstan Way & Sexsmith Road		10	15	25	5.0
132	Buswell Street & Saba Road		12	12	24	4.8
133	Cooney Road & Saba Road		9	15	24	4.8
134	Maple Road & No. 2 Road		3	21	24	4.8
135	Mclean Avenue & Westminster Highway		12	12	24	4.8
136	Bridgeport Road & Mclennan Avenue		8	15	23	4.6
137	Great Canadian Way & Van Horne Way		8	13	21	4.2
138	Mcmillan Way & Westminster Highway		7	13	20	4.0
139	Minoru Boulevard & Minoru Gate & Mall Access		7	11	18	3.6
140	Garry Street & No. 1 Road		5	12	17	3.4
141	Gilley Road & Westminster Highway		7	10	17	3.4
142	Mayfield Place & No. 6 Road		9	8	17	3.4
143	Cambie Road & Stolberg Street		9	7	16	3.2
144	Alderbridge Way & Cedarbridge Way		7	8	15	3.0
145	Great Canadian Way & River Road		3	9	12	2.4
146	Elmbridge Way & Hollybridge Way		1	10	11	2.2
147	Gollner Avenue & Minoru Boulevard		3	8	11	2.2
148	Oval Way & River Road		6	5	11	2.2
149	Mcclelland Road & Alderbridge Way		2	9	11	2.2
150	Commerce Parkway & No. 6 Road		5	4	9	1.8
151	Greenland Drive & No. 5 Road		3	5	8	1.6
152	Jacombs Road & Smallwood Place		3	5	8	1.6
153	No. 1 Road & Osmond Avenue		4	4	8	1.6
154	No. 2 Road & Wallace Road		3	5	8	1.6
155	Alderbridge Way & May Drive		3	4	7	1.4
156	Cedarbridge Way & Lansdowne Road		3	3	6	1.2
157	Hazelbridge Way & Sweet Avenue		3	3	6	1.2
158	Moncton Street & Railway Avenue		4	2	6	1.2
159	Minoru Boulevard & MuRoadoch Avenue & Mall Access		2	2	4	0.8
160	Hollybridge Way & Lansdowne Road		2		2	0.4
161	Pearson Way & River Road			2	2	0.4

Table ES.2 Summary of Selection Criteria Assessment for 47 High Collision Intersections

ID	Intersection	Annual Collision Frequency (Equal or Over 25.0)	Collision Severity Index (Over 4.50)	Observed Collision Rate (Over Critical Collision Rate)	Total Pedestrian-involved Collisions (Over 5)	"Selection Rationale"
1	No. 5 Road & Steveston Highway	✓	×			Not Selected - Recently Improved and Does not meet the Criteria
2	Shell Road & Alderbridge Way / Highway 91	✓	✓	✓		Selected - Meets the Criteria
3	Garden City Road & Westminster Highway	✓	×			Not Selected - Does not meet the Criteria
4	Garden City Road & Alderbridge Way	✓	✓			Not Selected - Recently Improved
5	No. 3 Road & Westminster Highway	✓	×			Not Selected - Does not meet the Criteria
6	Garden City Road & Sea Island Way	✓	✓	✓		Selected - Meets the Criteria
7	No. 3 Road & Alderbridge Way	✓	×			Not Selected - To Be Modified and Does not meet the Criteria
8	No. 2 Road & Westminster Highway	✓	✓	✓		Selected - Meets the Criteria
9	No. 4 Road & Alderbridge Way	✓	✓	✓		Selected - Meets the Criteria
10	No. 5 Road & Westminster Highway	✓	✓	✓		Selected - Meets the Criteria
11	No. 5 Road & Cambie Road	✓	✓	✓		Selected - Meets the Criteria
12	Great Canadian Way & Bridgeport Road	✓	×			Not Selected - Does not meet the Criteria
13	No. 4 Road & Westminster Highway	✓	✓	×	×	Selected - Meets the Criteria (i.e. High CSI)
14	Garden City Road & Cambie Road	✓	✓	×	✓	Selected - Meets the Criteria
15	No. 5 Road & Bridgeport Road	✓	×			Not Selected - Does not meet the Criteria
16	Garden City Road & Granville Avenue	✓	✓	✓		Selected - Meets the Criteria
17	Sweden Way & Bridgeport Road	✓	×			Not Selected - Does not meet the Criteria
18	Minoru Boulevard & Westminster Highway	✓	×			Not Selected - Does not meet the Criteria
19	No. 2 Road & Blundell Road	✓	✓	✓		Selected - Meets the Criteria
20	No. 3 Road & Granville Avenue	✓	✓	×	✓	Selected - Meets the Criteria
21	No. 3 Road & Blundell Road	✓	×			Not Selected - Does not meet the Criteria
22	Gilbert Road & Westminster Highway	✓	×			Not Selected - Does not meet the Criteria
23	No. 4 Road & Blundell Road	✓	✓	✓		Selected - Meets the Criteria
24	No. 3 Road & Cambie Road	✓	×			Not Selected - Does not meet the Criteria
25	No. 4 Road & Cambie Road	✓	✓	×	✓	Selected - Meets the Criteria
26	Hazelbridge Way / Mall Access & Alderbridge Way	✓	×			Not Selected - Does not meet the Criteria
27	No. 2 Road & Granville Avenue	✓	×			Not Selected - Does not meet the Criteria
28	Shell Road & Bridgeport Road	✓	✓	×	×	Selected - Meets the Criteria (i.e. High CSI)
29	Minoru Boulevard & Granville Avenue	✓	✓	×	✓	Selected - Meets the Criteria
30	No. 3 Road & Lansdowne Road	✓	×			Not Selected - Does not meet the Criteria
31	Garden City Road & Blundell Road	✓	✓	×	✓	Selected - Meets the Criteria
32	No. 3 Road & Leslie Road	✓	×			Not Selected - Does not meet the Criteria
33	Shell Road & Cambie Road	✓	✓	×	×	Not Selected - Does not meet the Criteria (i.e. Low CSI)
34	Garden City Road & Lansdowne Road	✓	✓	×	×	Not Selected - Does not meet the Criteria (i.e. Low CSI)
35	Cooney Road & Westminster Highway	✓	×			Not Selected - Does not meet the Criteria
36	No. 1 Road & Francis Road	✓	✓	×	×	Selected - Meets the Criteria (i.e. High CSI)
37	Knight Street & Westminster Highway	✓	✓	×	×	Not Selected - Does not meet the Criteria (i.e. Low CSI)
38	Jacombs Road / Sidaway Road & Westminster Highway	✓	✓	×	×	Not Selected - Does not meet the Criteria (i.e. Low CSI)
39	Gilbert Road & Granville Avenue	✓	×			Not Selected - Does not meet the Criteria
40	Shell Road & Westminster Highway	✓	✓	×	×	Not Selected - Does not meet the Criteria (i.e. Low CSI)
41	Cooney Road / St. Albans Road & Granville Avenue	✓	×			Not Selected - Recently Improved and Does not meet the Criteria
42	No. 1 Road & Steveston Highway	✓	✓	×	✓	Selected - Meets the Criteria
43	Gilbert Road & Blundell Road	✓	✓	×	×	Selected - Meets the Criteria (i.e. High CSI)
44	Gilbert Road & River Road (River Parkway)	✓	✓			Not Selected - To Be Modified
45	No. 5 Road & Blundell Road	✓	✓	×	×	Selected - Meets the Criteria (i.e. High CSI)
46	Hazelbridge Way & Cambie Road	✓	×			Not Selected - Does not meet the Criteria
47	No. 2 Road & Francis Road	✓	✓			Not Selected - To Be Modified

Figure ES.2 Locations of the 20 Selected Collision-Prone Intersections

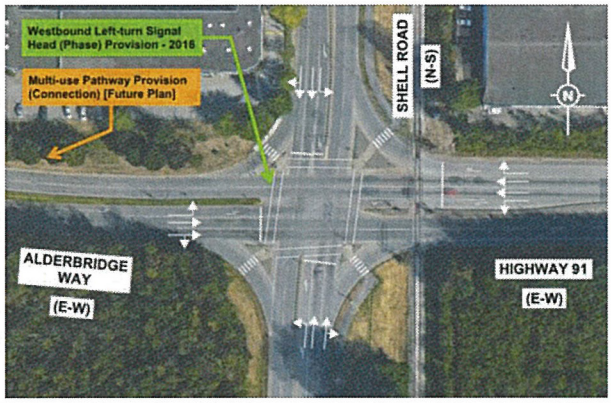
Table ES.3 Safety Performance Summary for the 20 Selected Collision-Prone Intersections

Site #	Intersection	Annual Collision Frequency	Collision Severity Index	Observed / Critical Collision Rate	Total 5-Year Number of Pedestrian involved Collisions	Total 5-Year Number of Fatal Collisions
1	Shell Road & Alderbridge Way / Highway 91	110.2	5.54	5.23 / 3.27	0	1
2	Garden City Road & Sea Island Way	79.2	4.70	3.51 / 3.26	2	1
3	No. 2 Road & Westminster Highway	76.6	4.85	3.63 / 3.27	3	0
4	No. 4 Road & Alderbridge Way	76.4	4.72	3.54 / 3.27	0	0
5	No. 5 Road & Westminster Highway	76.2	4.97	4.28 / 3.30	1	0
6	No. 5 Road & Cambie Road	66.2	4.97	4.91 / 3.35	4	1
7	No. 4 Road & Westminster Highway	59.8	5.67	2.57 / 3.26	0	2
8	Garden City Road & Cambie Road	52.4	4.95	3.08 / 3.31	7	1
9	Garden City Road & Granville Avenue	48.8	4.80	5.27 / 3.42	3	0
10	No. 2 Road & Blundell Road	44.4	5.14	3.64 / 3.36	5	0
11	No. 3 Road & Granville Avenue	44.2	4.95	2.44 / 3.30	14	1
12	No. 4 Road & Blundell Road	42.6	5.61	3.39 / 3.36	0	0
13	No. 4 Road & Cambie Road	39.0	4.97	3.08 / 3.36	5	0
14	Shell Road & Bridgeport Road	34.2	5.47	2.83 / 3.37	3	0
15	Minoru Boulevard & Granville Avenue	34.2	4.63	2.65 / 3.35	12	0
16	Garden City Road & Blundell Road	32.2	6.65	3.35 / 3.41	8	2
17	No. 1 Road & Francis Road	29.6	4.89	2.99 / 3.41	0	0
18	No. 1 Road & Steveston Highway	26.0	4.88	2.08 / 3.36	5	0
19	Gilbert Road & Blundell Road	25.6	5.50	2.14 / 3.37	3	0
20	No. 5 Road & Blundell Road	25.0	6.18	2.73 / 3.42	0	1

SHELL ROAD & ALDERBRIDGE WAY / HIGHWAY 91

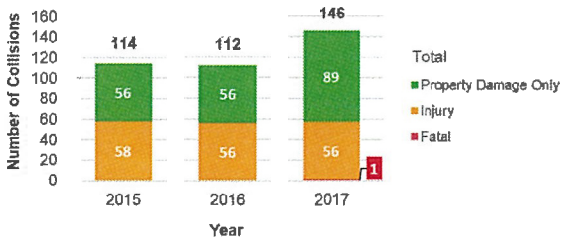
INTERSECTION INFORMATION

Site #:	1
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT for SB & E-W
N-S Street Classification:	Arterial (Bike Route - MUP)
E-W Street Classification:	Provincial - Arterial (MRN)
Surrounding Land Use:	Commercial / Industrial
Daily Traffic Volume (2015):	57,800 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	124.0 per year	(Total = 372)
Collision Severity Index:	5.38	(Casualty = 46%)
Collision Rate OBS. / CRT.:	5.23 / 3.27	[2013-2017]
Collision with Pedestrian:	0	
Collision with Cyclist:	1	



Highest % Month:	December (10%)
Highest % Day of Week:	Friday (22%)
Highest % Time Period:	3 PM - 6 PM (30%)
Top 3 Collision Types:	Rear End (70%) Left Turn (13%) Sideswipe (8%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Rural perception at wide intersection with channelized right-turn islands – *overall*
- Lane drop after intersection – *south leg*
- Inadequate sight distance due to nearby foliage – *southwest corner*
- Presence of railway crossing – *east leg; two sets of westbound signal heads with one stop bar*

Signal:

- Lack of left-turn phase – *northbound approach*

Vulnerable Road User:

- Long pedestrian crossing distance – *north-south directions*
- Old pedestrian pushbuttons – *east side corners; along multi-use pathway*

Collision (Data Review):

- High collision frequency (over 50.0), high collision severity index (over 5.00), and a collision-prone location (observed over critical collision rate)
- Annual number of collisions increased in 2017
- High number of rear-end collisions reported on Highway 91 westbound – *103 out of total 254 collisions*
- High number of right-turn rear-end collisions occurred at Highway 91 westbound designated/channelized right-turn – *over 50% of total 30 collisions; unexpected yield control with high vehicle speed*
- High proportion of left-turn opposing collisions occurred in the east-west directions – *over 80% of total; 22 collisions involved westbound (horizontal curve on the eastbound approach) and 15 collisions involved eastbound*
- High proportion of sideswipe collisions occurred with east-west movements – *16 out of total 29 collisions; changing lanes to avoid right-turn vehicles to merge*
- Three collisions reported in the north-south directions due to U-turn movements
- One fatal collision reported involving a westbound left-turn opposing collision and hitting a third vehicle on Shell Road during Friday noon on August 2017

SHELL ROAD & ALDERBRIDGE WAY / HIGHWAY 91

Operational (Field Review):

- Congestion / long queues during peak periods – *east-west approaches*
- Significant left-/right-turn volumes/queues during peak periods – *southbound and east-west approaches; high number of turning-related conflicts were observed*
- Significant lane changing/weaving activities – *east-west legs; to avoid merging vehicles from right-turns*
- High vehicle speed – *east-west legs (free flow, especially to/from highway); presence of red-light camera for eastbound approach*
- Unexpected yield control with designated right-turn lane – *east side corners; designated right-turn bay for westbound approach*
- Broken motor vehicle parts were noticed at the southeast channelized island

Other:

- Missing/inconsistent pavement marking – *east leg; no elephant feet and green bike path marking on crosswalks connecting multi-use pathways, similar to the southeast corner*
- Faded pavement marking – *southeast corner; dashed merge line*
- Missing road sign – *all corners (no pedestrian crosswalk signage) and south leg (no merge sign)*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 20 to 30% of Total Collisions):

- Upgrade pedestrian pushbuttons to the latest standard – *east side corners; to be consistent overall*
- Provide pedestrian crosswalk signs – *all corners*
- Provide merge sign – *south leg (southbound)*
- Regularly repaint dashed merge line – *southeast corner*
- Regularly trim foliage to provide adequate sight distance – *southwest corner*
- Paint elephant feet and green bike path pavement marking along crosswalk – *east leg; similar to the southeast corner*
- Install enlarged Yield sign or two Yield signs – *westbound approach*
- Consider the provision of protected-only left-turn phase – *westbound approach*
- Conduct warrant analysis for adding left-turn phase – *northbound approach*
- Enlarge signal lenses to 300-300-300 millimetres for primary traffic signal heads – *all approaches*

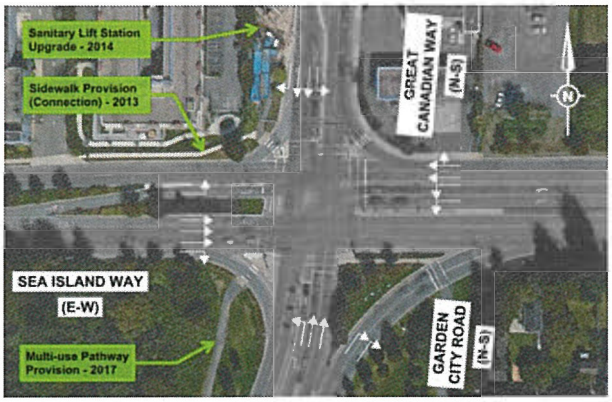
Medium/Long-Term:

- Add left-turn phase (if warranted) – *northbound approach*
- Provide clear gateway signage, such as "Freeway Ends" – *westbound approach*
- Install speed radar board – *westbound direction*
- Remove or modify angle of channelized right-turn in coordination with MoTI – *east side corners (to/from highway); traffic operation and geometric design to confirm*
- Increase property setback with future redevelopment – *southwest corner*
- Review the need of installing advance warning flasher in coordination with MoTI – *westbound approach*
- Work with MoTI to lower speed zones before the intersection – *westbound approach*
- Explore the feasibility to increase left-turn storage in coordination with MoTI – *eastbound and westbound approaches*
- Consider a feasibility study to provide the grade separation in coordination with MoTI and CP Railway – *east-west movements; connecting Alderbridge Way and Highway 91*
- Enhance police enforcements for vehicle speeding violations in coordination with RCMP – *all approaches*
- Review traffic lane widths and curb return radii as a measure to reduce collisions involving speeding and right-turn lanes

GARDEN CITY ROAD / GREAT CANADIAN WAY & SEA ISLAND WAY

INTERSECTION INFORMATION

Site #:	2
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT for EB
N-S Street Classification:	Arterial (Bike Route & MUP)
E-W Street Classification:	Provincial (Bike Route - WL)
Surrounding Land Use:	Retail / Residential
Daily Traffic Volume (2015):	61,800 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	81.3 per year	(Total = 244)
Collision Severity Index:	4.80	(Casualty = 38%)
Collision Rate OBS. / CRT.:	3.51 / 3.26	[2013-2017]
Collision with Pedestrian:	2	
Collision with Cyclist:	1	

Highest % Month:	December (12%)
Highest % Day of Week:	Thursday (18%)
Highest % Time Period:	3 PM - 6 PM (30%)
Top 3 Collision Types:	Rear End (52%) Sideswipe (27%) Left Turn (12%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- First signalized intersection from Oak Street Bridge (southbound)
- Horizontal curve immediately before/after intersection – *south leg*
- Dual right-turn lanes with signal operation – *northbound approach; limited sight distance to crossing pedestrians and eastbound vehicles*
- Commercial driveways close to intersection – *northeast quadrant (gas station)*
- Inadequate sight distance due to nearby foliage – *southwest corner; conflict between eastbound right-turn vehicles and northbound pedestrians/bicycles*

Signal:

- Protected-permissive left-turn phase for eastbound single lane and protected-only left-turn phase for westbound dual lanes
- Long gap for pedestrian crossing green time after red signal for vehicles – *northbound channelized right-turn*

Vulnerable Road User:

- Inadequate bicycle facility – *west leg (no elephant feet on crosswalks connecting multi-use pathways) and northeast corner (narrow shoulder on the west side of the island, not consistent with southeast island)*
- Northbound bike lane is disappeared along the channelized right-turn island
- Long pedestrian crossing distance – *north-south directions*

Collision (Data Review):

- High collision frequency (over 50.0), and a collision-prone location (observed over critical collision rate)
- High proportion of rear-end collisions reported on Sea Island Way approaches – *70% of total 121 collisions*
- High number of right-turn rear-end collisions occurred at westbound channelized right-turn – *over 50% of total 30 collisions*
- High number of left-turn opposing collisions occurred with eastbound left-turns – *20 collisions*
- High proportion of "red-light running" collisions occurred in the eastbound direction – *8 out of total 12 collisions*
- High number of sideswipe collisions occurred with northbound movements – *24 collisions (39% of total)*
- One fatal collision reported during a weekday afternoon on December 2017; location and type are not available

GARDEN CITY ROAD / GREAT CANADIAN WAY & SEA ISLAND WAY

Operational (Field Review):

- Congestion / long queues during peak periods – *all directions*
- Significant left/right-turn volumes/queues during peak periods – *all approaches*
- Significant lane changing/weaving activities – *northbound and east-west directions; especially to/from highway*
- Vehicle queue spillback from downstream – *north (signalized intersection) and east (interchange on-ramp) legs*

Other:

- Missing pavement marking – *north side corners; dashed merge line (similar to southwest corner)*
- Missing road sign – *north side and southwest corners; no pedestrian/bicycle crosswalk signage as well as object marker signage*
- Inappropriate road sign – *north side and southwest corners; yield sign far from actual merge point and before pedestrian crosswalk*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 5 to 15% of Total Collisions):

- Regularly trim foliage to provide adequate sight distance – *southwest corner*
- Paint elephant feet along crosswalk – *west leg*
- Paint dashed merge line – *north side corners; similar to southwest corner*
- Provide pedestrian/bicycle crosswalk signage – *north side and southwest corners*
- Provide object marker signage – *north side and southwest corners*
- Consider the provision of protected-only left-turn phase – *eastbound approach*

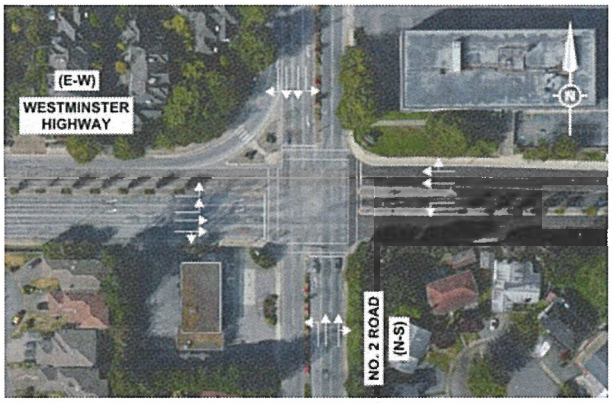
Medium/Long-Term:

- Review and update the Garden City Road signal coordination with the signal at Bridgeport Road in coordination with MoTI – *overall*
- Remove or modify angle of channelized right-turn in coordination with MoTI – *east-west approaches; traffic operation and geometric design to confirm*
- Realign northbound dual right-turn lane in coordination with MoTI to improve sight line and eliminate the lane drop by developing the right-turn lanes as auxiliary lanes with future redevelopment – *south leg*
- Provide westbound right-turn lane with future redevelopment – *southwest quadrants*
- Review driveway locations with future redevelopment – *northeast quadrant*
- Design for adequate sight distance with future redevelopment – *southwest corner*
- Enhance police enforcement for speeding and red-light running violation in coordination with RCMP and ICBC – *all approaches*
- Review traffic lane widths and curb return radii as a measure to reduce collisions involving speeding and right-turn lanes

NO. 2 ROAD & WESTMINSTER HIGHWAY

INTERSECTION INFORMATION

Site #:	3
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT in all directions
N-S Street Classification:	Arterial (MRN) (Bike Route - NL)
E-W Street Classification:	Arterial (MRN - EL)
Surrounding Land Use:	Retail / Office / Residential
Daily Traffic Volume (2015):	57,800 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	71.7 per year	(Total = 215)
Collision Severity Index:	4.47	(Casualty = 39%)
Collision Rate OBS. / CRT.:	3.63 / 3.27	[2013-2017]
Collision with Pedestrian:	2	
Collision with Cyclist:	2	

Highest % Month:	February (11%)
Highest % Day of Week:	Friday (19%)
Highest % Time Period:	3 PM - 6 PM (20%)
Top 3 Collision Types:	Rear End (58%) Left Turn (16%) Sideswipe (12%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Misalignment of left-turn lanes – *north-south approaches*
- Commercial driveways close to intersection – *southwest quadrant (gas station)*
- Inadequate sight distance due to nearby foliage and insufficient property setback – *northwest (channelized right-turn) and south side corners*
- Wide left-turn crossing distance – *southbound approach; especially for heavy vehicles*
- Long designated channelized right-turn with auxiliary lane – *southbound approach (wide turning radius); high vehicle speed conflicts between crossing pedestrians and weaving vehicles to designated right-turn lane to Lynas Lane*

Signal:

- Dual left-turn lanes with protected/permitted phase – *eastbound approach (right-turn-on-red is prohibited for westbound approach); conflict with east-west crossing pedestrians*

Vulnerable Road User:

- Limited visibility to crosswalk for right-turn drivers – *southbound approach*
- Narrow sidewalk with the presence of utility poles – *south side*
- Long pedestrian crossing distance – *north-south directions*
- On-street bike lane ended at channelized right-turn lane – *southbound approach*
- On-street near-side bus stop – *westbound approach*

Collision (Data Review):

- High collision frequency (over 50.0), and a collision-prone location (observed over critical collision rate)
- High proportion of rear-end collisions reported in southbound direction (35%), followed by westbound (24%)
- High proportion of left-turn opposing collisions reported in the east-west directions – *70% of total; eastbound with 13 collisions and westbound with 8 collisions*
- High proportion of sideswipe collisions occurred with southbound movements – *12 collisions (48% of total)*
- Two pedestrian-involved collisions reported between eastbound left-turn vehicles and pedestrians crossing No. 2 Road on north leg

NO. 2 ROAD & WESTMINSTER HIGHWAY

Collision (Data Review) – *CONTINUED*:

- One cyclist-involved collision reported between northbound left-turn vehicle and a bicycle crossing Westminster Highway on west leg, the other collision occurred between a bicycle on No. 2 Road and vehicle exiting a parking lot turning right

Operational (Field Review):

- Congestion / long queues during peak periods – *all directions*
- Significant left/right-turn volumes/queues during peak periods – *all approaches*
- High vehicle speed during non-congested periods – *north leg; to/from No. 2 Road Bridge*
- Unexpected auxiliary lane with designated right-turn lane – *southbound approach; right-turn vehicles stopped to yield westbound through traffic*
- Unexpected vehicle slow down to enter commercial driveway – *southbound direction; to gas station*
- Broken vehicle parts were found at the southbound right-turn channelized island

Other:

- Missing road sign – *northwest corner; no Added Lane Sign for eastbound drivers and no object marker sign for westbound drivers*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 20 to 30% of Total Collisions):

- Consider conducting a detailed traffic operations and safety review study, including the functional design of the recommended geometric layout – *overall*
- Regularly trim foliage – *northwest and south side corners*
- Provide additional signage and pavement markings for designated right-turn only lane further upstream – *southbound approach*
- Provide Added Lane Sign – *southbound approach*
- Paint guiding line – *southbound approach*
- Check intergreen time to verify the possible contributing cause for high number of left-turn opposing collisions – *overall*
- Change left-turn signal phasing from protected/permission to protected-only – *eastbound and westbound approach*
- Enlarge signal lenses to 300-300-300 millimetres for primary traffic signal heads – all approaches

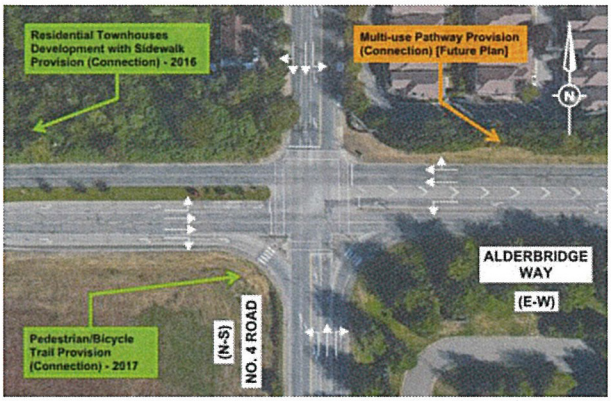
Medium/Long-Term:

- Install advance warning flashers (if warranted) – *southbound approach*
- Provide adequate sight distance with future redevelopment – *south side corners*
- Enhance police enforcements for vehicle speeding violations in coordination with RCMP – *all approaches, particularly southbound*
- Review traffic lane widths and curb return radii as a measure to reduce collisions involving speeding and right-turn lanes

NO. 4 ROAD & ALDERBRIDGE WAY

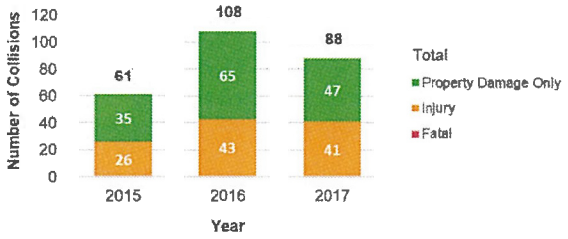
INTERSECTION INFORMATION

Site #:	4
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT for E-W
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial (MRN)
Surrounding Land Use:	Residential / Recreational / Civic
Daily Traffic Volume (2015):	59,200 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	85.7 per year	(Total = 257)
Collision Severity Index:	4.85	(Casualty = 43%)
Collision Rate OBS. / CRT.:	3.54 / 3.27	[2013-2017]
Collision with Pedestrian:	0	
Collision with Cyclist:	0	



Highest % Month:	October (12%)
Highest % Day of Week:	Wednesday (20%)
Highest % Time Period:	3 PM - 6 PM (23%)
Top 3 Collision Types:	Rear End (79%) Left Turn (11%) Sideswipe (5%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Rural perception at wide intersection with channelized right-turn islands – *overall*
- Misalignment of left-turn bays with wide medians – *east-west approaches; westbound vehicles were spotted crossing the painted median*
- Lane drop from through to designated right-turn lane – *northbound approach*
- Residential driveways close to intersection – *southbound approach*
- Designated right-turn lane with yield control to through traffic – *eastbound and northbound approaches*

Signal:

- Lack of left-turn phase with left-turn bay provided – *north-south approaches*

Vulnerable Road User:

- Long pedestrian crossing distance – *north-south directions*
- Incomplete pedestrian connection – *northwest corner*
- Old pedestrian pushbuttons – *southwest corner*

Collision (Data Review):

- High collision frequency (over 50.0), and a collision-prone location (observed over critical collision rate)
- High number of rear-end collisions reported on northbound direction – *88 collisions (49% of total 180 collisions), majority were* right-turn rear-end collisions – *76 collisions*
- High proportion of left-turn rear-end collisions reported on westbound– *10 out of total 17 collisions*
- High proportion of sideswipe collisions occurred on east-west approaches – *10 out of total 13 collisions*
- High proportion of left-turn opposing collisions reported in the east-west directions – *over 80% of total; westbound with 11 collisions and eastbound with 10 collisions*
- Four right-angle collisions reported – *3 collisions occurred due to red-light running in the north-south directions*

Operational (Field Review):

- Congestion / long queues during peak periods – *all approaches*
- Significant lane changing/weaving activities – *northbound approach*
- High vehicle speed – *east-west legs; especially to/from highway*

NO. 4 ROAD & ALDERBRIDGE WAY

Operational (Field Review) – *CONTINUED*:

- Unexpected yield control with designated right-turn lane and high vehicle speed – *northbound and eastbound approach*
- Faded pavement marking – *southeast corner; dashed merge lines*
- Poor pavement condition – *overall intersection*

Other:

- Missing road sign – *northbound and eastbound approaches (no pedestrian crosswalk signs at channelized islands)*
- Broken vehicle parts were found at the eastbound channelized island
- Insufficient street lighting – *south side corner*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 20 to 30% of Total Collisions):

- Provide pedestrian crosswalk signs – *south side corners; at channelized islands*
- Upgrade pedestrian pushbuttons to the latest standard – *southwest corner*
- Regularly repaint dashed merge line – *southeast corner*
- Review signal progression – *east-west approaches*
- Conduct warrant analysis for adding left-turn phase – *north-south approaches*
- Enlarge signal lenses to 300-300-300 millimetres for primary traffic signal heads – *all approaches*
- Install enlarged Yield Sign or two Yield signs at channelized right-turn lane – *eastbound and northbound approaches*

Medium/Long-Term:

- Add left-turn phase (if warranted) – *north-south approaches*
- Remove or reconstruct right-turn channelized island – *south side corners*
- Consider to install red-light camera (under ICBC jurisdiction) – *east-west approaches*
- Complete pedestrian connection with future redevelopment – *northwest corner*
- Review and improve street lighting (if required) – *south side corners*
- Enhance police enforcements for vehicle speeding and red-light running violations in coordination with RCMP and ICBC – *east-west approaches*
- Review traffic lane widths and curb return radii as a measure to reduce collisions involving speeding and right-turn lanes

NO. 5 ROAD & WESTMINSTER HIGHWAY

INTERSECTION INFORMATION

Site #:	5
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT in all directions
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial (MRN) (Bike Route)
Surrounding Land Use:	Retail / Residential
Daily Traffic Volume (2015):	48,800 Entering Vehicles

COLLISION STATISTICS (2015-2017)

Collision Frequency:	85.3 per year	(Total = 256)
Collision Severity Index:	4.90	(Casualty = 34%)
Collision Rate OBS. / CRT.:	4.28 / 3.30	[2013-2017]
Collision with Pedestrian:	0	
Collision with Cyclist:	1	

Highest % Month:	December (11%)
Highest % Day of Week:	Wednesday/Thursday (18%)
Highest % Time Period:	3 PM - 6 PM (34%)
Top 3 Collision Types:	Rear End (65%) Sideswipe (15%) Left Turn (8%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Rural perception at wide intersection with channelized right-turn islands – *overall*
- Undivided roadway – *south leg; conflicts with traffic turning to/from commercial driveways were observed*
- Short merging distance after intersection – *south leg*
- Right-turn lane immediately after intersection – *west leg; to Nature Park*

Signal:

- None

Vulnerable Road User:

- Inadequate/inconsistent bicycle facility – *east-west directions (no pavement markings east leg)*
- Long pedestrian crossing distance – *north-south directions*

Collision (Data Review):

- High collision frequency (over 50.0), and a collision-prone location (observed over critical collision rate)
- Annual number of collisions slightly increased from 2015 to 2017
- High number of rear-end collisions reported on southbound (37%), followed by westbound (27%)
- High number of right-turn rear-end collisions on southbound – *41 collisions (26% of total collisions)*
- High number of sideswipe collisions occurred on Westminster Highway approaches – *20 out of 37 total collisions*
- High proportion of left-turn opposing collisions reported in the east-west direction – 62% of total; *eastbound with 6 collisions and westbound with 6 collisions*
- Four collisions occurred by U-turn movements – *2 on westbound and 2 on northbound*
- One cyclist-involved collision reported as a bicycle hit by eastbound vehicle turning right onto gas station

Operational (Field Review):

- Congestion / long queues during peak periods – *east-west directions; to/from highways*
- Significant lane changing/weaving activities – *all directions; conflicts between southbound left-turn and northbound right turn vehicles*
- High vehicle speed – *all directions; especially southbound and westbound from highways; presence of red-light camera for northbound approach*

NO. 5 ROAD & WESTMINSTER HIGHWAY

Operational (Field Review) – *CONTINUED*:

- Commercial driveways close to intersection – *southeast quadrant (gas station)*
- Heavy vehicle was observed to roll over to the southwest corner curb

Other:

- Faded pavement marking – *east leg (lane merge arrows)*
- Missing road sign – *north side corners; pedestrian crosswalk signs at channelized islands*
- Inadequate/inconsistent road sign – *all approaches (designated right-turn lane signs)*
- Insufficient street lighting – *southeast corners*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 15 to 25% of Total Collisions):

- Provide pedestrian crosswalk signs – *north side corners*
- Regularly repaint lane merge arrow pavement markings – *east leg*
- Paint green bike path markings – *northeast corner; similar to the northwest corner*
- Provide additional designated right-turn signs – *southbound and east-west approaches*
- Enlarge signal lenses to 300-300-300 millimetres for primary traffic signal heads – *all approaches*
- Install enlarged Yield Sign or two Yield signs at channelized right-turn lane – *southbound and westbound approaches*

Medium/Long-Term:

- Remove or reconstruct right-turn channelized island – *north side corners*
- Review and redesign designated and channelized right-turn – *westbound approach (to northbound); adding auxiliary lane instead of yield control*
- Review the posted speed limit of Westminster Highway – *reduce from 60 to 50 kilometres per hour (if warranted)*
- Improve bike connection – *east-west direction; provision of off-road multi-use pathway with green paint and elephant's feet crossing instead of single file operation*
- Review and improve street lighting (if required) – *southeast corner*
- Enhance police enforcements for vehicle speeding, red-light running, and U-turn violations in coordination with RCMP and ICBC – *all approaches*
- Review traffic lane widths and curb return radii as a measure to reduce collisions involving speeding and right-turn lanes

NO. 5 ROAD & CAMBIE ROAD

INTERSECTION INFORMATION

Site #:	6
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT in all directions
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial (MRN)
Surrounding Land Use:	Retail / School / Residential
Daily Traffic Volume (2015):	37,000 Entering Vehicles

COLLISION STATISTICS (2015-2017)

Collision Frequency:	76.0 per year	(Total = 228)
Collision Severity Index:	4.87	(Casualty = 43%)
Collision Rate OBS. / CRT.:	4.91 / 3.35	[2013-2017]
Collision with Pedestrian:	5	
Collision with Cyclist:	1	

Highest % Month:	September/December (12%)
Highest % Day of Week:	Friday (21%)
Highest % Time Period:	3 PM - 6 PM (36%)
Top 3 Collision Types:	Rear End (44%) Left Turn (26%) Sideswipe (22%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Lack of left-turn bay – *all approaches; limited visibility of through traffic for left-turn drivers*
- Commercial and residential driveways close to intersection – *northwest, southeast, and southwest quadrants*
- Missing/broken flexile delineator – *west leg; at the commercial driveway location (most likely accessing/egressing)*

Signal:

- Provision of left-turn phase without left-turn bay – *all approaches*
- No countdown for pedestrian signal phases – *all directions*

Vulnerable Road User:

- Inadequate pedestrian facility – *overall (narrow letdowns) and northeast corner (small waiting area)*
- Substantial pedestrian crossing activities – *all legs (to/from school, shopping centre, and nearby southeast park, etc.)*

Collision (Data Review):

- High collision frequency (over 50.0), and a collision-prone location (observed over critical collision rate)
- High number of rear-end collisions reported on Cambie Road approaches – *over 60% of total 90 collisions*
- High number of left-turn opposing collisions reported for westbound (18) and eastbound (15)
- High number of sideswipe collisions occurred on all approaches
- One fatal collision reported including a driver who had fallen asleep and hit a cyclist (exact location is not available) around 3 AM on September 2013

Operational (Field Review):

- Congestion / long queues during peak periods – *eastbound and westbound directions*
- Significant lane changing/weaving activities – *all approaches; due to lack of left-turn bays*
- Left-turn vehicles from commercial driveway created conflicts with Cambie Road traffic – *east-west direction*
- Future development in close vicinity – *northwest and southeast quadrants (townhouses and commercial building; generate more traffic in the near future)*
- Drivers did not identify when left-turn phase will be provided, generating weaving activities, particularly with vehicles turning from commercial driveways
- High vehicle speed – *east-west directions; presence of red-light camera for eastbound approach*

NO. 5 ROAD & CAMBIE ROAD

Operational (Field Review) – *CONTINUED*:

- Jaywalkers were observed crossing No. 5 Road between commercial stores

Other:

- None

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 20 to 30% of Total Collisions):

- Replace and install flexible delineators to restrict left-turn movements – *west leg*
- Review and adjust signal timing to provide priority and/or dedicated pedestrian phase during high pedestrian crossing activities – *after school and weekends*
- Enlarge signal lenses to 300-300-300 millimetres for primary traffic signal heads – *east-west approaches*

Medium/Long-Term:

- Add left-turn bay with future redevelopment – *all approaches, particularly east-west directions*
- Review driveway locations with future redevelopment – *northwest, southeast, ad southwest quadrants*
- Conduct detailed in-service operation and safety study, including collisions at shopping centre driveways – *overall*
- Review and widen letdown and increase waiting area (if required) – *overall*

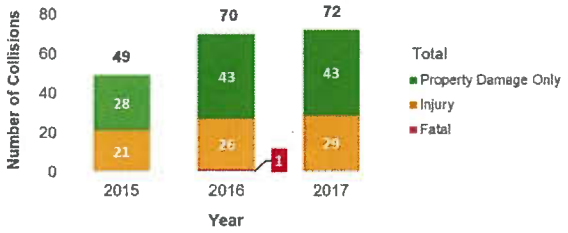
NO. 4 ROAD & WESTMINSTER HIGHWAY

INTERSECTION INFORMATION

Site #:	7
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT in all directions
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial (MRN) (Bike Route)
Surrounding Land Use:	Resi. / Rec. / Inst.
Daily Traffic Volume (2015):	63,800 Entering Vehicles

COLLISION STATISTICS (2015-2017)

Collision Frequency:	63.7 per year	(Total = 191)
Collision Severity Index:	5.10	(Casualty = 40%)
Collision Rate OBS. / CRT.:	2.57 / 3.26	[2013-2017]
Collision with Pedestrian:	0	
Collision with Cyclist:	1	



Highest % Month:	November (15%)
Highest % Day of Week:	Thursday (18%)
Highest % Time Period:	3 PM - 6 PM (35%)
Top 3 Collision Types:	Rear End (63%) Sideswipe (15%) Left Turn (15%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Misalignment of left-turn bays with wide medians – *east-west approaches*
- Lane drop after intersection due to on-street parking during off-peak periods – *south leg*
- Institutional driveways close to intersection – *southeast quadrant (vet hospital)*

Signal:

- Old pedestrian pushbuttons – *southwest corner*

Vulnerable Road User:

- Narrow sidewalk with the presence of utility poles – *northeast, southeast, and southwest quadrants*
- Inadequate pedestrian facility/connection – *east-west legs; no raised sidewalk and road curb*
- Inadequate bicycle facility on bike route – *east-west approach; signed and pavement markings*
- Long pedestrian crossing distance – *north-south directions*
- On-street near-side bus stop – *eastbound approach*

Collision (Data Review):

- High collision frequency (over 50.0), and high collision severity index (over 5.00)
- Annual number of collisions increased from 2015 to 2017
- High number of rear-end collisions reported on Westminster Highway approaches – *65% of total 114 collisions*
- High number of left-turn opposing collisions reported for eastbound (13) and northbound (5)
- High number of sideswipe collisions reported on eastbound and southbound directions – *8 collisions each*
- 3 collisions occurred between northbound vehicles and vehicles exiting the vet hospital parking lot turning left onto No. 4 Road
- One cyclist-involved collision occurred between southbound right-turn vehicle and bicycle crossing Westminster Highway on west leg
- One fatal collision reported due to a eastbound left-turn opposing collision and hitting a third vehicle stopped on No. 4 Road southbound during Sunday noon in October 2016
- One fatal collision reported with no clear descriptions during Saturday PM peak period on November 2013

NO. 4 ROAD & WESTMINSTER HIGHWAY

Operational (Field Review):

- Congestion / long queues during peak periods – *east-west directions*
- High vehicle speed – *east-west directions and northbound*

Operational (Field Review) – *CONTINUED*:

- Future development nearby and in close vicinity – *southwest (residential) and southeast quadrants; generate more traffic in the near future*
- Insufficient road sign – *east-west legs; bike signage and pavement markings, especially to alert right-turn vehicles*
- Damaged signal pole with heavy tire marks and broken vehicle parts were noticed at the northwest corner; suspect westbound off-road collision to the right side

Other:

- Insufficient street lighting – *northwest and southeast corners*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 15 to 25% of Total Collisions):

- Upgrade pedestrian pushbuttons to the latest standard – *southwest corners*
- Provide bike route related signage and pavement markings before/after intersection – *east-west legs*
- Improve east-west crossings for cyclists – *elephant's feet and green paint*
- Enlarge signal lenses to 300-300-300 millimetres for primary traffic signal heads – *all approaches*

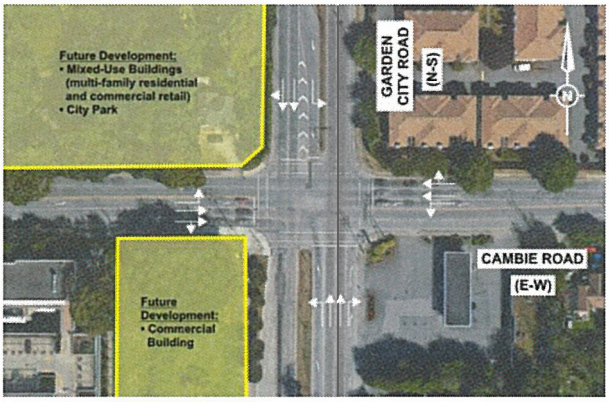
Medium/Long-Term:

- Extend left-turn bay with future redevelopment – *east-west approaches*
- Review driveway locations with future redevelopment – *northeast, southeast, and southwest quadrants*
- Improve pedestrian facility/connection with future redevelopment – *northeast, southeast, and southwest quadrants*
- Review and widen letdown and increase waiting area (if required) – *overall*
- Review and improve street lighting (if required) – *northwest and southeast corners*
- Enhance police enforcements for vehicle speeding violations in coordination with RCMP – *east-west approaches*
- Review traffic lane widths and curb return radii as a measure to reduce collisions involving speeding
- Consider to install red-light camera (under ICBC jurisdiction) – *westbound approach*

GARDEN CITY ROAD & CAMBIE ROAD

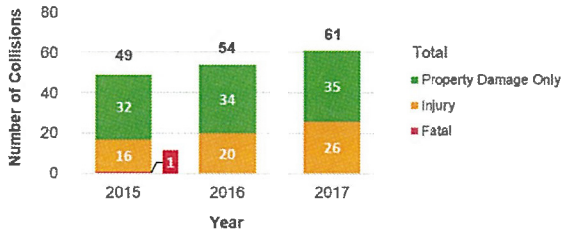
INTERSECTION INFORMATION

Site #:	8
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT for NB & E-W
N-S Street Classification:	Arterial (Bike Route)
E-W Street Classification:	Arterial (MRN)
Surrounding Land Use:	Residential / Commercial
Daily Traffic Volume (2015):	46,600 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	54.7 per year	(Total = 164)
Collision Severity Index:	5.01	(Casualty = 38%)
Collision Rate OBS. / CRT.:	3.08 / 3.31	[2013-2017]
Collision with Pedestrian:	5	
Collision with Cyclist:	0	



Highest % Month:	November (14%)
Highest % Day of Week:	Saturday (21%)
Highest % Time Period:	3 PM - 6 PM (32%)
Top 3 Collision Types:	Rear End (57%) Sideswipe (16%) Left Turn (11%)

IDENTIFIED OPERATION AND SAFETY ISSUES

Geometric:

- Misalignment of left-turn bays with wide medians – *north-south approaches*
- Designated right-turn bay adjacent to commercial driveways – *northbound approach; increase lane weaving activities*
- Commercial driveways close to intersection – *southeast quadrants (gas station)*
- Inadequate sight distance due to nearby foliage – *northwest corner*

Signal:

- Lack of left-turn phase with left-turn bay provided – *southbound approach*

Vulnerable Road User:

- Narrow sidewalk with the presence of utility poles – *west side*
- No raised sidewalk – *south leg (east side)*
- Bike lane transition from designated to single file with vehicles – *northbound approach*
- Long pedestrian crossing distance – *east-west directions*
- On-street near-side bus stop – *westbound approach*

Collision (Data Review):

- High collision frequency (over 50.0), and high collision severity index (over 5.00)
- Annual number of collisions increased from 2015 to 2017
- High number of rear-end collisions reported on Garden City approaches – *over 60% of total 91 collisions*
- High number of sideswipe collisions occurred on Cambie Road approaches – *17 collisions (74% of total)*
- One fatal collision reported of a vehicle turning left from Cambie Road onto Garden City Road (direction is not available) and hitting a pedestrian crossing Garden City Road during weekday PM peak period on January 2015

Operational (Field Review):

- Congestion / long queues during peak periods – *all directions*
- Significant left/right-turn volumes/queues during peak periods – *all approaches*
- Significant lane changing/weaving activities – *east-west legs*
- *High vehicle speed – southbound approach (mainly to/from highway); presence of red-light camera for northbound approach*

GARDEN CITY ROAD & CAMBIE ROAD

Operational (Field Review) – *CONTINUED*:

- Vehicle queue spillback from downstream – *east leg; unexpected vehicle slow down to enter gas station*
- Long left-turn queue block through traffic lane – *northbound*
- Future development nearby – *northwest (mixed-use) and southwest (commercial) quadrants; generate more traffic in the near future*
- Notices to look for collision incident witnesses on June 2017 were found on utility poles at the intersection

Other:

- Insufficient street lighting – *northeast and southwest corners*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 15 to 25% of Total Collisions):

- Conduct warrant analysis for adding left-turn phase – *southbound approach*
- Consider the provision of protected-only left-turn phase – *north-south directions*
- Regularly trim foliage – *northwest corner*
- Enlarge signal lenses to 300-300-300 millimetres for primary traffic signal heads – *all approaches*

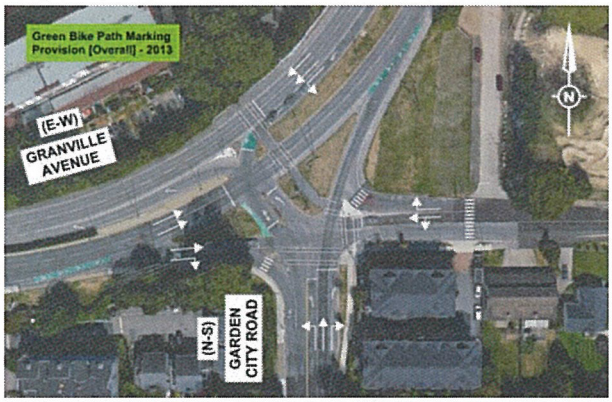
Medium/Long-Term:

- Add left-turn phase (if warranted) – *southbound approach*
- Review driveway locations with future redevelopment – *northwest and south side quadrants*
- Review and widen sidewalk with future redevelopment (if required) – *west side and south leg (east side)*
- Provide designated bike lane with future redevelopment – *northbound approach*
- Provide designated right-turn bay with future redevelopment – *southbound approach*
- Review and improve street lighting (if required) – *northeast and southwest corners*

GARDEN CITY ROAD & GRANVILLE AVENUE

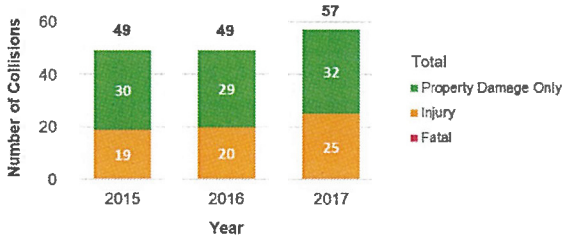
INTERSECTION INFORMATION

Site #:	9
Intersection Type:	3/4-Legged (Non-typical and busy)
Traffic Control Type:	Signalized
N-S Street Classification:	Arterial (Bike Route - NL)
E-W Street Classification:	Arterial (Bike Route - WL)
Surrounding Land Use:	Residential / Park
Daily Traffic Volume (2015):	25,400 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	51.7 per year	(Total = 155)
Collision Severity Index:	4.72	(Casualty = 41%)
Collision Rate OBS. / CRT.:	5.27 / 3.42	[2013-2017]
Collision with Pedestrian:	3	
Collision with Cyclist:	5	



Highest % Month:	April/October/November (10%)
Highest % Day of Week:	Saturday (18%)
Highest % Time Period:	3 PM - 6 PM (23%)
Top 3 Collision Types:	Rear End (77%) Sideswipe (11%) Cyclist Involved (3%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Confusing intersection layout with major traffic flow on westbound left-turn and southbound right-turn
- Left-turn merging to through traffic – *northbound from Garden City Road to Granville Avenue*
- Horizontal curve immediately before/after intersection – *north and west legs (poor visibility to intersection)*
- Skewed intersection layout – *central section and merging/auxiliary area (undesirable skew angles)*
- Channelized right-turn auxiliary lane – *east and south legs (increase lane changing/merging activities)*
- Sharp right-turn corner – *westbound approach; to Garden City Road (northbound)*
- Residential driveways close to intersection – *east leg*

Signal:

- Complex signal operation due to traffic layout and major vehicle movements
- Limited signal visibility – *southbound on Garden City Road*
- No countdown for pedestrian signal phases – *all directions*

Vulnerable Road User:

- Segmented and long pedestrian waiting time to cross intersection – *overall*
- Not ideal experience for cyclist – *overall; especially crossing by channelized island*
- On-street bus stop close to intersection – *east leg (eastbound)*

Collision (Data Review):

- High collision frequency (over 50.0), and a collision-prone location (observed over critical collision rate)
- Annual number of collisions increased from 2016 to 2017
- High number of rear-end collisions reported on northbound far-side merging to Garden City – *50 out of total 115 collisions*
- 12 right-turn rear-end collisions occurred on westbound channelized right-turn
- High number of sideswipe collisions occurred with northbound major movements – *10 collisions (59% of total)*
- Three pedestrian-involved collisions occurred – *one collision between westbound vehicle and a pedestrian crossing Granville Avenue on east leg, one collision between southbound vehicle and a pedestrian crossing Garden City Road on north leg, and one collision without any details*

GARDEN CITY ROAD & GRANVILLE AVENUE

Collision (Data Review) – *CONTINUED*:

- Five cyclist-involved collision occurred – *three collisions between eastbound right-turn vehicles and eastbound through bicycles, one collision between westbound right-turn vehicle and northbound bicycle, and one collision between northbound right-turn vehicle and southbound left-turn bicycle*

Operational (Field Review):

- Congestion / long queues during peak periods – *southbound and eastbound approaches*
- Vehicle queue spillback from downstream – *northbound and eastbound approaches*

Other:

- Inadequate pavement marking – *southeast (no dashed merge line) and southwest corner (no green bike lane marking)*
- Inappropriate pavement marking – *east leg; marked and signed crosswalk end at residential driveway*
- Missing road sign – *east-west approaches (no designated right-turn only signs) and southwest corner (no pedestrian crosswalk signs)*
- Inappropriate road sign – *eastbound approach (yield sign instead of Added Lane Sign); some right-turn drivers were confuse to stop or not*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 15 to 25% of Total Collisions):

- Consider conducting a feasibility study for intersection configuration options
- Replace Yield sign with Added Lane sign – *eastbound approach*
- Paint guiding line – *southbound approach; specifically for bicycles*
- Enlarge signal lenses to 300-300-300 millimetres for primary traffic signal heads – *all approaches*

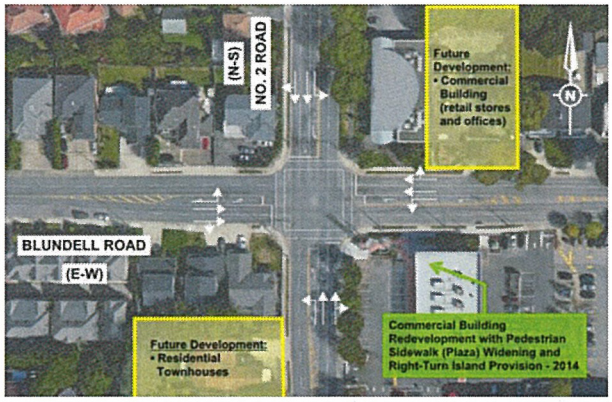
Medium/Long-Term:

- Remove or modify angle of channelized right-turn – *eastbound and westbound approaches; traffic operation and geometric design to confirm*

NO. 2 ROAD & BLUNDELL ROAD

INTERSECTION INFORMATION

Site #:	10
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT in all directions
N-S Street Classification:	Arterial (MRN)
E-W Street Classification:	Arterial
Surrounding Land Use:	Commercial / Residential
Daily Traffic Volume (2015):	33,400 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	35.0 per year	(Total = 105)
Collision Severity Index:	4.51	(Casualty = 39%)
Collision Rate OBS. / CRT.:	3.64 / 3.36	[2013-2017]
Collision with Pedestrian:	1	
Collision with Cyclist:	0	

Highest % Month:	May / September (143%)
Highest % Day of Week:	Wednesday (20%)
Highest % Time Period:	9 AM - 12 PM (26%)
Top 3 Collision Types:	Rear End (49%) Sideswipe (26%) Left Turn (7%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Lane drop after intersection due to on-street parking during off-peak period – *west leg*
- Residential driveways close to intersection – *south (west side) and west (vehicles turning left to exit from driveways) legs*

Signal:

- No countdown for pedestrian signal phases – *all directions*

Vulnerable Road User:

- Substantial pedestrian crossing activities – *all directions*; *to/from retail stores and nearby schools*

Collision (Data Review):

- A collision-prone location (observed over critical collision rate)
- Annual number of collisions dropped from 2015
- High proportion of total number of collisions occurred during late morning peak period (9 AM to 12 PM) due to high shopping activities
- High number of rear-end collisions reported on No. 2 Road approaches – *33 out of total 48 collisions*
- High proportion of sideswipe collisions occurred at the north-south legs – *15 out of total 25 collisions*
- High proportion of left-turn opposing collisions occurred with northbound left-turn movements – *4 out of total 7 collisions*
- The pedestrian-involved collision reported between a southbound left-turn vehicle and a pedestrian crossing east leg
- 24 extra collisions reported at the signalized intersection of No. 2 Road and Blundell Centre driveway (south of the study intersection)

Operational (Field Review):

- Heavy traffic volumes – *all directions; peak (commuting trips) and off-peak (shopping trips) periods*
- Significant lane changing/weaving activities – *south and east legs; crossing two/three lanes to/from commercial driveways*

NO. 2 ROAD & BLUNDELL ROAD

Operational (Field Review) – *CONTINUED*:

- High vehicle speed – *southbound and eastbound approaches; long distance of nearby traffic controls for through movements*
- Future development nearby – *northeast (commercial) and southwest (residential) quadrants; generate more traffic in the near future*

Other:

- Broken flexible delineators – *south leg; which were installed on the centreline to restrict left-turn movements from commercial and residential driveways*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 5 to 15% of Total Collisions):

- Review and relocate/remove on-street parking close to the intersection – *west leg*
- Replace broken flexible delineators – *south leg*
- Provide signal progression for traffic signals at Blundell Road and Blundell Centre driveway – *north-south approaches*

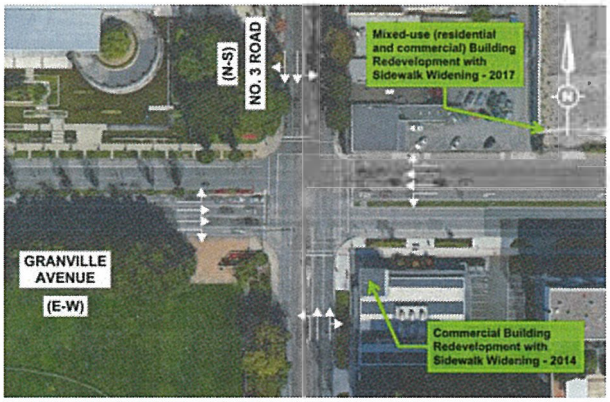
Medium/Long-Term:

- Increase left-turn bay storage length with future development – *northbound approach*
- Enhance police enforcements on vehicle speeding violations in coordination with RCMP – *southbound direction*
- Consider left-turn movement restriction at driveways for future development – *east leg*
- Consider adding left-turn bay to commercial development with future redevelopment – southbound
- Review on-site vehicle circulation and access with strip mall owner to reduce left-in and left-out movements into and out of the mall, especially the access on the south leg – *overall*
- Conduct detailed in-service operation and safety study, including collisions at shopping centre driveways – *overall*
- Review traffic lane widths and curb return radii as a measure to reduce collisions involving speeding

NO. 3 ROAD & GRANVILLE AVENUE

INTERSECTION INFORMATION

Site #:	11
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT in all directions
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial (Bike Route)
Surrounding Land Use:	Retail / Park / Civic / Residential
Daily Traffic Volume (2015):	49,600 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	47.3 per year	(Total = 142)
Collision Severity Index:	5.88	(Casualty = 47%)
Collision Rate OBS. / CRT.:	2.44 / 3.30	[2013-2017]
Collision with Pedestrian:	12	(1 Fatal)
Collision with Cyclist:	5	

Highest % Month:	November (13%)
Highest % Day of Week:	Wednesday (16%)
Highest % Time Period:	3 PM - 6 PM (30%)
Top 3 Collision Types:	Rear End (59%) Sideswipe (15%) Pedestrian Involved (9%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Designated right-turn bays at a busy intersection – *east-west approaches*
- Sharp right-turn corner – *northeast corner*
- Long left-turn distance – *north-south approaches; damaged central island on the east leg (most likely chipped by southbound left-turn vehicles)*
- Inadequate sight distance due to insufficient property setback – *northeast corner*
- Special crosswalks immediately before/after intersection – *north leg*

Signal:

- No countdown for pedestrian signal phases – *all directions*

Vulnerable Road User:

- Substantial pedestrian/bicycle crossing activities – *all legs (to/from City Hall, park, retail stores, bus stops, shopping centre, etc.)*
- Long pedestrian crossing distance – *north-south directions*
- Bike lane share with right-turn lane – *east-west approaches*
- On-street near-side bus stop – *southbound approach*

Collision (Data Review):

- High collision severity index (over 5.00); high pedestrian-related incidents
- Annual number of collisions were similar in three years
- High number of left-turn rear-end collisions occurred on Granville Avenue approaches – *12 out of total 15 collisions*
- All right-turn rear-end collisions occurred on No. 3 Road approaches – *6 collisions*
- High proportion of sideswipe collisions occurred with northbound movement – *47% of total (9 collisions)*
- 7 out of 12 total pedestrian-involved collisions occurred between eastbound left-turn vehicles and pedestrians crossing north leg (3) and between northbound left-turn vehicles and pedestrians crossing west leg (4)
- One fatal collision reported of a westbound vehicle turning left from No. 3 Road northbound onto Granville Avenue hitting a pedestrian crossing Granville Avenue during noon time on November 2015

NO. 3 ROAD & GRANVILLE AVENUE

Operational (Field Review):

- Congestion / long queues during peak periods – *north-south directions*
- Significant left-/right-turn volumes/queues during peak periods – *all approaches; right-turn vehicles merge in advance along on-street bike lane to avoid any queue*
- Lots of pedestrian crossing activities during the red pedestrian signal phase – *all approaches*

Other:

- Insufficient street lighting – *northeast corner*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 20 to 30% of Total Collisions):

- Review and adjust signal timing to provide priority and/or dedicated pedestrian phase – *all directions*
- Delay turning traffic for pedestrian/bicycle crossing – *overall*
- Paint guiding line – *north-south approaches*
- Paint coloured pavement marking for crosswalk to alert drivers for substantial pedestrian/bicycle crossing activities (i.e. the City typically uses Redwood, Pantone #18-1443) – *all legs*
- Enlarge signal lenses to 300-300-300 millimetres for primary traffic signal heads – *all approaches*

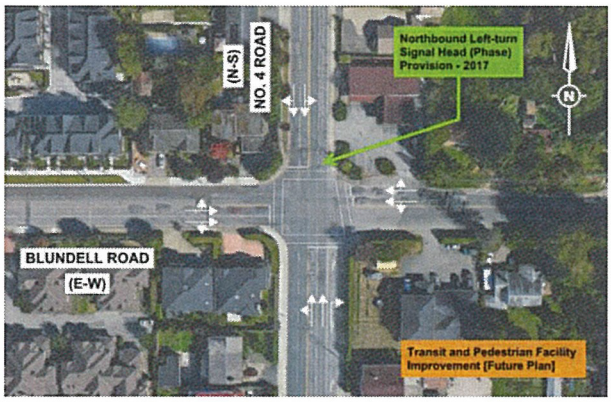
Medium/Long-Term:

- Review and widen corner and provide adequate sight distance with future redevelopment (if required) – *northeast corner*
- Provide designated bike lane by separating with right-turn lane with future redevelopments – *east-west approaches*
- Enhance police enforcements for pedestrian crossing violations in coordination with RCMP – *all approaches*

NO. 4 ROAD & BLUNDELL ROAD

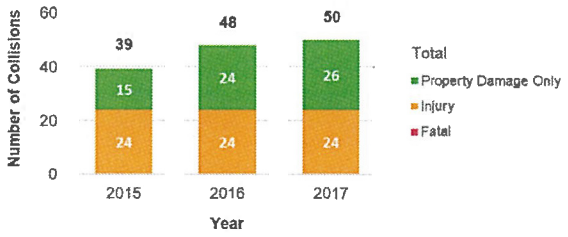
INTERSECTION INFORMATION

Site #:	12
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT for N-S & EB
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial
Surrounding Land Use:	Residential / Institutional
Daily Traffic Volume (2015):	34,500 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	45.7 per year	(Total = 137)
Collision Severity Index:	5.73	(Casualty = 53%)
Collision Rate OBS. / CRT.:	3.39 / 3.36	[2013-2017]
Collision with Pedestrian:	1	
Collision with Cyclist:	1	



Highest % Month:	January (15%)
Highest % Day of Week:	Friday (20%)
Highest % Time Period:	3 PM - 6 PM (36%)
Top 3 Collision Types:	Rear End (42%) Left Turn (28%) Sideswipe (13%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Lack of left-turn bay – *all approaches; limited visibility of through traffic for left-turn drivers*
- Wide receiving lane – *east leg; conflicts between northbound right-turn and southbound left-turn vehicles*
- Lane drop with short merge lane after intersection – *east leg*
- Residential and institutional driveways close to intersection – *north, east, and west legs*
- Inadequate sight distance due to nearby foliage and insufficient property setback – *northwest and south side corners*

Signal:

- Provision of left-turn phase without left-turn bay – *north-south and eastbound approaches*
- Lack of left-turn phase – *westbound approach*

Vulnerable Road User:

- No raised sidewalk and road curb – *east leg*
- Narrow sidewalk – *east side*
- Small pedestrian waiting area – *all corners*
- Narrow letdown – *north side corners*

Collision (Data Review):

- Annual number of collisions increased from 2015 to 2017
- High collision severity index (over 5.00), and a collision-prone location (observed over critical collision rate)
- High number of rear-end collisions reported on the westbound approach (33%), followed by northbound (29%)
- High proportions of left-turn opposing collisions occurred in north-south directions – over 60% of total; *12 collisions involved northbound left-turns and 11 collisions involved southbound left-turns*
- High proportions of sideswipe collisions occurred in the southbound direction (35%), followed by eastbound (29%)
- 11 right-angle collisions occurred in total – *3 collisions were reported when there was a power outage and intersection was operating as four-way stop-controlled; north-south directions had the highest number of collisions due to running the red light*
- A pedestrian-involved collision reported between a southbound through vehicle and a pedestrian crossing No. 4 Road (north/south leg)
- A cyclist-involved collision reported between a westbound left-turn vehicle and a bicycle crossing south leg

NO. 4 ROAD & BLUNDELL ROAD

Operational (Field Review):

- Heavy traffic volume – *east-west directions*
- Significant lane changing/weaving activities – *all directions; due to lack of left-turn bays and existence of lane drop*
- On-street parking close to intersection during off-peak periods – *west leg*
- Future development in close vicinity – *northeast and northwest quadrants (residential); generate more traffic in the near future*

Other:

- None

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 10 to 20% of Total Collisions):

- Re-paint approach lanes as left-turn only lane and shared through-right lane – *eastbound and westbound approach; reduce receiving lane as one lane with pavement marking*
- Review and relocate/remove on-street parking – *west leg*

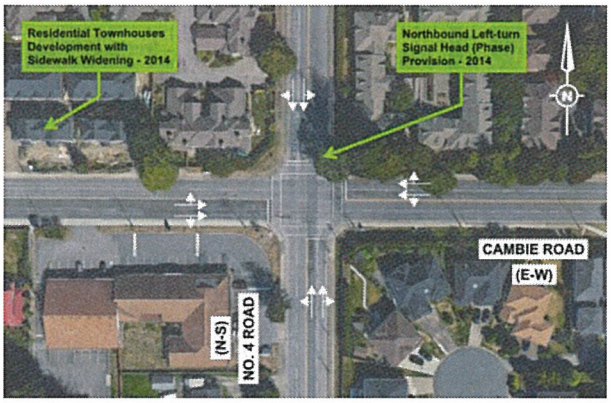
Medium/Long-Term:

- Add left-turn bay with future development – *north-south approaches then east-west approaches; traffic operation and geometric design to confirm*
- Consider to install red-light camera (under ICBC jurisdiction) – *southbound approach*
- Review driveway locations with future redevelopment – *overall*
- Design for adequate sight distance with future redevelopment – *overall*
- Review and widen pedestrian sidewalks, waiting areas, and letdowns (if required) – *overall*

NO. 4 ROAD & CAMBIE ROAD

INTERSECTION INFORMATION

Site #:	13
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT for N-S & WB
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial (MRN)
Surrounding Land Use:	Residential / Retail
Daily Traffic Volume (2015):	34,700 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	39.3 per year	(Total = 118)
Collision Severity Index:	4.97	(Casualty = 44%)
Collision Rate OBS. / CRT.:	3.08 / 3.36	[2013-2017]
Collision with Pedestrian:	4	
Collision with Cyclist:	0	

Highest % Month:	November (19%)
Highest % Day of Week:	Friday (22%)
Highest % Time Period:	3 PM - 6 PM (22%)
Top 3 Collision Types:	Rear End (42%) Left Turn (29%) Sideswipe (18%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Lack of left-turn bay – *all approaches; limited visibility of through traffic for left-turn drivers*
- Lane drop after intersection – *north leg*
- Commercial driveways close to intersection – *south leg*
- Inadequate sight distance due to nearby tree trunk – *northeast corner*

Signal:

- Limited signal head visibility – *northern approach; due to nearby foliage and signal pole setback and foliage at the northeast corner*
- Provision of left-turn phase without left-turn bay – *north-south and westbound approaches*
- Lack of left-turn phase – *eastbound approach*
- Delay pedestrian crossing timing – *east leg; for southbound left-turn movement*

Vulnerable Road User:

- Narrow sidewalk with the presence of utility poles – *east leg (south side)*
- Narrow letdown – *all corners*

Collision (Data Review):

- Annual number of collisions increased from 2015 to 2017
- High number of rear-end collisions reported on eastbound approach – *37% of total 47 collisions*
- High number of left-turn opposing collisions reported for northbound (16 collisions) and for westbound (7 collisions)
- High number of sideswipe collisions occurred with southbound movement – *21 collisions (39% of total)*
- All pedestrian-involved collisions (4 collisions) occurred between vehicles turning left/right from No. 4 Road onto Cambie Road while pedestrians crossing Cambie Road

Operational (Field Review):

- Congestion / long queues during peak periods – *east-west approaches*
- Significant lane changing/weaving activities – *all approaches; due to lack of left-turn bays*
- High vehicle speed – *east-west legs; to/from overpass*

NO. 4 ROAD & CAMBIE ROAD

Operational (Field Review) – *CONTINUED*:

- "SPEED KILLS" sign was noted in the eastbound approach indicating high vehicle speed identified
- Notices looking for witnesses on a vehicle collisions dated September 2018 were found on utility poles

Other:

- Insufficient street lighting – *northeast corner*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 15 to 25% of Total Collisions):

- Regularly trim foliage – *northeast corner*
- Add a near-side tertiary traffic signal head – *northbound approach*
- Enlarge signal lenses to 300-300-300 millimetres for primary traffic signal heads – *east-west approaches*
- Conduct warrant analysis for adding left-turn phase – *eastbound approach*
- Add left-turn bay – *east-west approaches; traffic operation and geometric design to confirm (feasibility/design)*
- Review and adjust signal timing to provide priority and/or dedicated pedestrian phase – all approaches
- Advance merge sign before the intersection OR provide two exit lane and merge further north – *northbound approach*

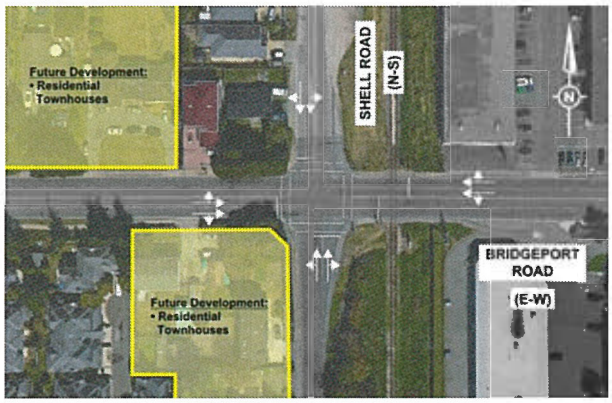
Medium/Long-Term:

- Add left-turn phase (if warranted) – *eastbound approach*
- Add left-turn bay – *east-west approaches; traffic operation and geometric design to confirm (construction)*
- Review and widen sidewalk and letdowns (if required) – *overall*
- Enhance police enforcements for vehicle speeding violations in coordination with RCMP – *east-west approaches*
- Review traffic lane widths and curb return radii as a measure to reduce collisions involving speeding
- Consider to install red-light camera (under ICBC jurisdiction) – *westbound approach*

SHELL ROAD & BRIDGEPORT ROAD

INTERSECTION INFORMATION

Site #:	14
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT for WB
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial (MRN)
Surrounding Land Use:	Residential / Industrial
Daily Traffic Volume (2015):	33,200 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	37.7 per year	(Total = 113)
Collision Severity Index:	6.18	(Casualty = 58%)
Collision Rate OBS. / CRT.:	2.83 / 3.37	[2013-2017]
Collision with Pedestrian:	5	
Collision with Cyclist:	0	

Highest % Month:	July (12%)
Highest % Day of Week:	Monday (18%)
Highest % Time Period:	9 AM - 12 PM / 3 PM - 6 PM (23%)
Top 3 Collision Types:	Rear End (49%) Left Turn (23%) Sideswipe (11%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Lack of left-turn bay – *all approaches; limited visibility of through traffic for left-turn drivers*
- Wide receiving lane – *north leg; conflicts between westbound right-turn and eastbound left-turn vehicles and two northbound through vehicles*
- Short merge lane after intersection – *north leg*
- Residential driveways close to intersection – *north and west legs*
- Inadequate sight distance due to nearby foliage and insufficient property setback – *west side corners*
- Presence of railway crossing – *east leg; two sets of westbound signal heads with one stop bar*

Signal:

- Lack of left-turn phase – *north-south and eastbound approaches*
- Provision of left-turn phase without left-turn bay – *westbound approach*

Vulnerable Road User:

- Inadequate pedestrian/bicycle facility/connection – *overall intersection; conflicts between right-turn vehicles and crossing pedestrians/bicycles*

Collision (Data Review):

- Annual number of collisions increased from 2015 to 2017
- High collision severity index (over 5.00)
- High number of rear-end collisions reported on Bridgeport Road approaches – *85%; 25 occurred on westbound*
- All left-turn opposing collisions occurred in the east-west directions – *14 for westbound and 11 for eastbound*
- High number of sideswipe collisions occurred on westbound (6 collisions), followed by eastbound (3 collisions)
- Two pedestrian-involved collisions (out of five) reported between vehicles turning right from Shell Road onto Bridgeport Road and pedestrians crossing Bridgeport Road

Operational (Field Review):

- Significant left-turn volumes/queues during peak periods – *east-west approaches; aggressive turning manoeuvers*
- Significant lane changing/weaving activities – *all directions; due to lack of left-turn bays*
- On-street parking close to intersection – *north leg; right-angle parking stalls along east side*

SHELL ROAD & BRIDGEPORT ROAD

Operational (Field Review) – *CONTINUED*:

- Future development nearby – *west side (residential); generate more traffic in the near future*
- Notices to look for collision incident witnesses on February 2019 were found on utility poles at the intersection

Other:

- Insufficient street lighting – *southwest corner*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 5 to 15% of Total Collisions):

- Review and relocate/remove right-angle parking spaces close to the intersection – *north leg*
- Regularly trim foliage to provide adequate sight distance – southwest corner

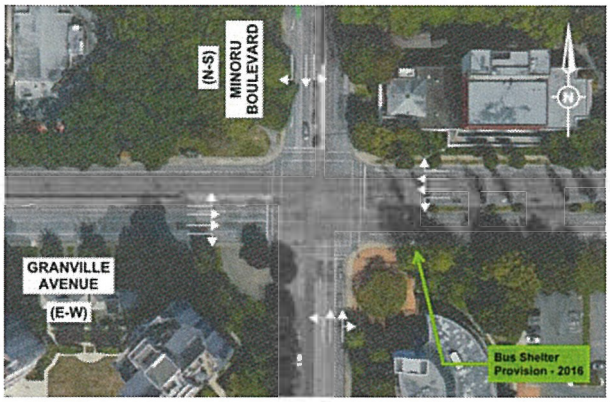
Medium/Long-Term:

- Repaint pavement marking to realign/convert approaches to one left-turn (align with opposite left-turn) with one shared through-right lane – *north-south approaches*
- Add left-turn bays with future redevelopments – *east-west approaches*
- Rearrange or relocate driveway locations away from the intersection with future redevelopment – *west side*
- Improve pedestrian/bicycle facility/connection – *overall*
- Review and improve street lighting (if required) – *southwest corner*

MINORU BOULEVARD & GRANVILLE AVENUE

INTERSECTION INFORMATION

Site #:	15
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT for SB & E-W
N-S Street Classification:	Arterial (Bike Route - NL)
E-W Street Classification:	Arterial (Bike Route)
Surrounding Land Use:	Residential / Office / Civic / Park
Daily Traffic Volume (2015):	35,400 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	34.0 per year	(Total = 102)
Collision Severity Index:	5.24	(Casualty = 47%)
Collision Rate OBS. / CRT.:	2.65 / 3.35	[2013-2017]
Collision with Pedestrian:	12	
Collision with Cyclist:	0	

Highest % Month:	September (22%)
Highest % Day of Week:	Wednesday (22%)
Highest % Time Period:	9 AM - 12 AM (25%)
Top 3 Collision Types:	Rear End (55%) Sideswipe (16%) Pedestrian Involved (12%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Horizontal curve as well as institutional driveway before intersection – *southbound approach; vehicles weaving between the library loading area and intersection turning bays*
- Designated right-turn bays at a busy intersection – *east-west approaches*
- Lane drop from through to designated right-turn lane – *southbound approach*
- Wide receiving lane – *south leg; conflict between eastbound right-turn and westbound left-turn vehicles*
- On-street parking close to intersection – *south leg*

Signal:

- Lack of left-turn phase with left-turn bay provided – *northbound approach*
- No countdown for pedestrian signal phases – *all directions*

Vulnerable Road User:

- Substantial pedestrian/bicycle crossing activities – *all legs (to/from community centres, school, City Hall, shopping centre, park, etc.)*
- Special crosswalks near intersection – *north leg*

Collision (Data Review):

- Annual number of collisions increased in 2017
- High collision severity index (over 5.00)
- High number of rear-end collisions reported on southbound direction (39%), followed by eastbound (35%)
- High proportion of left-turn rear-end collisions occurred on eastbound – *11 out of total 13 collisions*
- High proportion of sideswipe collisions occurred on Granville Avenue approaches – *11 collisions (69% of total)*
- 7 right-angle collisions occurred – *4 collisions reported due to southbound vehicles running the red light*
- 6 out of 12 total pedestrian-involved collisions (50%) occurred between northbound left-turn vehicles (no left-turn phase) and pedestrians crossing west leg

Operational (Field Review):

- Congestion / long queues during peak periods – *east-west approaches*
- Significant left/right-turn volumes/queues during peak periods – *all approaches; conflict between right-turn vehicles and crossing pedestrians/bicycles*

MINORU BOULEVARD & GRANVILLE AVENUE

Operational (Field Review) – *CONTINUED*:

- Significant lane changing/weaving activities – *southbound approach (marked on-street bicycle lane crossing designated right-turn lane) and east-west directions (conflicts between right-turn vehicles and through bicycles/buses)*
- Existing bike facility is confusing to drivers/cyclists and too much information to process – *southbound; just before the taper, road user sees "Bike Lane Ends", overhead lane designation signs, green paint, bike symbol, Yield to Bike Cycle sign, and lane drop.*

Other:

- Insufficient street lighting – *northwest and south side corners*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 15 to 25% of Total Collisions):

- Review and adjust signal timing to provide priority and/or dedicated pedestrian phase – *all directions*
- Review and increase pedestrian crossing timing (if warranted) – *north-south directions*
- Conduct warrant analysis for adding left-turn phase – *northbound approach*
- Review and extend signal timings – *eastbound approach (specifically left-turn)*
- Paint green to crosswalk to alert drivers for high crossing activities – *all approaches*
- Enlarge signal lenses to 300-300-300 millimetres for primary traffic signal heads – *all approaches*

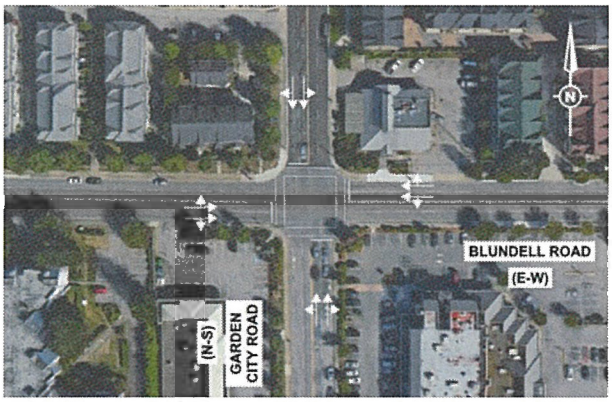
Medium/Long-Term:

- Add left-turn phase (if warranted) – *northbound approach*
- Consider conducting redesign of southbound approach to improve the crossing facilities
- Provide off-street multi-use pathway – *south leg (west side)*
- Consider to install red-light camera (under ICBC jurisdiction) – *westbound approach*
- Review and improve street lighting (if required) – *northwest and south side corners*
- Enhance police enforcements for vehicle red-light running violations in coordination with RCMP and ICBC – *all approaches*
- Enhance police enforcements for pedestrian crossing violations in coordination with RCMP – *all approaches*

GARDEN CITY ROAD & BLUNDELL ROAD

INTERSECTION INFORMATION

Site #:	16
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT in all directions
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial
Surrounding Land Use:	Commercial / Residential
Daily Traffic Volume (2015):	26,400 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	22.0 per year	(Total = 66)
Collision Severity Index:	4.68	(Casualty = 41%)
Collision Rate OBS. / CRT.:	3.35 / 3.41	[2013-2017]
Collision with Pedestrian:	1	
Collision with Cyclist:	0	

Highest % Month:	April / November (14%)
Highest % Day of Week:	Thursday (24%)
Highest % Time Period:	3 PM - 6 PM (30%)
Top 3 Collision Types:	Rear End (44%)
	Sideswipe (34%)
	Left Turn (15%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Lack of left-turn bay – *all approaches; limited visibility of through traffic for left-turn drivers*
- Lane drop after intersection due to on-street parking during off-peak periods – *north, south, and west legs*
- Commercial driveways close to intersection – *northeast and southwest quadrants*

Signal:

- Provision of left-turn phase without left-turn bay – *all approaches*
- No countdown for pedestrian signal phases – *all directions*

Vulnerable Road User:

- Narrow letdown – *northeast corner*
- Substantial pedestrian/bicycle crossing activities – *all legs (to/from retail stores and nearby schools); conflict between left/right-turn vehicles and crossing pedestrians*

Collision (Data Review):

- Annual number of collisions were similar in three years
- High number of rear-end collisions reported on westbound (54%), followed by northbound (25%)
- High number of sideswipe collisions occurred on westbound (40%), followed by southbound (25%)
- High number of left-turn opposing collisions reported for E-W direction (over 65% of total)
- The pedestrian-involved collision occurred between a right-turning vehicle from Garden City Road (NB/SB) and a pedestrian crossing Blundell Road
- 26 extra collisions reported at the driveways (south and east legs) of Garden City Shopping Centre, located on the southeast corner of study intersection
- A fatal collision occurred between a vehicle exiting the shopping centre driveway to go westbound on Blundell Road and an eastbound vehicle during weekday AM peak period on February 2016
- Another fatal collision reported including an eastbound vehicle hitting a pedestrian who was jaywalking across Blundell Road during weekday AM peak period on October 2014

Operational (Field Review):

- Congestion / long queues during peak periods – *all approaches; especially shopping trips during weekend afternoon*

GARDEN CITY ROAD & BLUNDELL ROAD

Operational (Field Review) – *CONTINUED*:

- Significant lane changing/weaving activities – *all directions; due to lack of left-turn bays and allowance of on-street parking*
- On-street parking close to intersection – *northbound approaches; blocking through traffic from using curb lane and then change lane to avoid left-turn vehicles*
- Unfamiliar drivers may be confuse when the left-turn phase is on in each approach
- Jaywalkers crossing Garden City Road and Blundell Road were observed

Other:

- None

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 5 to15% of Total Collisions):

- Review and relocate/remove on-street parking next to shopping centre and close to intersection – *northbound approach*

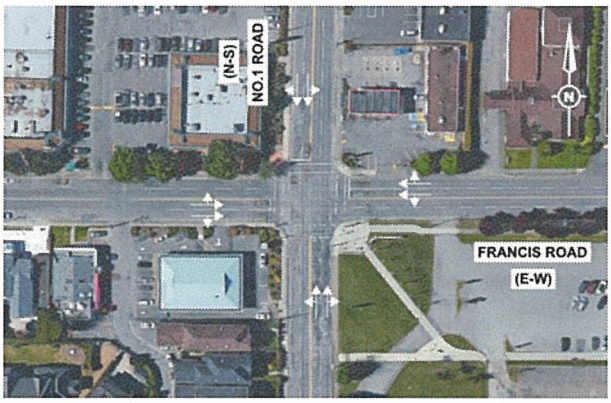
Medium/Long-Term:

- Provide left-turn bays with future redevelopments in the future – *overall*
- Conduct detailed in-service operation and safety study, including collisions at shopping centre driveways – *overall*
- Review and widen letdown (if required) – *northeast corner*

NO. 1 ROAD & FRANCIS ROAD

INTERSECTION INFORMATION

Site #:	17
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT for N-S & WB
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial
Surrounding Land Use:	Comm. / Rec. / Inst. / Resi.
Daily Traffic Volume (2015):	27,200 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	27.3 per year	(Total = 82)
Collision Severity Index:	4.73	(Casualty = 41%)
Collision Rate OBS. / CRT.:	2.99 / 3.41	[2013-2017]
Collision with Pedestrian:	0	
Collision with Cyclist:	2	

Highest % Month:	May / June (13%)
Highest % Day of Week:	Friday / Wednesday (20%)
Highest % Time Period:	3 PM - 6 PM (29%)
Top 3 Collision Types:	Rear End (31%) Left Turn (30%) Sideswipe (26%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Lack of left-turn bay – *all approaches; limited visibility of through traffic for left-turn drivers*
- Lane drop after intersection due to on-street parking during off-peak periods – *south, east, and west legs*
- Commercial and recreational driveways close to intersection – *north, east, and west legs*

Signal:

- Lack of left-turn phase – *eastbound approach*
- Provision of left-turn phase without left-turn bay – *north-south and westbound approaches*
- No countdown for pedestrian signal phases – *all directions*

Vulnerable Road User:

- Substantial pedestrian crossing activities – *all legs (to/from retail stores and nearby community centres and schools); conflict between left/right-turn vehicles and crossing pedestrians*
- No bicycle facilities provided – *overall intersection*

Collision (Data Review):

- High number of rear-end collisions occurred on No. 1 Road approaches – *10 for northbound and 7 for southbound; out of total 24 collisions*
- High number of left-turn opposing collisions occurred on N-S direction – *85%; 22 out of total 23 collisions*
- High proportion of sideswipe collisions reported for northbound (6), followed by eastbound/southbound (4); out of total 20 collisions
- Two cyclist-involved collisions occurred between vehicles turning left/right from No. 1 Road onto Francis Road and bicycle crossing east/west leg of the study intersection
- 20 extra collisions reported at the driveways of Seafair Centre (shopping plaza) located on the northwest corner of the intersection – *14 collisions at the driveway along No. 1 Road and 6 collisions at the driveway to Francis Road*

Operational (Field Review):

- Significant left-turn volumes/queues during commuter and school peak periods – *north-south approaches; aggressive turning manoeuvers*
- Significant lane changing/weaving activities – *all directions; due to lack of left-turn bays*
- Road work and lane closure on the northwest corner during the field review in early April

NO. 1 ROAD & FRANCIS ROAD

Other:

- None

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 10 to 20% of Total Collisions):

- Review and adjust signal timing to provide priority and/or dedicated pedestrian phase – *all approaches*
- Paint green pavement marking for crosswalk to alert drivers for substantial pedestrian crossing activities – *all legs*
- Review and relocate/remove on-street parking close to intersection – *south, east, and west legs*
- Conduct warrant analysis for adding left-turn phase – *eastbound approach*
- Educate community centre children and school students regarding safe pedestrian crossing – *overall*

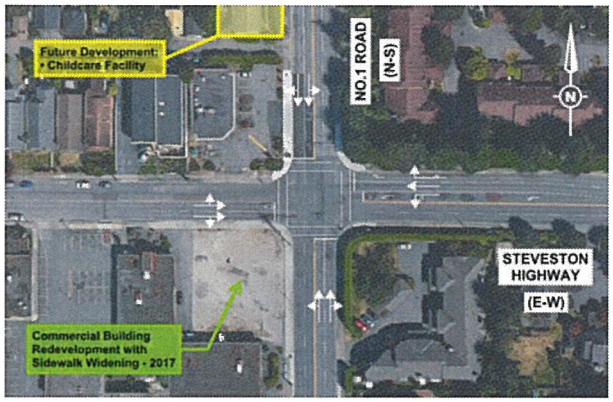
Medium/Long-Term:

- Consolidate commercial driveways with future redevelopment – *north leg*
- Add left-turn phase (if warranted) – *eastbound approach*
- Add left-turn bays with future redevelopments in the future – *all approaches, particular north-south directions*
- Conduct a detailed in-service operation and safety study to include the safety review of nearby commercial driveways – *overall*

NO. 1 ROAD & STEVESTON HIGHWAY

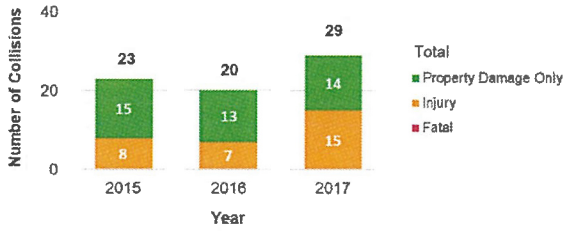
INTERSECTION INFORMATION

Site #:	18
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT for SB & WB
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial
Surrounding Land Use:	Commercial / Residential
Daily Traffic Volume (2015):	34,300 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	24.0 per year	(Total = 72)
Collision Severity Index:	4.75	(Casualty = 42%)
Collision Rate OBS. / CRT.:	2.08 / 3.36	[2013-2017]
Collision with Pedestrian:	3	
Collision with Cyclist:	0	



Highest % Month:	December (14%)
Highest % Day of Week:	Saturday (19%)
Highest % Time Period:	3 PM - 6 PM (19%)
Top 3 Collision Types:	Rear End (30%) Left Turn (30%) Sideswipe (19%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Lack of left-turn bay – *north-south and eastbound approaches; limited visibility of through traffic for left-turn drivers*
- Misalignment of left-turn lanes – *east-west approaches*
- Wide receiving lane – *west leg; conflicts between southbound right-turn and northbound left-turn vehicles*
- Commercial driveways and laneway close to intersection – *north and west legs*
- Inadequate sight distance due to nearby foliage and insufficient property setback – *east side corners*

Signal:

- Lack of left-turn phase – *northbound and eastbound approaches*
- Provision of left-turn phase without left-turn bay – *southbound approach*
- No countdown for pedestrian signal phases – *all directions*

Vulnerable Road User:

- Substantial pedestrian crossing activities – *all legs (to/from retail stores and nearby community centres and schools); conflict between left/right-turn vehicles and crossing pedestrians*
- Narrow letdown – *southeast corner*
- Small pedestrian waiting area – *northwest corner*

Collision (Data Review):

- High number of rear-end collisions occurred on westbound (7) and northbound (7), out of total 20 collisions
- High number of left-turn opposing collisions occurred for westbound (7) and southbound (7), out of total 19 collisions
- High number of sideswipe collisions reported for northbound and eastbound (4 each), out of total 11 collisions
- 7 right-angle collisions occurred – *4 collisions occurred when there was a power outage and intersection was operating as four-way stop-controlled*
- Two pedestrian-involved collisions occurred between westbound left-turn vehicles and pedestrians crossing south leg, and one pedestrian-involved collision reported between a southbound left-turn vehicle and a pedestrian crossing east leg
- High number of collisions occurred on Saturday due to high shopping activities and pedestrians walking to Steveston Village

NO. 1 ROAD & STEVESTON HIGHWAY

Operational (Field Review):

- Significant lane changing/weaving activities – *all approaches; due to lack of left-turn bays and existence of lane drop*
- On-street parking close to intersection – *west leg; no parking restriction with new development*
- Future development nearby – *northwest quadrant (institutional); generate more traffic in the near future*

Other:

- Missing pavement marking – *south leg (incomplete crosswalk)*
- Insufficient street lighting – *northwest corner*

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 15 to 25% of Total Collisions):

- Review and adjust signal timing to provide priority and/or dedicated pedestrian phase – *all approaches*
- Repaint approach to one left-turn lane plus one shared through-right lane and align with opposite left-turn lane – *eastbound approach*
- Add overhead lane designated sign – *westbound approach*
- Add on-street parking restriction zone close to intersection – *west leg*
- Add additional Designated Right-turn sign upstream – *westbound approach*
- Regularly trim foliage – *northeast corner*

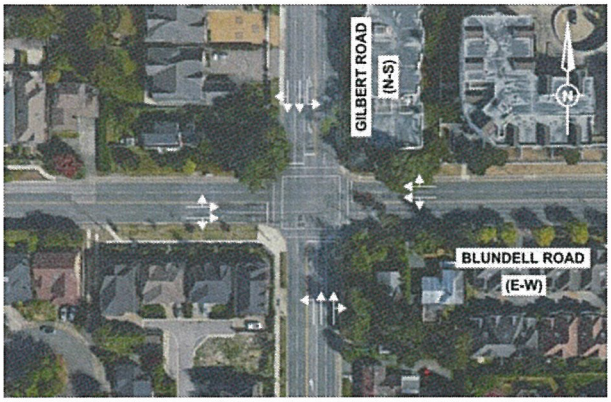
Medium/Long-Term:

- Add left-turn bays with future redevelopments in the future – *north-south approaches*
- Close driveways near intersection with future redevelopment – *north and west legs*

GILBERT ROAD & BLUNDELL ROAD

INTERSECTION INFORMATION

Site #:	19
Intersection Type:	4-Legged
Traffic Control Type:	Signalized - P/P LT for E-W
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial
Surrounding Land Use:	Residential
Daily Traffic Volume (2015):	32,700 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	25.7 per year	(Total = 77)
Collision Severity Index:	5.32	(Casualty = 48%)
Collision Rate OBS. / CRT.:	2.14 / 3.37	[2013-2017]
Collision with Pedestrian:	3	
Collision with Cyclist:	1	

Highest % Month:	May (14%)
Highest % Day of Week:	Tuesday (27%)
Highest % Time Period:	3 PM - 6 PM (29%)
Top 3 Collision Types:	Rear End (39%) Left Turn (23%) Sideswipe (16%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Lack of left-turn bay – *east-west approaches; limited visibility of through traffic for left-turn drivers*
- Lane drop after intersection due to on-street parking during off-peak periods – *east-west legs*
- Residential driveways and laneway close to intersection – *north, south, and east legs*
- Inadequate sight distance due to nearby foliage and insufficient property setback – *north side and southeast corners*

Signal:

- Lack of left-turn phase with left-turn bay provided – *north-south approaches*
- Provision of left-turn phase without left-turn bay – *east-west approaches*

Vulnerable Road User:

- Narrow letdown – *northeast corner*
- Small waiting area – *northeast corner; pedestrians close to tight right-turn vehicles*
- No bicycle facilities provided – *overall intersection*

Collision (Data Review):

- High collision severity index (over 5.00)
- High number of rear-end collisions occurred on westbound (11), followed by northbound (6); out of total 29 collisions
- High number of left-turn opposing collisions occurred for westbound (7), followed by southbound (4) out of total 17 collisions
- High number of sideswipe collisions reported for eastbound (42%) – *5 out of total 12 collisions*
- 9 right-angle collisions occurred – *6 collisions reported due to vehicles running the red light on in the east-west directions*
- Two out of total three pedestrian-involved collisions reported between left-turning vehicles and pedestrians crossing east leg and south leg
- The cyclist-involved collision reported between a vehicle turning right from Gilbert Road and a bicycle crossing Gilbert Road in front of the vehicle (north or south leg)

GILBERT ROAD & BLUNDELL ROAD

Operational (Field Review):

- Significant lane changing/weaving activities – *east-west approaches (due to lack of left-turn bays); two-way left-turn lane is also available on the north leg*
- High vehicle speed – *north-south legs; presence of red-light camera for westbound approach*

Other:

- None

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 10 to 20% of Total Collisions):

- Conduct warrant analysis for adding left-turn phase – *north-south approaches*
- Check intergreen time to verify the possible contributing cause for high number of right-angle collisions – *overall*
- Review and relocate/remove on-street parking close to intersection – *north, south, and east legs*
- Regularly trim foliage – *north side and southeast corners*

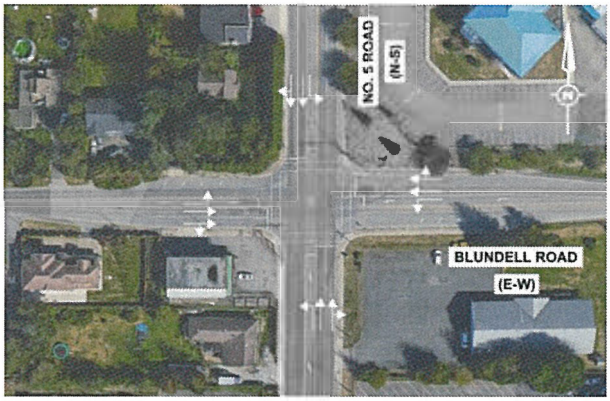
Medium/Long-Term:

- Add left-turn phase (if warranted) – *north-south approaches*
- Add left-turn bays with future redevelopments in the future – *east-west approaches*
- Enhance police enforcements for vehicle speeding violations in coordination with RCMP – *north-south legs*
- Review traffic lane widths and curb return radii as a measure to reduce collisions involving speeding

NO. 5 ROAD & BLUNDELL ROAD

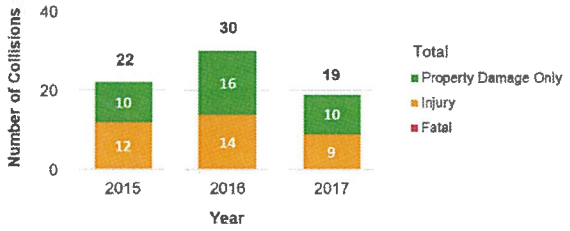
INTERSECTION INFORMATION

Site #:	20
Intersection Type:	4-Legged
Traffic Control Type:	Signalized
N-S Street Classification:	Arterial
E-W Street Classification:	Arterial
Surrounding Land Use:	Inst. / Comm. / Resi.
Daily Traffic Volume (2015):	25,100 Entering Vehicles



COLLISION STATISTICS (2015-2017)

Collision Frequency:	23.7 per year	(Total = 71)
Collision Severity Index:	5.44	(Casualty = 49%)
Collision Rate OBS. / CRT.:	2.73 / 3.42	[2013-2017]
Collision with Pedestrian:	0	
Collision with Cyclist:	0	



Highest % Month:	November (14%)
Highest % Day of Week:	Wednesday (24%)
Highest % Time Period:	3 PM - 6 PM (30%)
Top 3 Collision Types:	Rear End (59%) Sideswipe (16%) Left Turn (10%)

IDENTIFIED OPERATIONAL AND SAFETY ISSUES

Geometric:

- Horizontal and vertical curves before/after intersection – *east leg*
- Merge lane after intersection – *east-west legs*
- Lane drop after intersection due to on-street parking during off-peak periods – *north-south legs*
- Commercial, institutional, and residential driveways close to intersection – *south and west legs*
- Inadequate sight distance due to nearby foliage and insufficient property setback – *northwest corner*

Signal:

- Lack of left-turn phase with left-turn bay provided – *all approaches*
- Old pedestrian pushbuttons – *all corners*

Vulnerable Road User:

- Narrow sidewalk with utility poles – *northwest quadrant*
- No bicycle facilities provided – *overall intersection*

Collision (Data Review):

- High collision severity index (over 5.00)
- High number of rear-end collisions occurred on eastbound (14), followed by northbound (9); out of total 41 collisions
- High proportion of sideswipe collisions reported for eastbound – *40%; 4 out of total 11 collisions*
- High proportion of left-turn opposing collisions occurred for westbound left-turn movement – *3 out of total 6 collisions*
- 4 right-angle collisions occurred – *2 collisions occurred when there was a power outage and intersection was operating as four-way stop-controlled*
- A fatal collision reported between an eastbound vehicle going through the intersection and a northbound vehicle running the red light around weekday noon time on September 2013

Operational (Field Review):

- Significant left-turn volumes/queues during peak periods – *northbound and east-west approaches*
- Significant lane changing/weaving activities – *east-west directions*
- High vehicle speed – *north-south directions*

NO. 5 ROAD & BLUNDELL ROAD

Other:

- None

POTENTIAL IMPROVEMENTS

Short-Term (Potential Safety Benefit = 5 to 15% of Total Collisions):

- Conduct warrant analysis for adding left-turn phase – *east-west approaches*
- Convert curb lane to right-turn only lane to avoid sideswipes – *east-west approaches*
- Upgrade pedestrian pushbuttons to the latest standard – *all corners*
- Review and relocate/remove on-street parking close to intersection – *east-west legs*

Medium/Long-Term:

- Add left-turn phase (if warranted) – *east-west approaches*
- Consider widening Blundell at intersections from two to four lanes overall
- Review and relocate/remove commercial driveways close to intersection with future redevelopment – *southwest quadrant*
- Review and widen letdown (if required) – *northeast corner*
- Enhance police enforcements for vehicle speeding violations in coordination with RCMP – *north-south legs*
- Review traffic lane widths and curb return radii as a measure to reduce collisions involving speeding

Top 20 Intersections: Summary of Proposed Short-Term Improvements

Intersection		Pavement Markings & Barriers	Signage	Traffic Signals	Trim Foliage for Sightlines	Street Parking	Education / Study	Est. Total Cost	Est. Safety Benefit
1	Shell Rd-Alderbridge Way/Hwy 91	Upgrade Crosswalk Markings/ Repaint Merge Lines	Add Yield/ Merge/ Crosswalk Signs	Enlarge Lenses/ Upgrade Ped Buttons/ Warrant for LT Phase	SW Corner	-	-	$41,600	20-30%
		$13,700	$3,400	$23,000	$1,500	-	-		
2	Garden City Rd-Sea Island Way	Upgrade Crosswalk Markings/ Add Merge Lines	Add Object Marker/ Crosswalk Signs	Warrant for LT Phase	SW Corner	-	-	$6000	5-15%
		$3,000	$1,450	Staff Time	$1,500	-	-		
3	No. 2 Rd-Westminster Hwy	Add Guide Lines/Add RT Markings	Add New Lane/RT Only Lane Signs	Enlarge Lenses/ Warrant for LT Phase	SW Corner/ South Side	-	Traffic Operations & Safety Review	$54,600	20-30%
		$1,300	$800	$23,000	$4,500	-	$25,000		
4	No. 4 Rd-Alderbridge Way	Repaint Merge Lines	Add Yield/ Crosswalk Signs	Enlarge Lenses/ Review Signal Progression/ Upgrade Ped Buttons/ Warrant for LT Phase	-	-	-	$25,700	20-30%
		$900	$2,800	$22,000	-	-	-		
5	No. 5 Rd-Westminster Hwy	Upgrade Crosswalk Markings/ Add Merge Lines	Add Yield/ RT Lane/ Crosswalk Signs	Enlarge Lenses	-	-	-	$29,200	15-25%
		$4,600	$3,600	$21,000	-	-	-		
6	No. 5 Rd-Cambie Rd	Replace Barriers	-	Enlarge Lenses/Review Dedicated Ped Phase	-	-	-	$22,500	20-30%
		$1,500	-	$21,000	-	-	-		
7	No. 4 Rd-Westminster Hwy	Upgrade Crosswalk Markings	Add Bike Route Signs	Enlarge Lenses/ Upgrade Ped Buttons	-	-	-	$51,000	15-25%
		$26,600	$1,400	$23,000	-	-	-		
8	Garden City Rd-Cambie Rd	Add Guide Line	Add New Lane Sign	Enlarge Lenses/ Warrant for LT Phase	NW Corner	-	-	$23,500	15-25%
		$500	$250	$21,000	$1,500	-	-		
9	Garden City Rd-Granville Ave	Add Guide Line	Add New Lane Sign	Enlarge Lenses	-	-	Feasibilility Study Traffic Control Changes	$66,800	15-25%
		$500	$250	$16,000	-	-	$50,000		
10	No. 2 Rd-Blundell Rd	Replace Barriers	-	Review Signal Progression	-	Review Location on W Leg	-	$5,000	5-15%
		$5,000	-	Staff Time	-	Staff Time	-		

Top 20 Intersections by Location

Intersection		Pavement Markings & Barriers	Signage	Traffic Signals	Trim Foliage for Sightlines	Street Parking	Education / Study	Est. Total Cost	Est. Safety Benefit
11	No. 3 Rd-Granville Ave	Upgrade Crosswalk Markings/ Add Guide Line	-	Enlarge Lenses/Review Dedicated Ped Phase	-	-	-	$67,000	20-30%
		$46,000	-	$21,000	-	-	-		
12	No. 4 Rd-Blundell Rd	Repaint Lane Lines	-	-	-	Review Location on W Leg	-	$1,200	10-20%
		$1,200	-	-	-	Staff Time	-		
13	No. 4 Rd-Cambie Rd	-	Add Merge Sign	Add Tertiary Signal/ Enlarge Lenses/ Review Dedicated Ped Phase/ Warrant for LT Phase	NE Corner	-	Design to Add LT Bays	19000	15-25%
		-	$400	$17,000	$1,500	-	Staff Time		
14	Shell Rd-Bridgeport Rd	-	-	-	SW Corner	Review Location on N Leg	-	$1,500	5-15%
		-	-	-	$1,500	Staff Time	-		
15	Minoru Blvd-Granville Ave	Add Bike Lane Lines	-	Enlarge Lenses/ Review Dedicated Ped Phase/ Review Signal Timing/ Warrant for LT Phase	-	-	-	$31,000	15-25%
		$10,000	-	$21,000	-	-	-		
16	Garden City Rd-Blundell Rd	-	-	-	-	Review Location NB Approach	-	$0	5-15%
		-	-	-	-	Staff Time	-		
17	No. 1 Rd-Francis Rd	Add Bike Lane Lines	-	Review Dedicated Ped Phase/ Warrant for LT Phase	-	Review Location on S, E, W Legs	Pedestrian Education Campaign	$45,000	10-20%
		$45,000	-	-	-	Staff Time	Staff Time		
18	No. 1 Rd-Steveston Hwy	Repaint Lane Lines	Add RT/ Overhead Lane Signs	Review Dedicated Ped Phase	NE Corner	Restrict Parking on W Leg	-	$3500	15-25%
		$600	$950	-	$1,500	Staff Time	-		
19	Gilbert Rd-Blundell Rd	-	-	Warrant for LT Phase	North Side/ SE Corner	Review Location on N, S, E Legs	-	$4,500	10-20%
		-	-	-	$4,500	Staff Time	-		
20	No. 5 Rd-Blundell Rd	Convert Curb Lane to RT Lane	-	Upgrade Ped Buttons/ Warrant for LT Phase	-	Review Location on E, W Legs	-	$1,400	5-15%
		$1,400	-	-	-	Staff Time	-		
Total		**$161,800**	**$15,300**	**$229,000**	**$18,000**	**$0**	**$75,000**	**$499,100**	

Notes: RT = Right-Turn / LT = Left-Turn / N = North / S = South / W = West / E = East
Estimated Safety Benefit = % of collisions that improvement would address based on collision history

City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	April 29, 2019
From:	Peter Russell, MCIP RPP Senior Manager, Sustainability and District Energy	**File:**	12-8060-20-009921/Vol 01
Re:	**City Centre District Energy Utility Bylaw No. 9895, Amendment Bylaw No. 10012**		

Staff Recommendation

1. That the City Centre District Energy Utility Bylaw No. 9895, Amendment Bylaw No. 10012 presented in the "City Centre District Energy Utility Bylaw No. 9895, Amendment Bylaw No. 10012" report dated April 29, 2019, from the Senior Manager, Sustainability and District Energy be introduced and given first, second, and third readings.

Peter Russell, MCIP RPP
Senior Manager, Sustainability and District Energy
(604-276-4130)

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Development Applications Law	☑ ☑	
REVIEWED BY SMT	**INITIALS:**	**APPROVED BY CAO**

Staff Report

Origin

In October 2015, Council endorsed the issuance of a Request for Expression of Interest (RFEOI) to identify a suitable utility partner to conduct a feasibility analysis to design, build, finance and operate a district energy utility (DEU) in the City Centre North area of Richmond, on the basis of the following guiding principles:

1. The DEU will provide end users with energy costs that are competitive with conventional energy costs based on the same level of service; and
2. Council will retain the authority of setting customer rates, fees and charges for DEU services.

LIEC staff issued a Request for Proposals (RFP) in September 2016 with an expanded scope for City Centre to the three proponents shortlisted under the RFEOI. LIEC executed a Memorandum of Understanding (MOU) with the lead proponent, Corix Utilities Inc. (Corix) in February 2018, as directed by LIEC Board and endorsed by Council.

As the City Centre DEU due diligence process has advanced, through rezoning applications and/or Official Community Plan (OCP) amendment applications, seven developments have committed to construct and transfer energy plants to the City or LIEC at no cost to the City or LIEC, so that LIEC can provide immediate service to these customers.

Council endorsed City Centre District Energy Utility Bylaw No. 9895 (CCDEU Bylaw) in September 2018, introducing a new district energy service area starting with five developments. The CCDEU Bylaw has since been amended to expand the service area to include two additional developments.

The purpose of this report is to recommend expansion of the service area to include a hotel development located at 8871, 8891, 8911, 8931, 8951, and 8971 Douglas Street, associated with rezoning application RZ 15-704980.

Background

District Energy Utilities as Part of a Sustainable Community

Richmond's 2041 Official Community Plan (OCP) establishes a target to reduce community greenhouse gas (GHG) emissions 33 per cent below 2007 levels by 2020 and 80 per cent by 2050. The OCP also includes a target to reduce energy use 10 per cent below 2007 levels by 2020. Richmond's Community Energy & Emissions Plan (CEEP) identifies that buildings account for about 64 per cent of energy consumption in Richmond, and 43 per cent of GHG emissions; residential developments especially are prime energy consumers in the community. Richmond is growing, with today's population expected to increase by 35 per cent by 2041, and employment by 22 per cent. This growth will be accompanied by new building development, the majority of which will occur in Richmond's City Centre.

Shifting to more sustainable energy systems for buildings will support the City's climate and energy targets. Sustainable energy systems have the following characteristics:

- Use energy wisely – e.g. they are efficient, minimize consumption, minimize waste energy, and use low-carbon sources of energy.
- Increase energy security by being reliant and resilient – e.g. they minimize price volatility, incorporate localized systems to avoid being completely dependent on external systems, and are adaptable to future technologies and energy sources.
- Have low-carbon intensity – e.g. they emit zero to low GHG emissions.
- Are cost-effective and do not result in unacceptable impacts (social, environmental or economic).

The City has identified district energy utilities (DEUs) as a key component of sustainable energy systems that can be implemented in neighbourhoods undergoing redevelopment. Some of the key benefits of a DEU are as follows:

- Reduced building capital and operations costs – DEUs replace the need for individual buildings to have their own boilers or furnaces, chillers or air conditioners, resulting in capital cost and maintenance cost savings.
- Efficiency – DEUs can operate more efficiently than typical stand-alone building mechanical systems, thereby reducing emissions and costs.
- Reduced GHG emissions through using renewable energy and waste energy sources – DEUs can use renewable sources such as sewer heat recovery, geothermal, biomass, combined heat and power generation, and other technologies with the potential for very low emissions. Moreover, DEUs can capture and use waste heat from industrial, commercial and institutional use (i.e. ice surfaces and wastewater treatment plants).
- Reliability – DEUs use proven technology; most DEU's operate with a high reliability rate.
- Resiliency – District energy systems' ability to make use of multiple different fuel sources allow DEUs to incorporate new energy source opportunities in the future, providing financial and environmental resiliency and mitigating the potential for volatility in thermal energy prices.

Many DEUs come to be identified by the energy source they are hooked up to, such as geothermal, biomass, or solar; however, the most critical elements of a DEU are the customer base and the distribution network, and when establishing the partnerships and legal framework of a DEU the primary focus should be on these elements. The specific system or technology that is used to generate the heat can be altered or switched out over the life of the DEU depending on the best available technology at the time.

District Energy in Richmond

The City incorporated Lulu Island Energy Company Ltd. (LIEC) in 2013 for the purposes of carrying out the City's district energy initiatives. These district energy initiatives have been

recognized for excellence and leadership in innovation and sustainability through receipt of fourteen awards ranging from the provincial to international scale.

LIEC operates the Oval Village District Energy (OVDEU) and Alexandra District Energy (ADEU) Utilities while concurrently advancing new district energy opportunities. Attachment 1 indicates the current and planned future DEU areas throughout Richmond.

LIEC currently services eight buildings in the OVDEU service area, containing over 1,700 residential units. Energy is currently supplied from the two interim energy centres with natural gas boilers which combined provide 11 MW of heating capacity. When enough buildings are connected to the system, a permanent energy centre will be built which will produce low-carbon energy. Currently the OVDEU is planned to harness energy from the Gilbert Trunk sanitary force main sewer through the implementation of the permanent energy centre in 2025. Over the next 30 years, the OVDEU system is anticipated to reduce GHG emissions by more than 52,000 tonnes of CO2 as compared to business as usual[1]. OVDEU is developed under a concession agreement with Corix. During the concession period (30 years), Corix will design, build, finance and operate the OVDEU and will supply energy services to LIEC; LIEC owns the assets and Council sets customer rates.

LIEC provides heating and cooling services to six residential buildings in the ADEU service area, the large commercial development at "Central at Garden City", the Richmond Jamatkhana temple and Fire Hall No. 3, in total connecting over 1,450 residential units and over 1.6 million square feet of floor area. While some electricity is consumed for pumping and equipment operations, almost 100% of this energy is currently produced locally from the geo-exchange fields in the greenway corridor and West Cambie Park, and highly efficient air source heat pumps. The backup and peaking natural gas boilers and cooling towers in the energy centre have operated for only a few days throughout the system's operation to date. LIEC staff estimate that this has eliminated over 2,340 tonnes of GHG emissions in the community to-date.

The City has continued to secure commitments that new developments in potential DEU service areas will be "District Energy Ready" through rezoning, development and building permit processes. This means that new developments in appropriate potential service areas are built with in-building mechanical systems that are compatible with district energy connection for space heating and domestic water heating.

LIEC is continuing to work with Corix on the City Centre DEU due diligence process as per the executed MOU. This work includes the development and analysis of long term DEU servicing strategies for the City Centre area. Staff are expecting to report to Council on the outcomes of this due diligence process in 2019.

As the City Centre DEU due diligence process has advanced, staff saw the opportunity to secure a customer base for the immediate implementation of GHG emissions reduction through the rezoning and/or OCP amendment application process. Seven development applicants have committed to construct and transfer energy plants to the City or LIEC through either of these

[1] Assumed that all energy was provided for heating. The business-as-usual (BAU) assumed that 40% of the building heating load would be provided from electricity and the remaining 60% would be from gas make-up air units.

processes, so that LIEC can provide immediate service to these customers. The commitment for these developments to construct and transfer energy plants to the City or LIEC was subject to adoption of a DEU service area bylaw pertaining to these sites. LIEC and City staff subsequently developed the CCDEU Bylaw to secure commitments from the first five developments, which Council adopted in September 2018. Council amended the CCDEU Bylaw to include the Richmond Centre Mall development in October 2018 and the Polygon Fiorella development in February 2019.

The development rezoning application (RZ 15-704980) was granted third reading at the Public Hearing held on February 19, 2018. The applicant is actively working to fulfill the rezoning considerations and prepare the associated Development Permit for the project for the City's Development Permit Panel's consideration.

Analysis

City Centre District Energy Utility Service Area Expansion

The six storey hotel building is estimated to consist of approximately 56,575ft ^{2} of hotel space.

Expanding the City Centre District Energy Utility service area to include a development of this type results in the following direct benefits:

- Immediate connectivity opportunity with the future low-carbon district energy system resulting in reduction of GHG emissions compared to business as usual;
- Expansion of LIEC's customer base under a positive stand-alone business case while the City Centre strategy develops;
- Increasing community's energy resiliency; and
- Providing financial and environmental stability to customers, mitigating potential volatility in energy costs.

The rezoning considerations for this development include a requirement for a legal agreement that, if the City elects, would require the developer to transfer ownership of the development's centralized energy plant to the City or LIEC at no cost to the City or LIEC, so that LIEC can provide immediate service to the customer. City and LIEC staff have met with the developer's representative to obtain their commitment to transfer the energy plant in accordance with the legal agreement, and are continuing discussions to establish specific requirements associated with the plant. Rezoning considerations were applied to this development prior to establishment of requirements for a low-carbon energy plant and as such, the language did not require the centralized energy plant to be low-carbon. However, LIEC ownership of a conventional energy plant still carries significant benefits as LIEC can connect this building immediately to the future low-carbon district energy system or potentially implement on-site low-carbon technology at a later stage.

This development rezoning application also includes a single lot at 8960 Douglas Street which is proposed to consist of a single storey building with approximately 1,733 ft^2 of commercial space. Due to the small scale of this commercial building, a DEU requirement is not being sought for.

Due to the anticipated energy loads of the hotel development, LIEC staff have conducted a business case analysis for owning and operating this development's energy plant using the same rate structure that was applied for business case analysis of the other developments under the CCDEU Bylaw service area. Consistent with Council objectives, staff have used a rate that is competitive with the conventional energy costs for providing the same level of service. The rate structure and actual rate to customers will be refined once the costs have been confirmed through the design and engineering phase for the first developments within the CCDEU Bylaw service area.

The LIEC Board of Directors has reviewed this opportunity and recommends expanding the City Centre District Energy Utility service area to include the hotel development located at 8871, 8891, 8911, 8931, 8951, and 8971 Douglas Street.

Financial Impact

None.

The centralized energy system will be designed and constructed by developers at their cost. Costs incurred by LIEC for engineering support and operations and maintenance will be funded from the existing and future LIEC capital and operating budgets. All LIEC costs will be recovered from customers' fees.

Conclusion

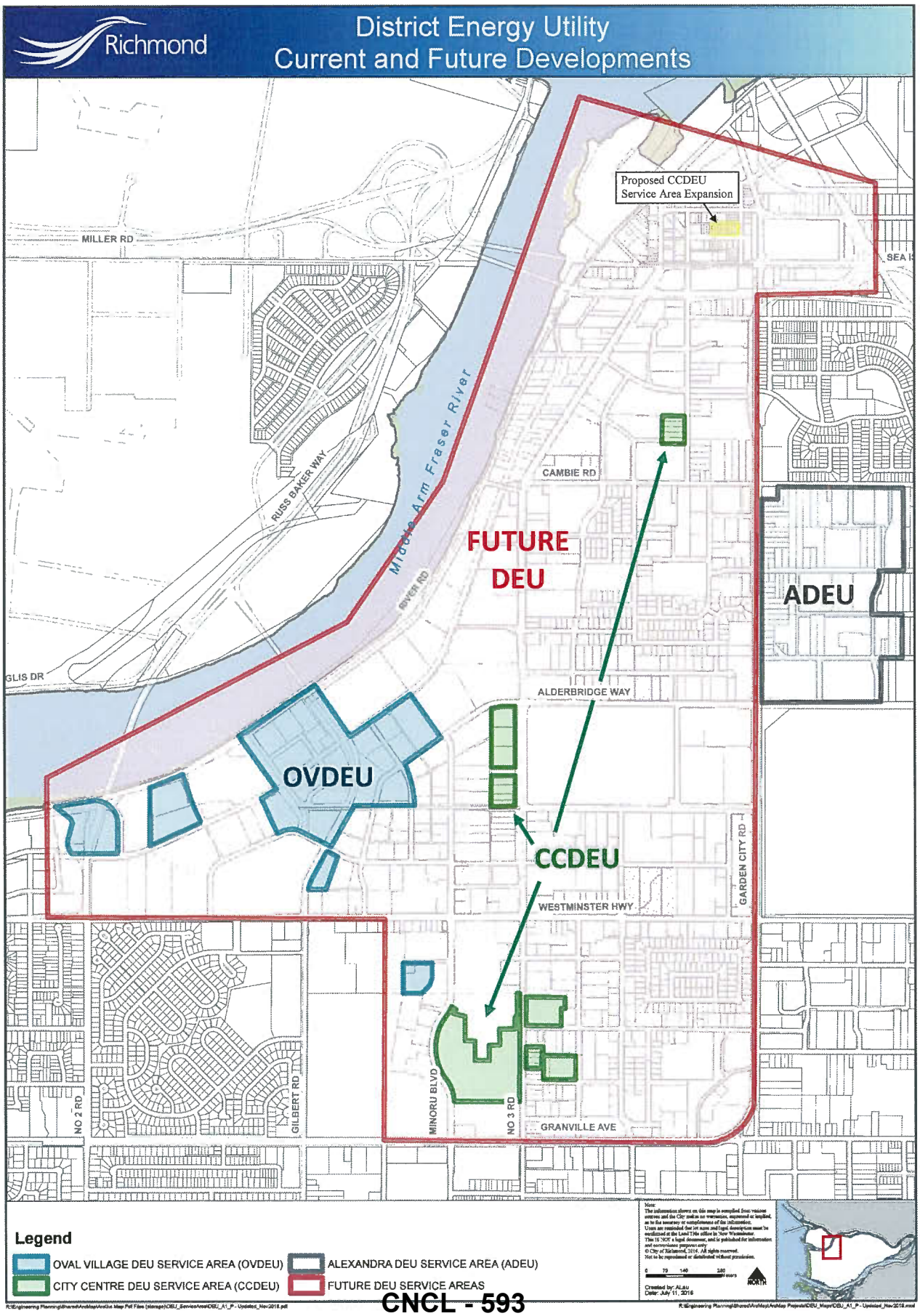
Expanding the service area for the City Centre District Energy Utility Bylaw No. 9895 as proposed will allow for immediate expansion of LIEC's customer base and in turn immediate connectivity opportunity to future low-carbon district energy systems in Richmond's City Centre area. The project will increase the community's energy resiliency by taking advantage of the district energy system's ability to utilize different fuel sources and future fuel switching capability of the technology.

Peter Russell, MCIP RPP
Senior Manager, Sustainability and District Energy
(604-276-4130)

PRcd

Att. 1: Map of Current and Future District Energy Utility Areas in Richmond

Attachment 1 – Map of Current and Future District Energy Utility Areas in Richmond



City of Richmond

Bylaw 10012

City Centre District Energy Utility Bylaw No. 9895 Amendment Bylaw No. 10012

The Council of the City of Richmond enacts as follows:

1. The **City Centre District Energy Utility Bylaw No. 9895** is further amended:

   (a) by deleting Schedule A (Boundaries of Service Area) in its entirety and replacing with a new Schedule A attached as Schedule A to this Amendment Bylaw; and

   (b) by deleting Schedule E (Energy Generation Plant Designated Properties) in its entirety and replacing with a new Schedule E attached as Schedule B to this Amendment Bylaw.

2. This Bylaw is cited as "**City Centre District Energy Utility Bylaw No. 9895, Amendment Bylaw No. 10012**".

FIRST READING	
SECOND READING	
THIRD READING	
ADOPTED	

CITY OF RICHMOND
APPROVED for content by originating dept.
APPROVED for legality by Solicitor
BRB

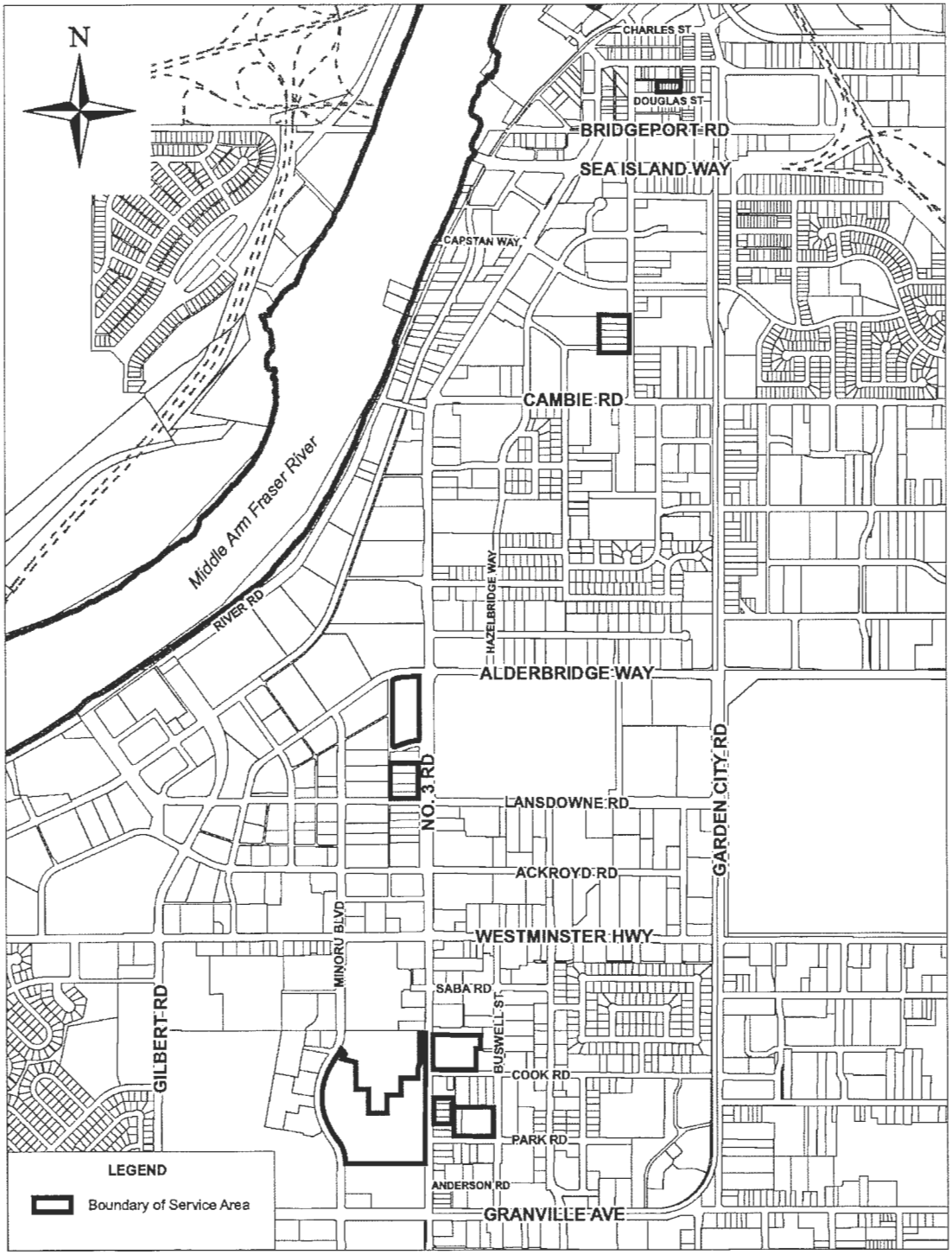
MAYOR

CORPORATE OFFICER

Schedule A to Amendment Bylaw No. 10012

SCHEDULE A to BYLAW NO. 9895

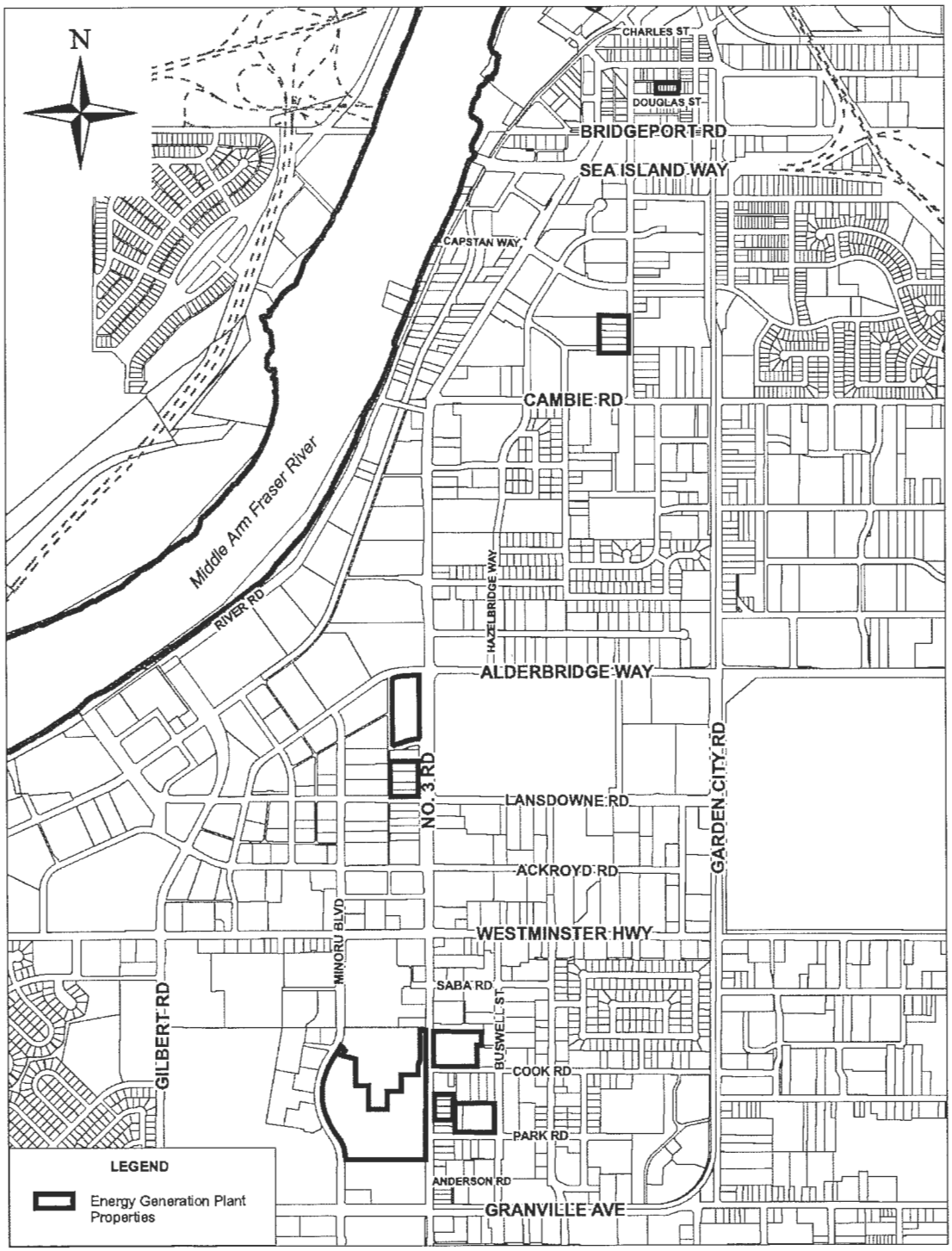
Boundaries of Service Area



Schedule B to Amendment Bylaw No. 10012

SCHEDULE E to BYLAW NO. 9895

Energy Generation Plant Designated Properties



City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	May 6, 2019
From:	Tom Stewart, AScT. Director, Public Works Operations	**File:**	10-6000-00/Vol 01
Re:	**2018 Annual Water Quality Report**		

Staff Recommendation

That the staff report titled "2018 Annual Water Quality Report" dated May 6, 2019 from the Director, Public Works, be endorsed and made available to the community through the City's website and through various communication tools including social media and as part of community outreach activities.

Tom Stewart, AScT.
Director, Public Works Operations
(604-233-3301)

Att. 2

REPORT CONCURRENCE	
CONCURRENCE OF GENERAL MANAGER	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: CJ
APPROVED BY CAO	

Staff Report

Origin

In 2001, the Province of British Columbia enacted the Drinking Water Protection Act, which provided the Minister of Health with the authority to implement and enforce standards for water supply systems in British Columbia. In May 2003, regulations to be implemented under the Drinking Water Protection Act were adopted by the legislature as the Drinking Water Protection Regulation. These Acts were updated on April 29, 2014 under Bill 18 – 2014: the Water Sustainability Act.

This report presents the City's 2018 Annual Water Quality Report, which enables the City to meet its obligations for public reporting to comply with applicable requirements in accordance with these regulations. A summary of the 2018 Annual Water Quality Report is presented as Attachment 1, with the full report included as Attachment 2.

Analysis

The Drinking Water Protection Regulation requires water purveyors in BC to possess an operating permit, which confirms the Drinking Water Officer for the area has approved the water supply. The Drinking Water Officer is given the authority to monitor water purveyors to ensure they are providing safe drinking water through compliance with the British Columbia Drinking Water Protection Regulation, and any other conditions of the operating permit.

Under the Regulation, the City of Richmond is required to:

- Develop and maintain a process to notify the Medical Health Officer and the Drinking Water Officer of situations or conditions that render or could render the water unfit to drink;
- Implement and maintain a plan for collecting, shipping and analyzing water samples in compliance with the direction set by the Drinking Water Officer; and
- Implement and maintain a plan for reporting monitoring results to the Drinking Water Officer and to water users.

Richmond thrives on its ability to provide water to residents and businesses, and to Richmond Fire-Rescue in the event of a fire. To ensure a consistent supply, the capital watermain replacement program is a proactive approach to avoiding breaks and has proven to be a reliable and valuable tool in water distribution management. In 2018, Public Works staff attended to 23 watermain breaks, a slight increase from the 19 watermain breaks in 2017 and a significant decrease from the 38 watermain breaks in 2016. Repairs for a single watermain break can amount to $100,000 plus damages to private properties and service disruptions to businesses and residents. As such, a proactive replacement and maintenance program is essential to minimizing costs and ensuring minimal to no disruptions in water quality and supply.

Highlights of the 2018 Annual Water Quality Report include:

- Richmond residents enjoyed high-quality, reliable drinking water.
- 2,057 water samples were collected to ensure water quality and each passed with outstanding results.
- Test results confirm high quality water and demonstrate continuous improvement.

- 35.5M cubic metres of water were purchased from Metro Vancouver in 2018 compared to 35.3M cubic metres in 2017.
- Richmond's tap water stations are used in many community events providing potable water to the public and promoting tap water usage.
- The educational program Project WET, where students learn about water conservation, water quality and water distribution, represents the partnership between Richmond School Board and Public Works.

These and many other initiatives are detailed in the attached "2018 Annual Water Quality Report".

Proposed Communication

Subject to Council's approval, the "2018 Annual Water Quality Report" will be posted on the City's website and made available through various communication tools including social media channels and as part of community outreach activities.

Financial Impact

None.

Conclusion

The 2018 Annual Water Quality Report outlines the methods in which the City manages its water system to ensure compliance with applicable provincial requirements under the Drinking Water Protection Act. In 2018, the City's water quality met and exceeded the required standards to ensure residents enjoyed high quality, reliable and safe drinking water.

This report has been reviewed and endorsed by the Medical Health Officer of Vancouver Coastal Health Authority as part of the City's reporting obligations.

Bryan Shepherd
Manager, Waterworks
(604-233-3334)

BS:nk

Att. 1: 2018 Annual Water Quality Report Summary
2: 2018 Annual Water Quality Report

City of Richmond

2018 Annual Water Quality Report Summary

In 2018, Richmond residents enjoyed high-quality and reliable drinking water. Water Services staff collected 2,057 water samples from 40 sampling sites to ensure excellent water quality.

Richmond is dedicated to promoting the value of municipal tap water, maximizing opportunities for use of tap water in municipal facilities and developing strategies for making tap water the "water of choice" in our community.

Taking a sample

Testing a sample

Project WET

Flushing

How does Richmond provide high-quality tap water?

- By testing all 40 water quality sites on a regular basis.
- By continuous preventative maintenance and monitoring.
- By providing the water system with the highest degree of care to ensure that it's an inhospitable environment for any harmful bacteria or toxins.
- By proactive watermain replacement and maintenance projects.

Multi-Barrier Approach

Richmond recognizes that in order to provide the highest quality water, several methods must be used to ensure its superiority – hence the "Multi-Barrier Approach".

The "Multi-Barrier Approach" includes:

- disinfection of the water at the source;
- water quality monitoring capabilities at seven pressure reducing valve (PRV) stations;
- weekly microbiological testing;
- system operators that are certified by the Environmental Operators Certification Program of BC;
- maintenance practices that are of the highest standard.

Heterotrophic Plate Count (HPC)

- The HPC count indicates the presence of nutrients that could facilitate the growth of harmful bacteria such as E. coli.
- By reducing the HPC levels, the possibility of bacteriological re-growth is essentially reduced.
- The minimal positive chlorine residual in our water also disinfects and eliminates harmful substances within our distribution system.

2018 Results

- Provided 35.5 million m^3 of the highest quality drinking water to over 222,945 Richmond residents.
- Conducted 2,057 microbiological tests from 40 test locations.
- Maintained 12 pressure reducing valve (PRV) stations.
- Maintained 4,973 fire hydrants to ensure water is available during an emergency.
- Repaired 23 watermain breaks without compromising the integrity of the water distribution system while maintaining positive pressure.
- Discovered and repaired 43 non-visible underground leaks through Richmond's leak detection program using noise loggers measuring sound frequencies in the targeted pipe allowing any leaks to be heard and recorded.
- Hosted over 250 students and teachers from Richmond elementary schools as part of the annual educational program: Project WET.
- Repaired 185 service connections.
- Installed 5,360 m of new watermain.
- Installed 403 water services for new developments.

Summary

Richmond residents will continue to enjoy fresh, high-quality drinking water. It is without a doubt that the City of Richmond consistently excels at providing tap water of excellent quality and reliability.

Richmond

City of Richmond

2018 Annual Water Quality Report

Richmond

Richmond is dedicated to promoting the value of municipal tap water, maximizing opportunities for use of tap water in municipal facilities and developing strategies for making tap water the "water of choice" in our community.

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Executive Summary

The purpose of this report is to fulfill the requirements set out in the British Columbia Drinking Water Protection Act (BCDWPA) by giving an overview of the water distribution system, describing the maintenance conducted, detailing some of the unique features of the system and providing the results of Richmond's water quality testing program.

Test results confirm high-quality water and demonstrate continuous improvement. Richmond's water system is provided with the highest degree of care to ensure that it's an inhospitable environment for any harmful bacteria or toxins. Also, utility funding contributes to proactive watermain replacement and maintenance projects that will ensure the overall health of the system well into the future.

In 2018, the City of Richmond's Water Services staff undertook the following:

- provided 35.5 million m^3 of the highest quality drinking water to over 222,945 Richmond residents;
- conducted 2,057 microbiological tests from 40 test locations;
- maintained 12 pressure reducing valve (PRV) stations;
- maintained 4,973 fire hydrants to ensure water is available during an emergency;
- repaired 23 watermain breaks without compromising the integrity of the water distribution system while maintaining positive pressure;
- discovered and repaired 43 non-visible underground leaks through Richmond's leak detection program using noise loggers measuring sound frequencies in the targeted pipe allowing any leaks to be heard and recorded;
- hosted over 250 students and teachers from Richmond elementary schools as part of the annual educational program: Project WET;
- repaired 185 service connections;
- installed 5,360 m of new watermain;
- installed 403 water services for new developments.

The City of Richmond's Water Services section takes its role as a water purveyor very seriously and is proud to be the guardian of such a precious resource.

Introduction

In 2002, the City of Richmond implemented a Drinking Water Quality Monitoring Program. This program was developed with input from the Vancouver Coastal Health Authority and is in accordance with the British Columbia Drinking Water Protection Act (BCDWPA), the Water Quality Monitoring and Reporting Plan for Metro Vancouver and member municipalities and the Guidelines for Canadian Drinking Water Quality (GCDWQ).

The Vancouver Coastal Health Authority requires the City of Richmond to provide the Annual Drinking Water Quality Report so that Richmond can maintain its operating permit. Richmond's Medical Health Officer reviews the report and upon request, the report is made public. It provides important information concerning Richmond's water distribution system and water quality.

The conditions set out in the British Columbia Drinking Water Protection Act (BCDWPA) require that all water systems in BC be classified as a Level I through IV facility. Richmond's system is classified as a Level III facility so all staff are responsible for possessing a valid Level I to Level III Equipment Operators Certification Program (EOCP) certificate. To obtain and maintain a level of certification, staff successfully complete the annual training. This is done to ensure that staff are able to respond appropriately and immediately to problems prior to becoming a risk to health or property.

As a water purveyor, Richmond complies with provincial legislation, including the British Columbia Drinking Water Protection Act (BCDWPA), and the British Columbia Drinking Water Protection Regulations (BCDWPR). Information is also compared to the federal Guidelines for Canadian Drinking Water Quality (GCDWQ). Under these various pieces of legislation the City of Richmond is required to:

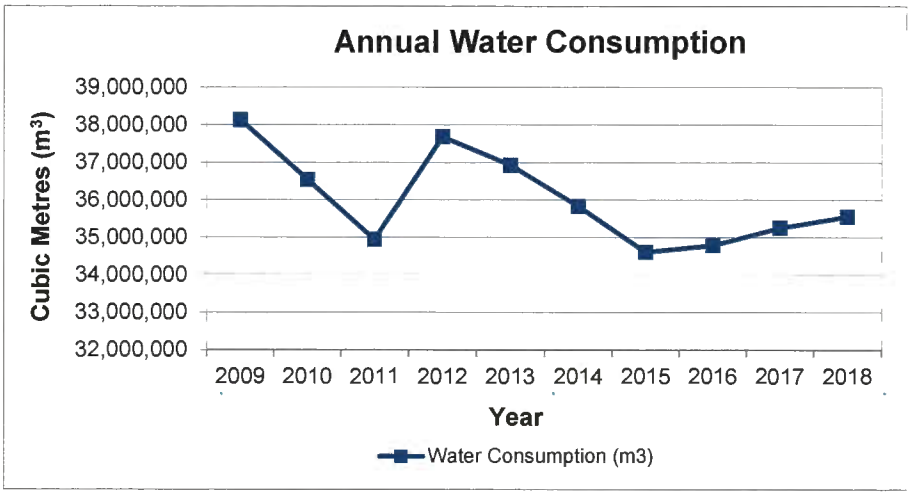
- develop a process to notify the Medical Health Officer of any condition that could render unsafe drinking water;
- implement a sampling program that adequately represents all areas within the City;
- meet the requirements of the British Columbia Drinking Water Protection Act (BCDWPA), and ensure test results are immediately available to the Medical Health Officer;
- receive an annual construction permit for the construction, installation and extension of the water distribution system;
- ensure that the City's water distribution system is classified under the criteria for the Environmental Operators Certification Program (EOCP) and that Water Services staff are certified to the same level as the distribution system;
- produce an annual public report detailing the results of the City's water quality monitoring program.

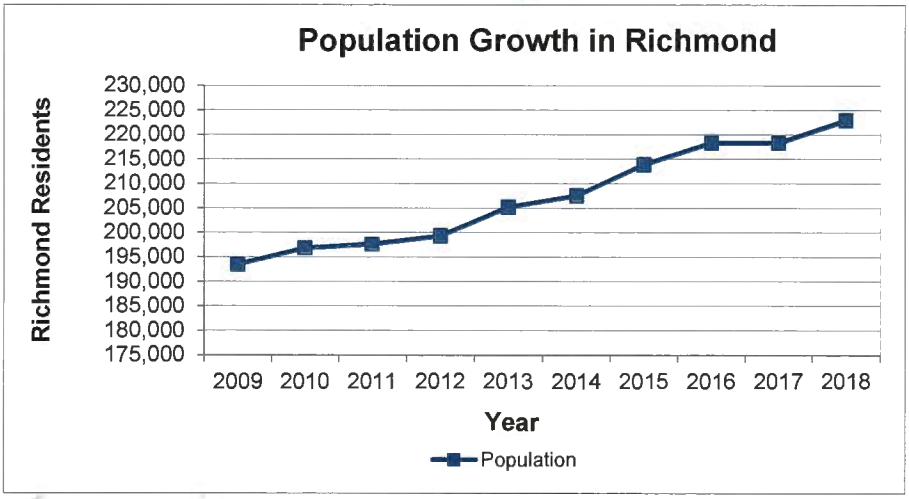
Each day, Metro Vancouver residents use enough water to fill BC Place. The average amount of water consumed daily in Metro Vancouver is 1 billion litres.

Water regulations are in effect from May 1 – October 15. They help manage demand for drinking water during the summer, periods of water shortages, and in emergencies.

Metro Vancouver Water District

In 2018, the City of Richmond purchased 35.5 million m^3 of drinking water from the Metro Vancouver Water District.





Three watersheds supply regional water: Capilano Reservoir, Seymour Reservoir, and Coquitlam Reservoir. The Capilano and Seymour Reservoirs supply two thirds of the water for the region. The Coquitlam Reservoir supplies the remaining third. Richmond receives the majority of its water from the Capilano and Seymour reservoir.

Water from these reservoirs can be directed through a series of transmission watermains to any city or municipality within the Metro Vancouver region. Source water is provided directly from the watersheds by Metro Vancouver and is tested for a number of microbiological, chemical, and physical parameters. There are two drinking water treatment facilities, Seymour-Capilano Filtration Plant (SCFP) and Coquitlam Water Treatment Plant (CWTP). The SCFP is the largest filtration plant in Canada and has the capacity to filter up to 1.8 billion litres of water per day. Water is carried from the Capilano watershed to the SCFP by two underground tunnels over 7 km long and 3.8 m in diameter. The CWTP has the capacity to treat 380 million litres of water per day.

Metro Vancouver Watersheds

Run full loads in the dishwasher. The average cycle uses 23 litres of water, down from older models at 38 litres. A half-full dishwasher uses the same amount of water as a full one.

An average garden hose delivers around 45 litres of water each minute. Install a shut-off nozzle on your hose so it runs only when in use.

An hour a week of sprinkling or rain is all you need for a healthy lawn. Too much water will drown its roots and encourage weeds.

Shell Road and Bird Road PRV

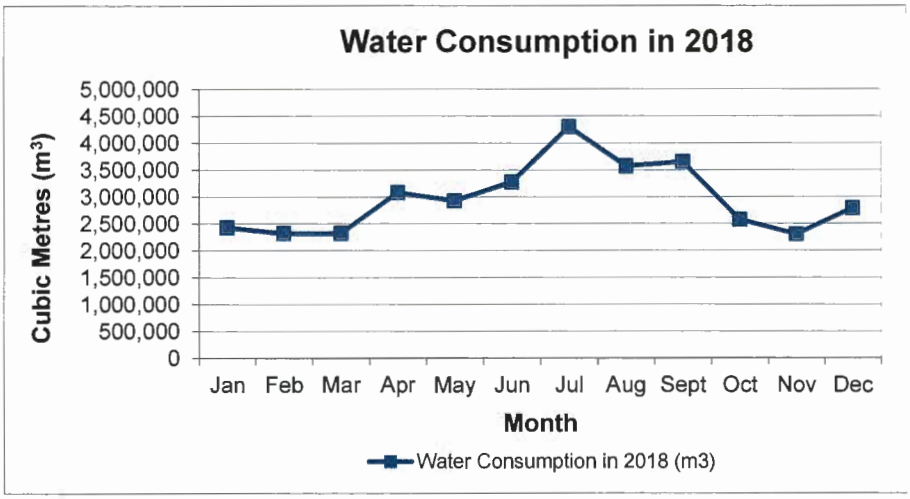
Water used in the kitchen for rinsing and cooking can be used again to water house plants.

Water Distribution System Overview

The City of Richmond's water distribution system begins at 12 separate connection points along Metro Vancouver's transmission mains. At each connection point there is a City owned pressure reducing valve (PRV) chamber. The City's responsibility for water quality begins at this chamber and ends at the residential or commercial property line.

Table 1 – Overview of Richmond's Water Distribution Network

Water Assets	2018
Hydrants	4,973
Valves	14,576
PRV chambers (active)	12
Watermains (City)	646 km
Service connections	35,040



Pressure Reducing Valves (PRV)

The Water Services section maintains 12 pressure reducing valve (PRV) stations throughout Richmond. PRV stations decrease the pressure of Metro Vancouver's water feed to one that is manageable for Richmond's water distribution system. The stations are connected to a supervisory control and data acquisition (SCADA) system that provides information to the Works Yard such as water pressure, quality and volume. This allows for certified Water Services staff to react to problems quickly and effectively 24 hours a day, seven days a week.

Table 1 indicates the monthly water consumption in Richmond. It is estimated that most municipalities in North America lose anywhere from 12% to 15% of their potable water to undiscovered, underground leakage. The Water Loss Management Program allows City Engineering and Water Services staff to determine the total amount of water consumed through normal operational programs and practices such as single-family residential, multi-family residential and commercial metering programs. While combining these programs with watermain flushing, parks and median irrigation, and Richmond Fire Rescue water usage, it is reasonable to assume that the unidentified portion of the annual water consumption is attributed to water loss within the distribution system.

Data acquisition inside the PRV

Service Renewals

This program aims to prevent breaks and leaks by continuously upgrading and replacing older water services from the watermain to the property line. This preventative maintenance construction occurs throughout the year and requires minimal restoration.

Check for leaks in your garden hose. Small leaks or a loose coupling can quickly add up to a lot of wasted water.

PRV inspection

Taking a sample inside the PRV

Dual-flush toilets give the option of a water-saving half flush. We use about 270 litres of water and about one quarter of indoor water use is from flushing the toilet.

Water Quality Monitoring

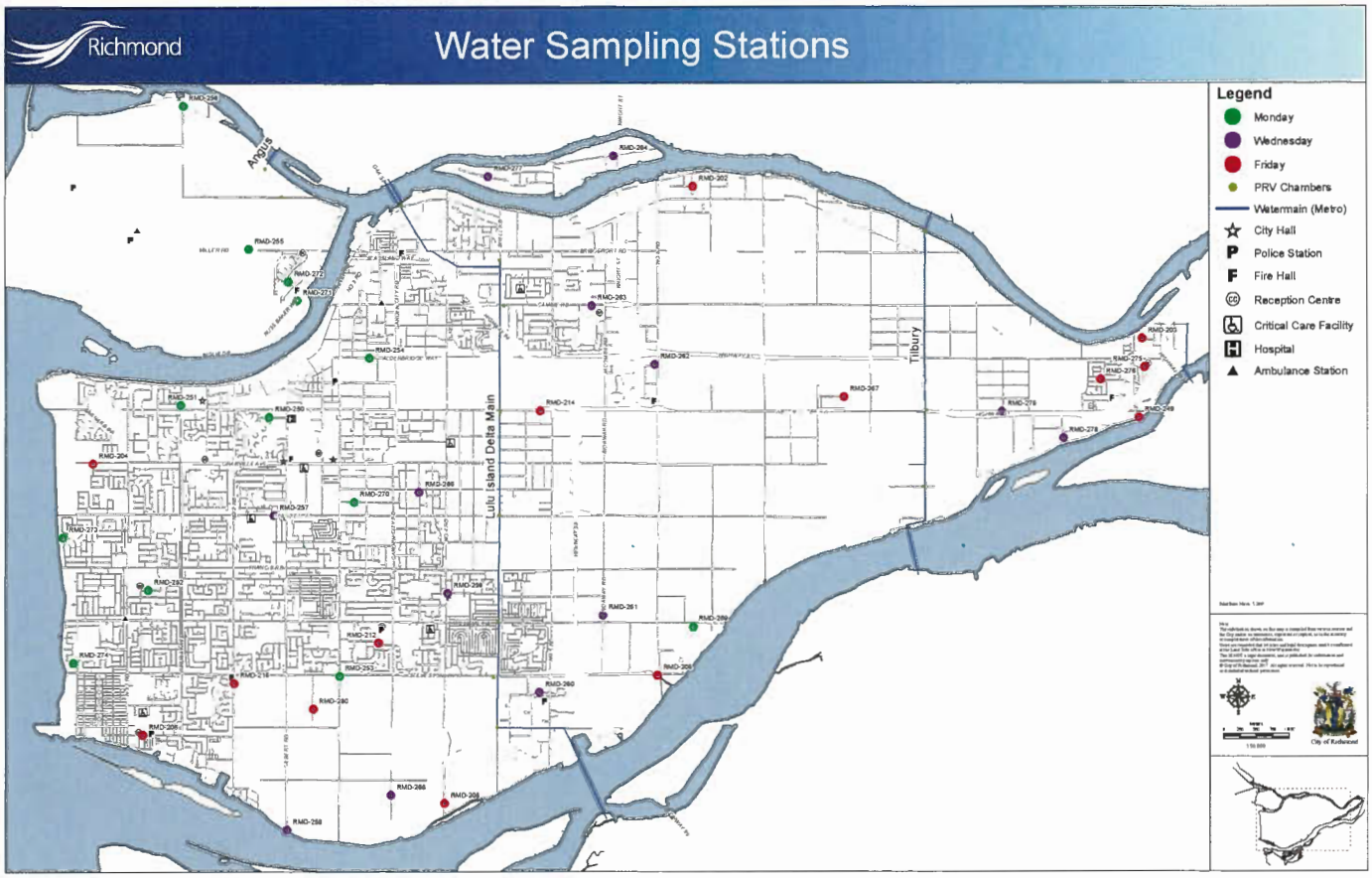
In 2018, the City of Richmond collected samples on a weekly basis at 40 dedicated sampling sites. These sites are strategically located throughout the City to give a good representation of the City's water quality across the distribution network. In 2018, 2,057 water samples were collected by Water Services staff and sent for analysis at Metro Vancouver laboratories. These sample results were reviewed by the Vancouver and Richmond Coastal Health Authority to ensure the drinking water met the standards outlined in the British Columbia Drinking Water Protection Regulations (BCDWPR).

Sample station

Table 2 – Number of Annual Samples

Year	Annual Samples
2010	1,649
2011	1,936
2012	1,957
2013	1,997
2014	1,993
2015	2,027
2016	2,040
2017	2,065
2018	2,057

Taking a sample



Bacteriological Tests

The City of Richmond and Metro Vancouver conduct bacteriological tests for total coliform, fecal coliform and heterotrophic plate counts (HPC). The presence of these organisms in drinking water indicates that the water may be contaminated and may contain potentially harmful bacteria, viruses or parasites.

Defrost food overnight in the fridge instead of thawing it under running water that ends up down the drain.

Multi-Barrier Approach

Richmond recognizes that in order to provide the highest quality water, several methods must be used to ensure its superiority.

The "Multi-Barrier Approach" includes:

- disinfection of the water at the source;
- water quality monitoring capabilities at six PRV sites;
- weekly microbiological testing at 40 sites throughout Richmond;
- system operators are certified by Environmental Operators Certification Program (EOCP) of BC;
- maintenance practices that are of the highest standard.

Leave grass clippings on your lawn after mowing. Leaving clippings to decompose reduces evaporation, allowing you to water your lawn less.

Regular maintenance on sampling site

Samples for lab analysis

Total Coliforms

Total coliform bacteria reproduce in water, soil or digestive systems of animals. The presence of total coliforms indicates water may have been contaminated and that the disinfection process is inadequate. In distribution systems where more than 10 samples are collected in a given sampling period, as is the case in Richmond, no consecutive samples from the same site or no more than 10% of samples should show the presence of total coliform bacteria.

Testing for total coliforms should be carried out in all drinking water systems. The number, frequency and location of samples for total coliform testing will vary according to the type and size of the system and jurisdictional requirements.

Provincial standards state that no sample can contain more than 10 total coliforms per 100 ml, and that 90% of samples in a 30-day period must have zero coliform organisms.

Fecal Coliforms

Fecal coliforms are present in large numbers in the feces and intestinal tracts of humans and other warm-blooded animals, and can enter water bodies from human and animal waste. They are key indicators of sewerage contamination. Due to diseases and parasites, which are spread through sewerage, provincial standards state there can be no detectable fecal coliforms per 100 ml sample.

2018 Results

In 2018, 2,057 water samples were collected by City staff and analyzed by Metro Vancouver laboratory staff. All final results met drinking water requirements for fecal and total coliforms. The City of Richmond was in compliance with British Columbia Drinking Water Protection Regulations (BCDWPR) for bacteria in 2018.

Heterotrophic Plate Count

Heterotrophic plate counts (HPC) tests measure aerobic heterotrophic bacteria. This test indicates the presence of nutrients that could facilitate the growth of harmful bacteria such as E. coli, and determines changes in water quality during treatment and distribution. HPC tests indicate the onset of bacterial re-growth within the distribution system commonly due to stagnant water contained in dead end and low flow watermains. By reducing the HPC levels, the possibility of bacteriological re-growth is essentially reduced because the pipes are an inhospitable environment for bacteria to grow. The minimal amount of positive chlorine residual in our water also disinfects and eliminates harmful substances within our distribution system. In 2018, none of the 2,057 water samples exceeded regulated levels for HPC's at >500 CFU/mls. In fact, only two of the 2,057 water samples exceeded 100 CFU/mls.

Flushing

As part of a five-year program, Water Services successfully executed the annual flushing program. This important maintenance practice ensuring high-quality tap water by moving water through the pipes and eliminating stagnant water at dead-ends. By doing so, the pipes are cleared and the risk of high HPC levels which lead to bacteria re-growth is significantly reduced.

Failed samples

The standard response to a failed water sample is:

- re-sample at the site;
- flush the watermain extensively;
- re-sample;
- the watermain is then isolated to one feed until test results confirm compliance with the British Columbia Drinking Water Protection Regulations (BCDWPR).

Testing the sample

Watering between 4 AM and 9 AM complies with sprinkling regulations, and reduces the amount of water lost to wind and evaporation.

Staff flushing

Don't let the water run when washing dishes. Fill one basin with water for washing and another for rinsing.

According to Metro Vancouver, the average person uses 270 litres of water per day.

Toilets 24%
Faucets 20%
Shower 20%
Clothes washers 16%
Leaks 13%
Baths 3%
Other 3%
Dishwashers 2%

Physical Parameters

Water in Richmond's distribution system is tested for the physical parameters of turbidity and temperature at the same time as bacteriological testing. Information is also collected on the taste and odour of Richmond's water by actively tracking water quality complaints.

Turbidity

Metro Vancouver is responsible for the quality of Richmond's source water. Turbidity is a measure of water clarity and cloudiness. Turbidity is measured in Nephelometric Turbidity Units (NTU). The guideline allows for turbidity levels up to 5 NTUs providing that source water protection, monitoring, and water treatment requirements are met including increased levels of residual chlorine. Turbidity is a concern because increased turbidity compromises the drinking water disinfection process. In 2018, the highest level of turbidity was one sample measured at 4.4 NTU. Only 31 samples out of 2,057 had turbidity levels of more than 1 NTU.

In general, sites with elevated turbidity are located in sections of the distribution network where there is low demand on the water system or where dead-end watermains exist. The increase may be attributed to sediment disturbance in the distribution system. During the year, when sampling indicates a turbidity level greater than >5 NTU's, affected watermains in the test area are flushed, and re-tested until a satisfactory result is obtained.

Temperature

High temperatures in the distribution system can affect the residual level of chlorine and can contribute to bacterial re-growth. Typically, the temperature of drinking water in the distribution system rises during summer months. Although there were no customer complaints regarding Richmond's water temperature, samples exceeded the aesthetic guideline of 15 °C 223 times out of 2,057; only five temperatures exceeded 20 °C. The majority of these elevated temperatures were recorded during the summer months.

Taste and Odour

Taste and odour are only monitored in response to customer complaints. Records indicate that seven complaints were received regarding taste and five complaints were received regarding odour in 2018. These complaints generally relate to high levels of residual chlorine in that part of the system at that particular time. Residents who complained about taste or odour problems were advised to flush their internal system. If the problem was not resolved, Water Services staff were dispatched to the location until a satisfactory result was obtained and verified through laboratory analysis.

Chemical Parameters

The City of Richmond, in partnership with Metro Vancouver, tests for the following chemical parameters: chlorine residual, trihalomethanes (THM), haloacetic acids (HAA), and pH. Periodic testing is also performed to determine heavy metals levels in the water system.

Free Chlorine Residual

Chlorine residual is a measurement of the disinfecting agent remaining in the distribution system at the point of delivery to the customer. Ensuring proper levels of chlorine in the distribution system is essential in protecting Richmond's water supply from bacteriological contamination or re-growth. In recent years, the City has made great progress in improving chlorine residuals by implementing various flushing programs.

Disinfection By-Products

Disinfection by-products are potentially harmful compounds produced by the reaction of a water disinfectant (such as chlorine or ozone) with naturally occurring organic matter in water. Two common chlorination by-products are Trihalomethanes (THMs) and Haloacetic Acids (HAAs). In drinking water, THMs can enter the human body via multiple routes of exposure. These include ingestion by consuming water and inhalation and skin absorption from showering and bathing. Under the Guidelines for Canadian Drinking Water Quality (GCDWQ), the maximum acceptable concentration (IMAC) for THMs is 100 parts per billion (ppb). The 100 ppb level for THMs is based on an annual average of samples taken quarterly. High levels on a particular day are not of concern unless they are consistently high over a period of time. Typically, THM levels will be highest in the summer and lowest in the winter months. Likewise, under the GCDWD, the maximum acceptable concentration (IMAC) for HAAs is 0.08 mg/L. In 2018, the City utilized the Metro Vancouver laboratory to perform quarterly tests for HAA's and THM's. These were carried out at representative sampling sites in accordance with a joint Metro Vancouver/ Richmond monitoring plan. In 2018, all results were within acceptable levels as defined in the GCDWQ. (Appendix 5)

The pH Value

The measurement of acidity is known as pH. A pH below 7.0 is considered acidic, above 7.0 is considered basic, with 7.0 being neutral. It is recognized that acidic water will accelerate the corrosion of metal pipes, often causing blue-green staining in household fixtures.

The Seymour-Capilano filtration plant includes pH adjustment and corrosion control in its treatment processes. It is expected that the pH of drinking water will rise in the coming years as the filtration plant reaches its full potential. This will extend the lifespan of water plumbing systems and enhance water quality.

Metals

The City's water quality program also includes testing for metals, such as copper, iron, lead, and zinc. All results were within or below GCDWQ limits for 2018. Complete test results are included in Appendix 6.

Choose plants that love dry heat. Embrace the dry heat by planting tomatoes, basil, beans, melon, eggplant and more in your garden.

Testing the chlorine residual at the PVR

Shorten your shower by two minutes. Reducing your shower by two minutes can save 460 litres of water in one month.

A family of four washes about 300 loads of laundry per year. Run full loads of laundry. A full load uses less water than two half loads.

Set a timer as a reminder to turn off your sprinkler.

Mobile Emergency Response Unit

Water Services staff are trained to operate the water treatment trailer for use during a major emergency where Richmond's water is contaminated. The treatment trailer is capable of producing 55,000 litres of potable water per day from non-potable sources such as the Fraser River. It is maintained and continuously tested by Water Services staff to ensure that the water is safe to serve Richmond residents in an emergency situation.

Rear view of the unit

Educating students at Project WET

Public Notification

At the direction of the Medical Health Officer, water quality advisories will be issued to the general public if necessary. Similarly, the notification will be issued to the general public for any work being done that will affect the quality of their drinking water. An example is included in Appendix 7.

Table 3 – Agency Notification for Situations Drinking Water Safety

Situation	Notifying Agency	Agency Notified	Time Frame For Notification
Fecal positive sample	City of Richmond Metro Vancouver Lab	City of Richmond / Medical Health Officer	Immediate
Chemical/biological contamination	City of Richmond Metro Vancouver Lab	City of Richmond / Medical Health Officer	Immediate
Turbidity > 5 NTU	City of Richmond Metro Vancouver Control Centre Metro Vancouver Lab	City of Richmond / Medical Health Officer	Immediate
Disinfection failure primary or secondary disinfection	City of Richmond Metro Vancouver Control Centre Metro Vancouver Lab	City of Richmond / Medical Health Officer	Immediate, where BC DWPR or GCDWQ guidelines may not be met
Loss of pressure due to high demand	City of Richmond Metro Vancouver Control Centre	Medical Health Officer City of Richmond Metro Vancouver Control Centre	Immediate
Watermain break where the pressure drops below 20 psi	City of Richmond Metro Vancouver Control Centre	Medical Health Officer City of Richmond	Immediate

Use a broom instead of a hose. Sweep driveways, decks, patios and sidewalks with a broom instead of using a hose. That 15-minute job could use 675 litres of water.

Instead of running the tap until the water cools, keep a pitcher of cold drinking water on standby in the fridge.

Residential water meter

Water meter maintenance

Water Conservation Programs

Water Conservation Program

The City of Richmond continues to succeed in reducing annual water consumption despite a growing population. Since 2012, population has grown by approximately 11% (10% in 2017) and overall water consumption has decreased by 6% (7% in 2017). This equates to a total annual savings of over $1,490,000. This can be explained by corporate and community wide initiatives including water metering, pressure management, the toilet rebate program, the clothes washer rebate program and the City's leak reduction program.

Reduction of water system pressure in lower demand periods such as the winter season extends water infrastructure service life and also reduces system water loss.

The leak reduction program identifies single-family properties with continuous leaks and educates the homeowner about the leak and significantly reduces overall private property leakage.

Universal Single-Family Water Meter Program

The universal single-family water meter program was completed in 2017. Advanced notification was provided to flat rate customers prior to meter installation. Water meters are a fair and equitable way of charging residents for water and will reduce the overall water consumption throughout the City.

Multi-Family Water Meter Program

The volunteer multi-family water meter program allows residents to pay for the actual amount of water they use, rather than being billed on the flat-rate system. To date, 146 multi-family complexes have been completed, comprising of 9,119 dwelling units. Multi-family meter installs began in 2018 and carried over to 2019 for completion.

Pressure Management Program

The City of Richmond reduces water pressure by 10 PSI between October and May, causing the system pressure to change from 90 PSI to 80 PSI. The purpose of this practice is to reduce the volume of leakage and extend the life of our water infrastructure. A decrease in nighttime flows and private leaks has been observed. Richmond is actively pursuing automated pressure management, where fluctuation would happen on a more regular basis through pilot systems on our pressure reducing valve (PRV) stations, which could recognize demand periods. Each one of Richmond's 12 PRV stations is turned down until the operating pressure is reached. In 2017, the City introduced a new and successful timer-based pressure management program which lowered the pressure from 90 PSI to 80 PSI in the summer months from 1:00 to 5:00 a.m. This program will further reduce leakage volume and extend the life of the water infrastructure.

Toilet Rebate Program

The City of Richmond's Toilet Rebate Program provides a utility account rebate of $100.00 to homeowners who install a low-flush toilet. Single and multi-family homeowners are eligible to apply for a lifetime maximum of two rebates per property. Industrial, commercial and other non-residential properties are not eligible at this time. The purpose of the toilet rebate program is to encourage homeowners to replace high volume toilets with low-flush toilets to conserve water and to reduce costs. Homeowners enjoy a reduction in their utility bill while contributing to a sustainable water conservation initiative. In 2018, there were 728 rebates submitted.

Clothes Washer Rebate Program

Through a partnership program with BC Hydro, residents could receive a rebate of up to $100, equally cost shared between BC Hydro and the City of Richmond for the replacement of an inefficient clothes washer with a new high efficiency one. The bi-annual rebate program encourages homeowners to conserve water and energy. In 2018, 914 clothes washer rebates were issued to Richmond residents.

Rain Barrels

Rain barrels are excellent outdoor water-saving devices that collect and store rainwater from rooftops for lawn and garden use. Rain water is a great water source for lawns, plants and gardens. For water metered households, using rainwater will reduce the amount of tap water used for your garden therefore decreasing the utility bill.

Rain barrels are available for purchase at the City's Recycling Depot by Richmond residents only. Installation instructions are included. In 2018, 118 rain barrels were sold; a slight decline from the 153 rain barrels sold in 2017.

SYSTERN rain barrel features:

- unique shape and neutral color suitable for any home and garden;
- 208 litre (55 gallon) capacity;
- mosquito mesh keeps out bugs and leaves;
- BPA free;
- made from recycled content;
- UV stabilizer is added to resist deterioration from sunlight;
- overflow hose can be linked to another SYSTERN or can be directed away from the house.

Metro Vancouver Water Restrictions

Due to dry and hot weather, continued high water demand and declining reservoir levels, Metro Vancouver imposed stage one water sprinkling restrictions from May 1 until October 15. All Public Works sections and Parks Operations were involved in collecting and using recycled water for Richmond's parks, plants, street sweeping and vactor operation.

Vegetables love the warm water stored in rain barrels, and you'll save treated drinking water.

Rain barrel

Put leaves and bark mulch around shrubs and trees to hold in moisture. Mulch can preserve moisture by reducing soil temperature and slowing evaporation.

Water distribution station at Project WET

Meter Shop station at Project WET

Portable drinking fountain

Water Education Programs

Project WET

Project WET is an interactive elementary school water education program aimed at teaching students about the importance of water, environmental programs, sewerage and drainage. Largely targeted for Richmond students in grades four through seven, this program is designed to educate students on the importance of water quality and supply.

The acronym "WET" stands for "Water Education Team". Touring from station to station, the objective is to promote higher-level thinking skills while learning about the fundamentals of water. In 2018, over 250 students and teachers participated in the program.

During the tour to the Works Yard, students can expect to learn many exciting areas of water and drainage systems such as:

- Richmond's water distribution system and how water reaches the taps;
- water sampling and water quality testing;
- importance of fire hydrants and how they work;
- portable drinking fountains and Richmond's high-quality tap water;
- water conservation and what students can do to help;
- uses of watermains, automatic flushing units, valves and meters;
- inspection camera technology;
- sewerage and drainage pipes and systems;
- importance of keeping toxic materials out of ditches and storm sewers;
- pump stations and how they work;
- recycling and other environmentally sustainable practices;
- how our dykes help to keep our island afloat;
- Richmond's emergency water treatment trailer.

Tap Water Initiative

In 2010, Metro Vancouver initiated its tap water campaign. The intent of this initiative is to encourage tap water consumption by the public and highlight public drinking fountains so that the public can refill water bottles or simply get a drink of water. On April 14, 2009, Mayor Malcom Brodie endorsed this campaign indicating that the City of Richmond is dedicated to promoting the value of municipal tap water, maximizing opportunities for use of tap water in municipal facilities and developing strategies for making tap water the "water of choice".

To support this initiative, Richmond's Water Services section is proud to maintain several portable drinking fountains that are used at numerous community events to provide the public with potable tap water and to promote tap water usage as an alternative to bottled water consumption. Samples are tested upon installation ensuring good quality water for the public to enjoy. In 2018, Water Services' portable drinking fountains were installed at 43 community events in Richmond.

The 28 water fountains found on Richmond's dikes and in parks are maintained by Water Services. They are tested and inspected ensuring accessible and high-quality drinking water. They must be turned off in winter months to prevent freezing and costly damage. They are turned on in the spring for the public to enjoy. An auto-flushing unit was installed on one of the longer pipes, to a fountain, to turn over the water and maintain an accurate chlorine residual.

Position your sprinkler so that it is only watering your lawn and plants, not driveways or sidewalks.

Public Works Open House

The Water Services section plays a large role in the annual Public Works Open House that takes place in May. This is an opportunity for staff to show residents some of the critical services that are provided such as maintaining our infrastructure. Likewise, staff showcase the work that is done on a daily basis to ensure the safety and health of the community. This event draws attention to the importance of public works in community life.

Public Works Open House

"H2Whoa!" Theatrical Presentation by DreamRider Productions

"H2Whoa!" teaches students in grades K-7 all about the water cycle, sources of water pollution and water conservation. The focus is on positive actions and educating family and friends about the use of water, the need to protect it and its importance to everyday living. In 2018, ten Richmond elementary schools and over 3,200 teachers and students had the opportunity to view this theatrical presentation.

Public Works Open House

Conclusion

In 2018, Richmond residents enjoyed high-quality drinking water. From the protected watersheds to the local taps, both Metro Vancouver and the City of Richmond focus immensely on safe and high-quality drinking water.

Test results confirm high-quality water and demonstrate continuous improvement. Richmond's water system is provided with the highest degree of care to ensure that it's an inhospitable environment for any harmful bacteria or toxins. The City of Richmond's Water Services section takes its role as a water purveyor very seriously and is proud to be the guardian of such a precious resource.

Water Services staff continue to employ best management practices in the operation and maintenance of the water system. Certified by the Equipment Operators Certification Program (EOCP), staff meet all requirements of the British Columbia Drinking Water Protection Act (BCDWPA) and are well equipped to operate and maintain all aspects of the water system from source to property line

The City appreciates the good working relationship with Vancouver Coastal Health Authority and acknowledges them as important partners in maintaining high quality drinking water throughout the City of Richmond.

Sincerely,

Bryan Shepherd
Manager, Water Services
City of Richmond
604-233-3334
bshepherd@richmond.ca

Appendices

APPENDIX 1: REFERENCES

APPENDIX 2: WATER SAMPLING SITES

APPENDIX 3: 2018 WATER QUALITY RESULTS

APPENDIX 4: 2018 THM AND HAA TEST RESULTS

APPENDIX 5: 2018 HEAVY METAL AND VINYL CHLORIDE TESTING RESULTS

APPENDIX 6: SAMPLE DRINKING WATER QUALITY ADVISORY

APPENDIX 7: SPECIFIC EMERGENCY RESPONSE PLANS

APPENDIX 1: REFERENCES

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   www.richmond.ca/discover/about/demographics.htm
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APPENDIX 2: WATER SAMPLING SITES

	SAMPLING STATION NUMBER	WATER SAMPLING SITES
MONDAY	RMD-250	6071 Azure Road
	RMD-251	5951McCallan Road
	RMD-252	9751 Pendleton Road
	RMD-253	11051 No 3 Road
	RMD-254	5300 No. 3 Road
	RMD-255	6000 Blk. Miller Road
	RMD-256	1000 Blk. McDonald Road
	RMD-269	14951 Triangle Road
	RMD-270	8200 Jones Road
	RMD-271	3800 Cessna Drive
	RMD-272	751 Catalina Crescent
	RMD-273	Opp. 8331 Fairfax Place
	RMD-274	10920 Springwood Court
WEDNESDAY	RMD-257	6640 Blundell Road
	RMD-258	7000 Blk. Dyke Road
	RMD-259	10020 Amethyst Avenue
	RMD-260	11111 Horseshoe Way
	RMD-261	9911 Sidaway Road
	RMD-262	13799 Commerce Pkwy
	RMD-263	12560 Cambie Road
	RMD-264	13100 Mitchell Road
	RMD-266	9380 General Currie Road
	RMD-268	13800 No. 3 Road
	RMD-277	Opp. 11280 Twigg Place
	RMD-278	6651 Fraserwood Place
	RMD-279	Opp. 20371 Westminster Highway
FRIDAY	RMD-202	1500 Valemont Way
	RMD-203	23260 Westminster Highway
	RMD-204	3180 Granville Avenue
	RMD-205	13851 Steveston Highway
	RMD-206	4251 Moncton Street
	RMD-208	13200 No. 4 Road
	RMD-212	Opposite 8600 Ryan Road
	RMD-214	11720 Westminster Highway
	RMD-216	11080 No. 2 Road
	RMD-267	17240 Fedoruk Road
	RMD-249	23000 Block Dyke Road
	RMD-275	5180 Smith Crescent
	RMD-276	22271 Cochrane Drive
	RMD-280	11500 McKenzie Road

APPENDIX 3: 2018 WATER QUALITY RESULTS

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-251	Grab	5951McCallan Rd.	2-Jan-18	0.75	<1	<2	3	<1	0.13
RMD-273	Grab	Opp. 8331 Fairfax Place	2-Jan-18	0.78	<1	<2	4	<1	0.19
RMD-252	Grab	9751 Pendleton Rd.	2-Jan-18	0.8	<1	<2	4	<1	0.1
RMD-274	Grab	10920 Springwood Court	2-Jan-18	0.83	<1	<2	5	<1	0.12
RMD-253	Grab	11051 No 3 Rd.	2-Jan-18	0.87	<1	2	3	<1	0.07
RMD-269	Grab	14951 Triangle Rd.	2-Jan-18	0.72	<1	<2	6	<1	0.27
RMD-270	Grab	8200 Jones Rd.	2-Jan-18	0.9	<1	<2	4	<1	0.09
RMD-254	Grab	5300 No. 3 Rd.	2-Jan-18	0.81	<1	<2	4	<1	0.09
RMD-256	Grab	1000 Blk. McDonald Rd.	2-Jan-18	0.52	<1	2	5	<1	0.48
RMD-255	Grab	6000 Blk. Miller Rd.	2-Jan-18	0.95	<1	<2	3	<1	0.15
RMD-271	Grab	3800 Cessna Drive	2-Jan-18	0.72	<1	<2	5	<1	0.19
RMD-272	Grab	751 Catalina Cres.	2-Jan-18	0.89	<1	<2	4	<1	0.15
RMD-250	Grab	6071 Azure Rd.	2-Jan-18	0.81	<1	<2	4	<1	0.13
RMD-263	Grab	12560 Cambie Rd.	3-Jan-18	0.76	<1	<2	5	<1	0.09
RMD-277	Grab	Opp. 11280 Twigg Place	3-Jan-18	0.85	<1	<2	5	<1	0.1
RMD-264	Grab	13100 Mitchell Rd.	3-Jan-18	0.83	<1	<2	6	<1	0.15
RMD-262	Grab	13799 Commerce Pkwy.	3-Jan-18	0.64	<1	<2	5	<1	0.09
RMD-278	Grab	6651 Fraserwood Place	3-Jan-18	0.67	<1	4	5	<1	0.08
RMD-279	Grab	Opp. 20371 Westminster Hwy.	3-Jan-18	0.58	<1	4	5	<1	0.1
RMD-261	Grab	9911 Sidaway Rd.	3-Jan-18	0.87	<1	<2	5	<1	0.08
RMD-260	Grab	11111 Horseshoe Way	3-Jan-18	0.84	<1	<2	5	<1	0.09
RMD-259	Grab	10020 Amethyst Ave.	3-Jan-18	0.8	<1	<2	5	<1	0.27
RMD-266	Grab	9380 General Currie Rd.	3-Jan-18	0.81	<1	<2	5	<1	0.09
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	3-Jan-18	0.8	<1	<2	6	<1	0.09
RMD-258	Grab	7000 Blk. Dyke Rd.	3-Jan-18	0.88	<1	<2	5	<1	0.1
RMD-257	Grab	6640 Blundell Rd.	3-Jan-18	0.75	<1	<2	5	<1	0.09
RMD-204	Grab	3180 Granville Ave.	4-Jan-18	0.71	<1	<2	4	<1	0.09
RMD-206	Grab	4251 Moncton St.	4-Jan-18	0.87	<1	<2	5	<1	0.08
RMD-216	Grab	11080 No. 2 Rd.	4-Jan-18	0.93	<1	<2	4	<1	0.1
RMD-280	Grab	11500 McKenzie Rd.	4-Jan-18	0.66	<1	<2	6	<1	0.11
RMD-212	Grab	Opp. 8600 Ryan Rd.	4-Jan-18	0.96	<1	<2	4	<1	0.13
RMD-208	Grab	13200 No. 4 Rd.	4-Jan-18	0.86	<1	<2	5	<1	0.1
RMD-205	Grab	13851 Steveston Hwy.	4-Jan-18	0.73	<1	<2	3	<1	0.08
RMD-202	Grab	1500 Valemont Way	4-Jan-18	0.77	<1	<2	4	<1	0.08
RMD-214	Grab	11720 Westminster Hwy.	4-Jan-18	1.12	<1	<2	4	<1	0.09
RMD-267	Grab	17240 Fedoruk	4-Jan-18	0.69	<1	2	5	<1	0.12
RMD-249	Grab	23000 Blk. Dyke Rd.	4-Jan-18	0.67	<1	<2	5	<1	0.11
RMD-276	Grab	22271 Cochrane Drive	4-Jan-18	0.64	<1	<2	4	<1	0.09

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-275	Grab	5180 Smith Cres.	4-Jan-18	0.58	<1	<2	5	<1	0.18
RMD-203	Grab	23260 Westminster Hwy.	4-Jan-18	0.74	<1	2	3	<1	0.09
RMD-251	Grab	5951McCallan Rd.	8-Jan-18	0.7	<1	<2	3	<1	0.13
RMD-273	Grab	Opp. 8331 Fairfax Place	8-Jan-18	0.68	<1	2	4	<1	0.12
RMD-252	Grab	9751 Pendleton Rd.	8-Jan-18	0.64	<1	ontamina	4	<1	0.11
RMD-274	Grab	10920 Springwood Court	8-Jan-18	0.73	<1	<2	4	<1	0.16
RMD-253	Grab	11051 No 3 Rd.	8-Jan-18	0.65	<1	<2	4	<1	0.19
RMD-269	Grab	14951 Triangle Rd.	8-Jan-18	0.56	<1	<2	4	<1	0.12
RMD-270	Grab	8200 Jones Rd.	8-Jan-18	0.8	<1	2	4	<1	0.15
RMD-256	Grab	1000 Blk. McDonald Rd.	8-Jan-18	0.61	<1	<2	4	<1	0.18
RMD-255	Grab	6000 Blk. Miller Rd.	8-Jan-18	0.88	<1	<2	4	<1	0.24
RMD-271	Grab	3800 Cessna Drive	8-Jan-18	0.78	<1	<2	4	<1	0.12
RMD-272	Grab	751 Catalina Cres.	8-Jan-18	0.69	<1	<2	4	<1	0.14
RMD-250	Grab	6071 Azure Rd.	8-Jan-18	0.72	<1	<2	3	<1	0.77
RMD-263	Grab	12560 Cambie Rd.	10-Jan-18	0.88	<1	<2	3	<1	0.66
RMD-264	Grab	13100 Mitchell Rd.	10-Jan-18	0.9	<1	<2	4	<1	0.99
RMD-277	Grab	Opp. 11280 Twigg Place	10-Jan-18	0.91	<1	<2	5	<1	0.2
RMD-262	Grab	13799 Commerce Pkwy.	10-Jan-18	0.87	<1	<2	3	<1	0.33
RMD-278	Grab	6651 Fraserwood Place	10-Jan-18	0.76	<1	<2	5	<1	0.12
RMD-279	Grab	Opp. 20371 Westminster Hwy.	10-Jan-18	0.77	<1	<2	3	<1	0.12
RMD-261	Grab	9911 Sidaway Rd.	10-Jan-18	0.87	<1	<2	4	<1	0.16
RMD-260	Grab	11111 Horseshoe Way	10-Jan-18	0.89	<1	<2	3	<1	0.14
RMD-259	Grab	10020 Amethyst Ave.	10-Jan-18	0.76	<1	<2	4	<1	0.39
RMD-266	Grab	9380 General Currie Rd.	10-Jan-18	0.78	<1	<2	4	<1	0.2
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	10-Jan-18	0.75	<1	<2	4	<1	0.27
RMD-258	Grab	7000 Blk. Dyke Rd.	10-Jan-18	0.9	<1	<2	4	<1	0.24
RMD-257	Grab	6640 Blundell Rd.	10-Jan-18	0.69	<1	<2	4	<1	0.23
RMD-204	Grab	3180 Granville Ave.	12-Jan-18	0.76	<1	2	5	<1	0.13
RMD-206	Grab	4251 Moncton St.	12-Jan-18	0.87	<1	2	5	<1	0.12
RMD-216	Grab	11080 No. 2 Rd.	12-Jan-18	0.84	<1	<2	5	<1	0.15
RMD-280	Grab	11500 McKenzie Rd.	12-Jan-18	0.85	<1	<2	7	<1	0.19
RMD-212	Grab	Opp. 8600 Ryan Rd.	12-Jan-18	0.79	<1	<2	7	<1	0.15
RMD-208	Grab	13200 No. 4 Rd.	12-Jan-18	0.78	<1	<2	7	<1	0.14
RMD-205	Grab	13851 Steveston Hwy.	12-Jan-18	0.74	<1	<2	5	<1	0.17
RMD-202	Grab	1500 Valemont Way	12-Jan-18	0.83	<1	<2	4	<1	0.19
RMD-214	Grab	11720 Westminster Hwy.	12-Jan-18	0.91	<1	<2	4	<1	0.13
RMD-267	Grab	17240 Fedoruk	12-Jan-18	0.7	<1	<2	5	<1	0.1
RMD-249	Grab	23000 Blk. Dyke Rd.	12-Jan-18	0.66	<1	<2	5	<1	0.3
RMD-275	Grab	5180 Smith Cres.	12-Jan-18	0.71	<1	<2	5	<1	0.13
RMD-276	Grab	22271 Cochrane Drive	12-Jan-18	0.76	<1	<2	5	<1	0.17

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-203	Grab	23260 Westminster Hwy.	12-Jan-18	0.74	<1	2	5	<1	0.15
RMD-251	Grab	5951McCallan Rd.	15-Jan-18	0.76	<1	<2	5	<1	0.13
RMD-273	Grab	Opp. 8331 Fairfax Place	15-Jan-18	0.84	<1	<2	8	<1	0.26
RMD-252	Grab	9751 Pendleton Rd.	15-Jan-18	0.78	<1	<2	7	<1	0.11
RMD-274	Grab	10920 Springwood Court	15-Jan-18	0.91	<1	<2	8	<1	0.14
RMD-253	Grab	11051 No 3 Rd.	15-Jan-18	0.9	<1	<2	6	<1	0.13
RMD-269	Grab	14951 Triangle Rd.	15-Jan-18	0.73	<1	<2	8	<1	0.15
RMD-270	Grab	8200 Jones Rd.	15-Jan-18	0.86	<1	<2	7	<1	0.18
RMD-254	Grab	5300 No. 3 Rd.	15-Jan-18	0.82	<1	<2	6	<1	0.15
RMD-256	Grab	1000 Blk. McDonald Rd.	15-Jan-18	0.64	<1	<2	7	<1	0.33
RMD-255	Grab	6000 Blk. Miller Rd.	15-Jan-18	0.95	<1	<2	6	<1	0.28
RMD-271	Grab	3800 Cessna Drive	15-Jan-18	0.9	<1	<2	6	<1	0.15
RMD-272	Grab	751 Catalina Cres.	15-Jan-18	0.85	<1	2	5	<1	0.14
RMD-250	Grab	6071 Azure Rd.	15-Jan-18	0.87	<1	<2	7	<1	0.15
RMD-263	Grab	12560 Cambie Rd.	17-Jan-18	0.82	<1	<2	4	<1	0.22
RMD-264	Grab	13100 Mitchell Rd.	17-Jan-18	0.85	<1	<2	5	<1	0.1
RMD-277	Grab	Opp. 11280 Twigg Place	17-Jan-18	0.97	<1	<2	4	<1	0.19
RMD-262	Grab	13799 Commerce Pkwy.	17-Jan-18	0.83	<1	<2	4	<1	0.14
RMD-278	Grab	6651 Fraserwood Place	17-Jan-18	0.76	<1	2	6	<1	0.1
RMD-279	Grab	Opp. 20371 Westminster Hwy.	17-Jan-18	0.83	<1	<2	4	<1	0.12
RMD-261	Grab	9911 Sidaway Rd.	17-Jan-18	0.74	<1	<2	4	<1	0.1
RMD-260	Grab	11111 Horseshoe Way	17-Jan-18	0.99	<1	<2	3	<1	0.1
RMD-259	Grab	10020 Amethyst Ave.	17-Jan-18	0.94	<1	<2	4	<1	0.37
RMD-266	Grab	9380 General Currie Rd.	17-Jan-18	0.92	<1	<2	5	<1	0.1
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	17-Jan-18	0.91	<1	<2	4	<1	0.17
RMD-258	Grab	7000 Blk. Dyke Rd.	17-Jan-18	0.92	<1	<2	4	<1	0.11
RMD-257	Grab	6640 Blundell Rd.	17-Jan-18	0.87	<1	2	3	<1	0.1
RMD-204	Grab	3180 Granville Ave.	18-Jan-18	0.79	<1	<2	8	<1	0.12
RMD-206	Grab	4251 Moncton St.	18-Jan-18	0.84	<1	2	5	<1	0.09
RMD-216	Grab	11080 No. 2 Rd.	18-Jan-18	0.92	<1	<2	7	<1	0.12
RMD-280	Grab	11500 McKenzie Rd.	18-Jan-18	0.61	<1	<2	9	<1	0.14
RMD-212	Grab	Opp. 8600 Ryan Rd.	18-Jan-18	0.84	<1	<2	9	<1	0.1
RMD-208	Grab	13200 No. 4 Rd.	18-Jan-18	0.86	<1	2	6	<1	0.1
RMD-205	Grab	13851 Steveston Hwy.	18-Jan-18	0.71	<1	<2	7	<1	0.11
RMD-202	Grab	1500 Valemont Way	18-Jan-18	0.73	<1	<2	6	<1	0.1
RMD-214	Grab	11720 Westminster Hwy.	18-Jan-18	0.87	<1	<2	6	<1	0.13
RMD-267	Grab	17240 Fedoruk	18-Jan-18	0.69	<1	<2	6	<1	0.1
RMD-249	Grab	23000 Blk. Dyke Rd.	18-Jan-18	0.78	<1	2	6	<1	0.1
RMD-276	Grab	22271 Cochrane Drive	18-Jan-18	0.76	<1	<2	6	<1	0.16
RMD-275	Grab	5180 Smith Cres.	18-Jan-18	1.3	<1	<2	6	<1	0.14

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-203	Grab	23260 Westminster Hwy.	18-Jan-18	0.55	<1	<2	7	<1	0.17
RMD-251	Grab	5951McCallan Rd.	22-Jan-18	0.75	<1	<2	7	<1	0.09
RMD-273	Grab	Opp. 8331 Fairfax Place	22-Jan-18	0.74	<1	<2	7	<1	0.21
RMD-252	Grab	9751 Pendleton Rd.	22-Jan-18	0.72	<1	<2	7	<1	0.11
RMD-274	Grab	10920 Springwood Court	22-Jan-18	0.8	<1	2	7	<1	0.14
RMD-253	Grab	11051 No 3 Rd.	22-Jan-18	0.78	<1	<2	7	<1	0.09
RMD-269	Grab	14951 Triangle Rd.	22-Jan-18	0.6	<1	2	8	<1	0.13
RMD-270	Grab	8200 Jones Rd.	22-Jan-18	0.77	<1	<2	8	<1	0.11
RMD-254	Grab	5300 No. 3 Rd.	22-Jan-18	0.69	<1	<2	7	<1	0.12
RMD-256	Grab	1000 Blk. McDonald Rd.	22-Jan-18	0.6	<1	<2	8	<1	0.12
RMD-255	Grab	6000 Blk. Miller Rd.	22-Jan-18	0.95	<1	<2	5	<1	0.23
RMD-271	Grab	3800 Cessna Drive	22-Jan-18	0.8	<1	<2	7	<1	0.19
RMD-272	Grab	751 Catalina Cres.	22-Jan-18	0.95	<1	<2	7	<1	0.15
RMD-250	Grab	6071 Azure Rd.	22-Jan-18	0.74	<1	<2	7	<1	0.11
RMD-263	Grab	12560 Cambie Rd.	24-Jan-18	0.82	<1	<2	5	<1	0.18
RMD-264	Grab	13100 Mitchell Rd.	24-Jan-18	0.88	<1	<2	5	<1	0.17
RMD-277	Grab	Opp. 11280 Twigg Place	24-Jan-18	0.85	<1	<2	4	<1	0.15
RMD-262	Grab	13799 Commerce Pkwy.	24-Jan-18	0.77	<1	<2	4	<1	0.13
RMD-278	Grab	6651 Fraserwood Place	24-Jan-18	0.53	<1	<2	6	<1	0.14
RMD-279	Grab	Opp. 20371 Westminster Hwy.	24-Jan-18	0.72	<1	<2	5	<1	0.13
RMD-261	Grab	9911 Sidaway Rd.	24-Jan-18	0.83	<1	<2	4	<1	0.11
RMD-260	Grab	11111 Horseshoe Way	24-Jan-18	0.89	<1	<2	4	<1	0.11
RMD-259	Grab	10020 Amethyst Ave.	24-Jan-18	0.81	<1	<2	6	<1	0.37
RMD-266	Grab	9380 General Currie Rd.	24-Jan-18	0.99	<1	<2	6	<1	0.15
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	24-Jan-18	0.82	<1	<2	5	<1	0.2
RMD-258	Grab	7000 Blk. Dyke Rd.	24-Jan-18	0.94	<1	<2	5	<1	0.13
RMD-257	Grab	6640 Blundell Rd.	24-Jan-18	0.78	<1	<2	6	<1	0.16
RMD-204	Grab	3180 Granville Ave.	26-Jan-18	0.74	<1	<2	9	<1	0.1
RMD-206	Grab	4251 Moncton St.	26-Jan-18	0.82	<1	<2	6	<1	0.11
RMD-216	Grab	11080 No. 2 Rd.	26-Jan-18	0.86	<1	<2	6	<1	0.12
RMD-280	Grab	11500 McKenzie Rd.	26-Jan-18	0.83	<1	<2	6	<1	0.09
RMD-212	Grab	Opp. 8600 Ryan Rd.	26-Jan-18	0.76	<1	<2	5	<1	0.1
RMD-208	Grab	13200 No. 4 Rd.	26-Jan-18	0.74	<1	<2	5	<1	0.1
RMD-205	Grab	13851 Steveston Hwy.	26-Jan-18	0.75	<1	<2	6	<1	0.12
RMD-202	Grab	1500 Valemont Way	26-Jan-18	0.71	<1	<2	5	<1	0.08
RMD-214	Grab	11720 Westminster Hwy.	26-Jan-18	0.91	<1	<2	6	<1	0.08
RMD-267	Grab	17240 Fedoruk	26-Jan-18	0.67	<1	2	6	<1	0.12
RMD-249	Grab	23000 Blk. Dyke Rd.	26-Jan-18	0.6	<1	<2	5	<1	0.1
RMD-276	Grab	22271 Cochrane Drive	26-Jan-18	0.66	<1	<2	6	<1	0.09
RMD-275	Grab	5180 Smith Cres.	26-Jan-18	0.6	<1	<2	6	<1	0.11

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-203	Grab	23260 Westminster Hwy.	26-Jan-18	0.81	<1	<2	5	<1	0.09
RMD-251	Grab	5951McCallan Rd.	29-Jan-18	0.87	<1	<2	7	<1	0.13
RMD-273	Grab	Opp. 8331 Fairfax Place	29-Jan-18	0.78	<1	<2	8	<1	0.14
RMD-252	Grab	9751 Pendleton Rd.	29-Jan-18	0.72	<1	<2	7	<1	0.1
RMD-274	Grab	10920 Springwood Court	29-Jan-18	0.9	<1	<2	7	<1	0.09
RMD-253	Grab	11051 No 3 Rd.	29-Jan-18	0.85	<1	<2	6	<1	0.13
RMD-269	Grab	14951 Triangle Rd.	29-Jan-18	0.67	<1	<2	7	<1	0.14
RMD-270	Grab	8200 Jones Rd.	29-Jan-18	0.87	<1	<2	7	<1	0.13
RMD-254	Grab	5300 No. 3 Rd.	29-Jan-18	0.81	<1	<2	7	<1	0.12
RMD-256	Grab	1000 Blk. McDonald Rd.	29-Jan-18	0.61	<1	<2	8	<1	0.18
RMD-255	Grab	6000 Blk. Miller Rd.	29-Jan-18	0.87	<1	<2	6	<1	0.28
RMD-271	Grab	3800 Cessna Drive	29-Jan-18	0.91	<1	<2	8	<1	0.13
RMD-272	Grab	751 Catalina Cres.	29-Jan-18	0.86	<1	2	8	<1	0.13
RMD-250	Grab	6071 Azure Rd.	29-Jan-18	0.71	<1	<2	8	<1	0.11
RMD-263	Grab	12560 Cambie Rd.	31-Jan-18	0.83	<1	<2	6	<1	0.12
RMD-264	Grab	13100 Mitchell Rd.	31-Jan-18	0.94	<1	<2	6	<1	0.1
RMD-277	Grab	Opp. 11280 Twigg Place	31-Jan-18	0.99	<1	<2	6	<1	0.21
RMD-262	Grab	13799 Commerce Pkwy.	31-Jan-18	0.63	<1	2	6	<1	0.1
RMD-278	Grab	6651 Fraserwood Place	31-Jan-18	0.69	<1	<2	8	<1	0.13
RMD-261	Grab	9911 Sidaway Rd.	31-Jan-18	0.66	<1	<2	7	<1	0.17
RMD-260	Grab	11111 Horseshoe Way	31-Jan-18	1.01	<1	<2	6	<1	0.14
RMD-259	Grab	10020 Amethyst Ave.	31-Jan-18	0.73	<1	<2	8	<1	0.62
RMD-266	Grab	9380 General Currie Rd.	31-Jan-18	1	<1	<2	6	<1	0.17
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	31-Jan-18	1.04	<1	<2	6	<1	3.4
RMD-258	Grab	7000 Blk. Dyke Rd.	31-Jan-18	0.88	<1	<2	6	<1	0.67
RMD-257	Grab	6640 Blundell Rd.	31-Jan-18	0.84	<1	<2	6	<1	0.09
RMD-204	Grab	3180 Granville Ave.	1-Feb-18	0.76	<1	<2	7	<1	0.13
RMD-206	Grab	4251 Moncton St.	1-Feb-18	0.92	<1	<2	7	<1	0.19
RMD-216	Grab	11080 No. 2 Rd.	1-Feb-18	0.87	<1	<2	6	<1	0.1
RMD-280	Grab	11500 McKenzie Rd.	1-Feb-18	0.79	<1	<2	8	<1	0.14
RMD-212	Grab	Opp. 8600 Ryan Rd.	1-Feb-18	0.82	<1	2	6	<1	0.1
RMD-208	Grab	13200 No. 4 Rd.	1-Feb-18	0.83	<1	<2	6	<1	0.18
RMD-205	Grab	13851 Steveston Hwy.	1-Feb-18	0.7	<1	<2	7	<1	0.14
RMD-202	Grab	1500 Valemont Way	1-Feb-18	0.73	<1	<2	6	<1	0.48
RMD-214	Grab	11720 Westminster Hwy.	1-Feb-18	0.95	<1	<2	6	<1	0.15
RMD-267	Grab	17240 Fedoruk	1-Feb-18	0.66	<1	<2	6	<1	0.14
RMD-249	Grab	23000 Blk. Dyke Rd.	1-Feb-18	0.65	<1	<2	6	<1	0.19
RMD-276	Grab	22271 Cochrane Drive	1-Feb-18	0.67	<1	<2	7	<1	0.13
RMD-275	Grab	5180 Smith Cres.	1-Feb-18	0.62	<1	<2	6	<1	0.13
RMD-203	Grab	23260 Westminster Hwy.	1-Feb-18	0.67	<1	<2	7	<1	0.12

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-279	Grab	Opp. 20371 Westminster Hwy.	1-Feb-18	0.68	<1	<2	5	<1	0.1
RMD-251	Grab	5951McCallan Rd.	5-Feb-18	1.05	<1	2	5	<1	0.12
RMD-273	Grab	Opp. 8331 Fairfax Place	5-Feb-18	0.98	<1	<2	7	<1	0.12
RMD-252	Grab	9751 Pendleton Rd.	5-Feb-18	0.79	<1	<2	6	<1	0.13
RMD-274	Grab	10920 Springwood Court	5-Feb-18	0.88	<1	<2	7	<1	0.13
RMD-253	Grab	11051 No 3 Rd.	5-Feb-18	1.07	<1	<2	5	<1	0.11
RMD-269	Grab	14951 Triangle Rd.	5-Feb-18	0.78	<1	<2	7	<1	0.12
RMD-270	Grab	8200 Jones Rd.	5-Feb-18	0.88	<1	4	6	<1	0.15
RMD-254	Grab	5300 No. 3 Rd.	5-Feb-18	0.77	<1	2	7	<1	0.12
RMD-256	Grab	1000 Blk. McDonald Rd.	5-Feb-18	0.77	<1	<2	7	<1	0.13
RMD-255	Grab	6000 Blk. Miller Rd.	5-Feb-18	0.89	<1	<2	6	<1	0.58
RMD-271	Grab	3800 Cessna Drive	5-Feb-18	0.72	<1	<2	6	<1	0.1
RMD-272	Grab	751 Catalina Cres.	5-Feb-18	0.82	<1	<2	6	<1	0.37
RMD-250	Grab	6071 Azure Rd.	5-Feb-18	0.89	<1	<2	6	<1	0.1
RMD-257	Grab	6640 Blundell Rd.	7-Feb-18	0.67	<1	<2	4	<1	0.14
RMD-266	Grab	9380 General Currie Rd.	7-Feb-18	0.67	<1	<2	3.5	<1	0.19
RMD-263	Grab	12560 Cambie Rd.	7-Feb-18	0.64	<1	<2	4	<1	0.14
RMD-277	Grab	Opp. 11280 Twigg Place	7-Feb-18	0.66	<1	<2	4	<1	0.18
RMD-264	Grab	13100 Mitchell Rd.	7-Feb-18	0.65	<1	<2	5	<1	0.24
RMD-262	Grab	13799 Commerce Pkwy.	7-Feb-18	0.67	<1	<2	4	<1	0.13
RMD-278	Grab	6651 Fraserwood Place	7-Feb-18	0.65	<1	<2	4.5	<1	0.12
RMD-279	Grab	Opp. 20371 Westminster Hwy.	7-Feb-18	0.66	<1	<2	4	<1	0.17
RMD-261	Grab	9911 Sidaway Rd.	7-Feb-18	0.65	<1	<2	4	<1	0.13
RMD-260	Grab	11111 Horseshoe Way	7-Feb-18	0.7	<1	<2	3	<1	0.14
RMD-259	Grab	10020 Amethyst Ave.	7-Feb-18	0.62	<1	<2	5	<1	0.33
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	7-Feb-18	0.69	<1	<2	4	<1	0.16
RMD-258	Grab	7000 Blk. Dyke Rd.	7-Feb-18	0.64	<1	<2	4.5	<1	0.29
RMD-204	Grab	3180 Granville Ave.	9-Feb-18	0.72	<1	<2	4	<1	0.15
RMD-206	Grab	4251 Moncton St.	9-Feb-18	0.6	<1	<2	5	<1	0.19
RMD-216	Grab	11080 No. 2 Rd.	9-Feb-18	0.79	<1	2	4	<1	0.2
RMD-280	Grab	11500 McKenzie Rd.	9-Feb-18	0.81	<1	<2	5	<1	0.15
RMD-212	Grab	Opp. 8600 Ryan Rd.	9-Feb-18	1	<1	<2	5	<1	0.21
RMD-208	Grab	13200 No. 4 Rd.	9-Feb-18	0.87	<1	<2	4	<1	0.19
RMD-205	Grab	13851 Steveston Hwy.	9-Feb-18	0.63	<1	2	5	<1	0.08
RMD-202	Grab	1500 Valemont Way	9-Feb-18	0.73	<1	<2	4	<1	0.13
RMD-214	Grab	11720 Westminster Hwy.	9-Feb-18	0.8	<1	2	4	<1	0.15
RMD-267	Grab	17240 Fedoruk	9-Feb-18	0.7	<1	<2	6	<1	0.13
RMD-249	Grab	23000 Blk. Dyke Rd.	9-Feb-18	0.66	<1	<2	4	<1	0.09
RMD-276	Grab	22271 Cochrane Drive	9-Feb-18	0.68	<1	<2	5	<1	0.09
RMD-275	Grab	5180 Smith Cres.	9-Feb-18	0.67	<1	<2	7	<1	0.08

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-203	Grab	23260 Westminster Hwy.	9-Feb-18	0.77	<1	<2	5	<1	0.11
RMD-251	Grab	5951McCallan Rd.	13-Feb-18	0.84	<1	<2	5	<1	0.11
RMD-273	Grab	Opp. 8331 Fairfax Place	13-Feb-18	0.77	<1	20	7	<1	0.1
RMD-252	Grab	9751 Pendleton Rd.	13-Feb-18	0.73	<1	<2	7	<1	0.1
RMD-274	Grab	10920 Springwood Court	13-Feb-18	0.76	<1	<2	7	<1	0.1
RMD-253	Grab	11051 No 3 Rd.	13-Feb-18	0.85	<1	<2	5	<1	0.12
RMD-269	Grab	14951 Triangle Rd.	13-Feb-18	0.58	<1	<2	5	<1	0.12
RMD-270	Grab	8200 Jones Rd.	13-Feb-18	0.73	<1	<2	6	<1	0.1
RMD-254	Grab	5300 No. 3 Rd.	13-Feb-18	0.72	<1	<2	6	<1	0.12
RMD-256	Grab	1000 Blk. McDonald Rd.	13-Feb-18	0.54	<1	<2	7	<1	0.26
RMD-255	Grab	6000 Blk. Miller Rd.	13-Feb-18	0.94	<1	<2	5	<1	0.24
RMD-271	Grab	3800 Cessna Drive	13-Feb-18	0.89	<1	<2	7	<1	0.16
RMD-272	Grab	751 Catalina Cres.	13-Feb-18	1.04	<1	<2	5	<1	0.15
RMD-250	Grab	6071 Azure Rd.	13-Feb-18	0.81	<1	<2	5	<1	0.1
RMD-263	Grab	12560 Cambie Rd.	14-Feb-18	0.84	<1	<2	5	<1	0.2
RMD-264	Grab	13100 Mitchell Rd.	14-Feb-18	1.01	<1	<2	4	<1	0.13
RMD-277	Grab	Opp. 11280 Twigg Place	14-Feb-18	0.91	<1	<2	4	<1	0.2
RMD-262	Grab	13799 Commerce Pkwy.	14-Feb-18	0.61	<1	<2	5	<1	0.18
RMD-278	Grab	6651 Fraserwood Place	14-Feb-18	0.64	<1	<2	6	<1	0.2
RMD-279	Grab	Opp. 20371 Westminster Hwy.	14-Feb-18	0.79	<1	<2	5	<1	0.15
RMD-261	Grab	9911 Sidaway Rd.	14-Feb-18	0.69	<1	<2	4	<1	0.29
RMD-260	Grab	11111 Horseshoe Way	14-Feb-18	0.85	<1	<2	4	<1	0.17
RMD-259	Grab	10020 Amethyst Ave.	14-Feb-18	0.72	<1	<2	5	<1	0.5
RMD-266	Grab	9380 General Currie Rd.	14-Feb-18	0.82	<1	<2	4	<1	0.19
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	14-Feb-18	0.94	<1	<2	5	<1	0.11
RMD-258	Grab	7000 Blk. Dyke Rd.	14-Feb-18	0.77	<1	<2	4	<1	0.14
RMD-257	Grab	6640 Blundell Rd.	14-Feb-18	0.73	<1	<2	3	<1	0.16
RMD-204	Grab	3180 Granville Ave.	15-Feb-18	0.89	<1	2	3	<1	0.12
RMD-206	Grab	4251 Moncton St.	15-Feb-18	0.75	<1	<2	3	<1	0.17
RMD-216	Grab	11080 No. 2 Rd.	15-Feb-18	0.75	<1	<2	3	<1	0.2
RMD-280	Grab	11500 McKenzie Rd.	15-Feb-18	0.67	<1	<2	5	<1	0.19
RMD-212	Grab	Opp. 8600 Ryan Rd.	15-Feb-18	0.75	<1	<2	3	<1	0.11
RMD-208	Grab	13200 No. 4 Rd.	15-Feb-18	0.82	<1	<2	3	<1	0.14
RMD-205	Grab	13851 Steveston Hwy.	15-Feb-18	0.62	<1	<2	3	<1	0.1
RMD-202	Grab	1500 Valemont Way	15-Feb-18	0.68	<1	<2	1	<1	0.1
RMD-214	Grab	11720 Westminster Hwy.	15-Feb-18	0.62	<1	<2	2	<1	0.12
RMD-267	Grab	17240 Fedoruk	15-Feb-18	0.55	<1	<2	4	<1	0.18
RMD-249	Grab	23000 Blk. Dyke Rd.	15-Feb-18	0.62	<1	<2	3	<1	0.21
RMD-276	Grab	22271 Cochrane Drive	15-Feb-18	0.62	<1	2	4	<1	0.24
RMD-275	Grab	5180 Smith Cres.	15-Feb-18	0.55	<1	<2	4	<1	0.12

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-203	Grab	23260 Westminster Hwy.	15-Feb-18	0.64	<1	<2	3	<1	0.14
RMD-251	Grab	5951McCallan Rd.	19-Feb-18	0.61	<1	<2	3	<1	0.11
RMD-273	Grab	Opp. 8331 Fairfax Place	19-Feb-18	0.6	<1	<2	3	<1	0.17
RMD-252	Grab	9751 Pendleton Rd.	19-Feb-18	0.64	<1	<2	4	<1	0.15
RMD-274	Grab	10920 Springwood Court	19-Feb-18	0.62	<1	<2	5	<1	0.17
RMD-253	Grab	11051 No 3 Rd.	19-Feb-18	0.83	<1	<2	3	<1	0.21
RMD-269	Grab	14951 Triangle Rd.	19-Feb-18	0.72	<1	<2	4	<1	0.2
RMD-270	Grab	8200 Jones Rd.	19-Feb-18	0.77	<1	<2	4	<1	0.23
RMD-254	Grab	5300 No. 3 Rd.	19-Feb-18	0.81	<1	<2	4	<1	0.22
RMD-256	Grab	1000 Blk. McDonald Rd.	19-Feb-18	0.59	<1	<2	4	<1	0.36
RMD-255	Grab	6000 Blk. Miller Rd.	19-Feb-18	0.87	<1	<2	4	<1	0.48
RMD-271	Grab	3800 Cessna Drive	19-Feb-18	0.78	<1	<2	3	<1	0.23
RMD-272	Grab	751 Catalina Cres.	19-Feb-18	0.86	<1	<2	3	<1	0.11
RMD-250	Grab	6071 Azure Rd.	19-Feb-18	0.73	<1	<2	5	<1	0.25
RMD-263	Grab	12560 Cambie Rd.	21-Feb-18	0.83	<1	<2	5	<1	0.15
RMD-277	Grab	Opp. 11280 Twigg Place	21-Feb-18	0.9	<1	<2	6	<1	0.14
RMD-264	Grab	13100 Mitchell Rd.	21-Feb-18	0.9	<1	<2	5	<1	0.11
RMD-262	Grab	13799 Commerce Pkwy.	21-Feb-18	0.69	<1	<2	5	<1	0.1
RMD-278	Grab	6651 Fraserwood Place	21-Feb-18	0.71	<1	<2	5	<1	0.13
RMD-279	Grab	Opp. 20371 Westminster Hwy.	21-Feb-18	0.66	<1	<2	6	<1	0.1
RMD-261	Grab	9911 Sidaway Rd.	21-Feb-18	0.7	<1	2	5	<1	0.15
RMD-260	Grab	11111 Horseshoe Way	21-Feb-18	0.9	<1	<2	5	<1	0.1
RMD-259	Grab	10020 Amethyst Ave.	21-Feb-18	0.73	<1	<2	7	<1	0.13
RMD-266	Grab	9380 General Currie Rd.	21-Feb-18	0.87	<1	<2	6	<1	0.12
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	21-Feb-18	0.82	<1	<2	6	<1	0.13
RMD-258	Grab	7000 Blk. Dyke Rd.	21-Feb-18	0.83	<1	<2	6	<1	0.12
RMD-257	Grab	6640 Blundell Rd.	21-Feb-18	0.84	<1	<2	6	<1	0.1
RMD-204	Grab	3180 Granville Ave.	23-Feb-18	0.63	<1	<2	5	<1	0.13
RMD-206	Grab	4251 Moncton St.	23-Feb-18	0.83	<1	<2	5	<1	0.15
RMD-214	Grab	11720 Westminster Hwy.	23-Feb-18	0.91	<1	<2	4	<1	0.1
RMD-216	Grab	11080 No. 2 Rd.	23-Feb-18	0.92	<1	<2	5	<1	0.15
RMD-202	Grab	1500 Valemont Way	23-Feb-18	0.98	<1	<2	3	<1	0.16
RMD-280	Grab	11500 McKenzie Rd.	23-Feb-18	0.91	<1	<2	6	<1	0.14
RMD-212	Grab	Opp. 8600 Ryan Rd.	23-Feb-18	0.88	<1	<2	5	<1	0.13
RMD-267	Grab	17240 Fedoruk	23-Feb-18	0.7	<1	<2	4	<1	0.14
RMD-208	Grab	13200 No. 4 Rd.	23-Feb-18	0.9	<1	2	5	<1	0.1
RMD-249	Grab	23000 Blk. Dyke Rd.	23-Feb-18	0.66	<1	<2	4	<1	0.12
RMD-205	Grab	13851 Steveston Hwy.	23-Feb-18	0.84	<1	<2	5	<1	0.14
RMD-276	Grab	22271 Cochrane Drive	23-Feb-18	0.74	<1	<2	4	<1	0.12
RMD-275	Grab	5180 Smith Cres.	23-Feb-18	0.69	<1	<2	4	<1	0.12

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-203	Grab	23260 Westminster Hwy.	23-Feb-18	0.78	<1	<2	5	<1	0.13
RMD-251	Grab	5951McCallan Rd.	26-Feb-18	0.86	<1	<2	5	<1	0.24
RMD-273	Grab	Opp. 8331 Fairfax Place	26-Feb-18	0.76	<1	<2	6	<1	0.16
RMD-252	Grab	9751 Pendleton Rd.	26-Feb-18	0.76	<1	<2	6	<1	0.13
RMD-274	Grab	10920 Springwood Court	26-Feb-18	0.85	<1	<2	6	<1	0.15
RMD-253	Grab	11051 No 3 Rd.	26-Feb-18	0.86	<1	2	5	<1	0.15
RMD-269	Grab	14951 Triangle Rd.	26-Feb-18	0.87	<1	<2	4	<1	0.14
RMD-270	Grab	8200 Jones Rd.	26-Feb-18	0.85	<1	<2	6	<1	0.22
RMD-254	Grab	5300 No. 3 Rd.	26-Feb-18	0.87	<1	<2	5	<1	0.16
RMD-256	Grab	1000 Blk. McDonald Rd.	26-Feb-18	0.69	<1	<2	6	<1	0.26
RMD-255	Grab	6000 Blk. Miller Rd.	26-Feb-18	0.89	<1	<2	4	<1	0.84
RMD-271	Grab	3800 Cessna Drive	26-Feb-18	0.88	<1	2	6	<1	0.12
RMD-272	Grab	751 Catalina Cres.	26-Feb-18	0.93	<1	2	5	<1	0.15
RMD-250	Grab	6071 Azure Rd.	26-Feb-18	0.87	<1	<2	6	<1	0.13
RMD-263	Grab	12560 Cambie Rd.	28-Feb-18	0.94	<1	<2	5	<1	0.14
RMD-277	Grab	Opp. 11280 Twigg Place	28-Feb-18	0.93	<1	<2	5	<1	0.22
RMD-264	Grab	13100 Mitchell Rd.	28-Feb-18	0.85	<1	<2	5	<1	0.17
RMD-262	Grab	13799 Commerce Pkwy.	28-Feb-18	0.79	<1	<2	5	<1	0.14
RMD-278	Grab	6651 Fraserwood Place	28-Feb-18	0.84	<1	<2	5	<1	0.2
RMD-279	Grab	Opp. 20371 Westminster Hwy.	28-Feb-18	0.84	<1	<2	5	<1	0.18
RMD-261	Grab	9911 Sidaway Rd.	28-Feb-18	0.87	<1	<2	5	<1	0.25
RMD-260	Grab	11111 Horseshoe Way	28-Feb-18	0.79	<1	<2	5	<1	0.16
RMD-259	Grab	10020 Amethyst Ave.	28-Feb-18	0.88	<1	<2	6	<1	0.6
RMD-266	Grab	9380 General Currie Rd.	28-Feb-18	0.9	<1	<2	5	<1	0.14
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	28-Feb-18	0.84	<1	<2	5	<1	0.11
RMD-258	Grab	7000 Blk. Dyke Rd.	28-Feb-18	0.82	<1	<2	5	<1	0.2
RMD-257	Grab	6640 Blundell Rd.	28-Feb-18	0.83	<1	<2	5	<1	0.27
RMD-204	Grab	3180 Granville Ave.	1-Mar-18	1	<1	2	5	<1	0.15
RMD-206	Grab	4251 Moncton St.	1-Mar-18	0.78	<1	<2	5	<1	0.16
RMD-216	Grab	11080 No. 2 Rd.	1-Mar-18	0.93	<1	<2	5	<1	0.12
RMD-280	Grab	11500 McKenzie Rd.	1-Mar-18	0.77	<1	2	6	<1	0.18
RMD-212	Grab	Opp. 8600 Ryan Rd.	1-Mar-18	0.85	<1	<2	4	<1	0.16
RMD-208	Grab	13200 No. 4 Rd.	1-Mar-18	0.94	<1	<2	5	<1	0.12
RMD-205	Grab	13851 Steveston Hwy.	1-Mar-18	0.99	<1	<2	5	<1	0.1
RMD-202	Grab	1500 Valemont Way	1-Mar-18	0.88	<1	<2	4	<1	0.15
RMD-214	Grab	11720 Westminster Hwy.	1-Mar-18	0.73	<1	<2	5	<1	0.13
RMD-267	Grab	17240 Fedoruk	1-Mar-18	0.87	<1	<2	6	<1	0.13
RMD-249	Grab	23000 Blk. Dyke Rd.	1-Mar-18	0.95	<1	2	6	<1	0.1
RMD-276	Grab	22271 Cochrane Drive	1-Mar-18	0.79	<1	<2	5	<1	0.12
RMD-275	Grab	5180 Smith Cres.	1-Mar-18	0.76	<1	<2	6	<1	0.16

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-203	Grab	23260 Westminster Hwy.	1-Mar-18	0.82	<1	<2	4	<1	0.13
RMD-251	Grab	5951McCallan Rd.	5-Mar-18	0.72	<1	<2	5	<1	0.22
RMD-273	Grab	Opp. 8331 Fairfax Place	5-Mar-18	0.65	<1	<2	6	<1	0.17
RMD-252	Grab	9751 Pendleton Rd.	5-Mar-18	0.81	<1	<2	6	<1	0.18
RMD-274	Grab	10920 Springwood Court	5-Mar-18	0.84	<1	<2	7	<1	0.1
RMD-253	Grab	11051 No 3 Rd.	5-Mar-18	0.69	<1	<2	5	<1	0.2
RMD-269	Grab	14951 Triangle Rd.	5-Mar-18	0.6	<1	<2	6	<1	0.13
RMD-270	Grab	8200 Jones Rd.	5-Mar-18	0.8	<1	2	6	<1	0.14
RMD-254	Grab	5300 No. 3 Rd.	5-Mar-18	0.71	<1	<2	5	<1	0.16
RMD-256	Grab	1000 Blk. McDonald Rd.	5-Mar-18	0.64	<1	2	7	<1	0.25
RMD-255	Grab	6000 Blk. Miller Rd.	5-Mar-18	1.06	<1	<2	6	<1	0.31
RMD-271	Grab	3800 Cessna Drive	5-Mar-18	0.93	<1	<2	7	<1	0.21
RMD-272	Grab	751 Catalina Cres.	5-Mar-18	0.99	<1	<2	6	<1	0.18
RMD-250	Grab	6071 Azure Rd.	5-Mar-18	0.85	<1	<2	5	<1	0.17
RMD-257	Grab	6640 Blundell Rd.	7-Mar-18	0.73	<1	<2	3	<1	0.17
RMD-258	Grab	7000 Blk. Dyke Rd.	7-Mar-18	0.88	<1	<2	3	<1	0.09
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	7-Mar-18	0.79	<1	<2	3	<1	0.12
RMD-260	Grab	11111 Horseshoe Way	7-Mar-18	0.78	<1	<2	2	<1	0.12
RMD-259	Grab	10020 Amethyst Ave.	7-Mar-18	0.78	<1	<2	3	<1	0.26
RMD-266	Grab	9380 General Currie Rd.	7-Mar-18	0.95	<1	<2	3	<1	0.12
RMD-261	Grab	9911 Sidaway Rd.	7-Mar-18	0.82	<1	<2	4	<1	0.14
RMD-263	Grab	12560 Cambie Rd.	7-Mar-18	0.91	<1	<2	4	<1	0.09
RMD-262	Grab	13799 Commerce Pkwy.	7-Mar-18	0.8	<1	<2	4	<1	0.15
RMD-264	Grab	13100 Mitchell Rd.	7-Mar-18	0.81	<1	<2	4	<1	0.24
RMD-277	Grab	Opp. 11280 Twigg Place	7-Mar-18	0.88	<1	2	4	<1	0.13
RMD-279	Grab	Opp. 20371 Westminster Hwy.	7-Mar-18	0.78	<1	<2	4	<1	0.11
RMD-278	Grab	6651 Fraserwood Place	7-Mar-18	0.74	<1	<2	4	<1	0.09
RMD-204	Grab	3180 Granville Ave.	9-Mar-18	0.87	<1	<2	6	<1	0.1
RMD-206	Grab	4251 Moncton St.	9-Mar-18	1.19	<1	2	5	<1	0.13
RMD-216	Grab	11080 No. 2 Rd.	9-Mar-18	0.84	<1	<2	5	<1	0.12
RMD-280	Grab	11500 McKenzie Rd.	9-Mar-18	0.83	<1	<2	5	<1	0.1
RMD-212	Grab	Opp. 8600 Ryan Rd.	9-Mar-18	0.83	<1	<2	6	<1	0.09
RMD-208	Grab	13200 No. 4 Rd.	9-Mar-18	0.81	<1	<2	5	<1	0.09
RMD-205	Grab	13851 Steveston Hwy.	9-Mar-18	0.8	<1	<2	5	<1	0.1
RMD-202	Grab	1500 Valemont Way	9-Mar-18	0.82	<1	<2	4	<1	0.08
RMD-214	Grab	11720 Westminster Hwy.	9-Mar-18	0.85	<1	<2	4	<1	0.09
RMD-267	Grab	17240 Fedoruk	9-Mar-18	0.8	<1	<2	4	<1	0.09
RMD-249	Grab	23000 Blk. Dyke Rd.	9-Mar-18	0.74	<1	<2	4	<1	0.11
RMD-276	Grab	22271 Cochrane Drive	9-Mar-18	0.8	<1	2	4	<1	0.08
RMD-275	Grab	5180 Smith Cres.	9-Mar-18	0.75	<1	<2	4	<1	0.11

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-203	Grab	23260 Westminster Hwy.	9-Mar-18	0.67	<1	<2	5	<1	0.11
RMD-251	Grab	5951McCallan Rd.	12-Mar-18	0.73	<1	<2	3	<1	0.08
RMD-273	Grab	Opp. 8331 Fairfax Place	12-Mar-18	0.82	<1	<2	7	<1	0.14
RMD-252	Grab	9751 Pendleton Rd.	12-Mar-18	0.81	<1	<2	5	<1	0.1
RMD-274	Grab	10920 Springwood Court	12-Mar-18	0.79	<1	<2	6	<1	0.09
RMD-253	Grab	11051 No 3 Rd.	12-Mar-18	0.74	<1	<2	4	<1	0.09
RMD-269	Grab	14951 Triangle Rd.	12-Mar-18	0.76	<1	<2	4	<1	0.12
RMD-270	Grab	8200 Jones Rd.	12-Mar-18	0.77	<1	<2	5	<1	0.1
RMD-254	Grab	5300 No. 3 Rd.	12-Mar-18	0.94	<1	<2	4	<1	0.1
RMD-256	Grab	1000 Blk. McDonald Rd.	12-Mar-18	0.66	<1	<2	5	<1	0.23
RMD-255	Grab	6000 Blk. Miller Rd.	12-Mar-18	0.95	<1	4	4	<1	0.28
RMD-271	Grab	3800 Cessna Drive	12-Mar-18	0.87	<1	<2	5	<1	0.13
RMD-272	Grab	751 Catalina Cres.	12-Mar-18	1.01	<1	<2	5	<1	0.1
RMD-250	Grab	6071 Azure Rd.	12-Mar-18	0.83	<1	<2	4	<1	0.12
RMD-204	Grab	3180 Granville Ave.	15-Mar-18	1.04	<1	<2	5	<1	0.08
RMD-206	Grab	4251 Moncton St.	15-Mar-18	1.03	<1	<2	4	<1	0.08
RMD-216	Grab	11080 No. 2 Rd.	15-Mar-18	0.97	<1	<2	4	<1	0.09
RMD-280	Grab	11500 McKenzie Rd.	15-Mar-18	0.58	<1	<2	6	<1	0.12
RMD-212	Grab	Opp. 8600 Ryan Rd.	15-Mar-18	0.75	<1	2	4	<1	0.08
RMD-208	Grab	13200 No. 4 Rd.	15-Mar-18	0.71	<1	<2	5	<1	0.09
RMD-205	Grab	13851 Steveston Hwy.	15-Mar-18	0.84	<1	<2	5	<1	0.09
RMD-202	Grab	1500 Valemont Way	15-Mar-18	0.89	<1	<2	3	<1	0.09
RMD-214	Grab	11720 Westminster Hwy.	15-Mar-18	1.07	<1	<2	4	<1	0.08
RMD-267	Grab	17240 Fedoruk	15-Mar-18	0.67	<1	<2	5	<1	0.09
RMD-249	Grab	23000 Blk. Dyke Rd.	15-Mar-18	0.58	<1	<2	5	<1	0.09
RMD-276	Grab	22271 Cochrane Drive	15-Mar-18	0.67	<1	<2	5	<1	0.09
RMD-275	Grab	5180 Smith Cres.	15-Mar-18	0.62	<1	<2	5	<1	0.08
RMD-203	Grab	23260 Westminster Hwy.	15-Mar-18	0.66	<1	<2	4	<1	0.09
RMD-251	Grab	5951McCallan Rd.	19-Mar-18	0.99	<1	<2	7	<1	0.17
RMD-273	Grab	Opp. 8331 Fairfax Place	19-Mar-18	0.74	<1	<2	10	<1	0.21
RMD-252	Grab	9751 Pendleton Rd.	19-Mar-18	0.78	<1	<2	6	<1	0.19
RMD-274	Grab	10920 Springwood Court	19-Mar-18	0.92	<1	<2	7	<1	0.09
RMD-253	Grab	11051 No 3 Rd.	19-Mar-18	0.84	<1	<2	7	<1	0.13
RMD-269	Grab	14951 Triangle Rd.	19-Mar-18	0.69	<1	<2	8	<1	0.18
RMD-270	Grab	8200 Jones Rd.	19-Mar-18	0.81	<1	<2	7	<1	0.1
RMD-254	Grab	5300 No. 3 Rd.	19-Mar-18	0.71	<1	<2	7	<1	0.13
RMD-256	Grab	1000 Blk. McDonald Rd.	19-Mar-18	0.63	<1	<2	8	<1	0.5
RMD-255	Grab	6000 Blk. Miller Rd.	19-Mar-18	0.97	<1	<2	7	<1	0.24
RMD-271	Grab	3800 Cessna Drive	19-Mar-18	0.83	<1	<2	8	<1	0.1
RMD-272	Grab	751 Catalina Cres.	19-Mar-18	0.96	<1	<2	7	<1	0.26

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-250	Grab	6071 Azure Rd.	19-Mar-18	0.78	<1	<2	6	<1	0.35
RMD-263	Grab	12560 Cambie Rd.	21-Mar-18	0.8	<1	2	6	<1	0.19
RMD-264	Grab	13100 Mitchell Rd.	21-Mar-18	0.83	<1	<2	6	<1	0.13
RMD-277	Grab	Opp. 11280 Twigg Place	21-Mar-18	0.87	<1	<2	6	<1	0.17
RMD-262	Grab	13799 Commerce Pkwy.	21-Mar-18	0.79	<1	<2	6	<1	0.14
RMD-278	Grab	6651 Fraserwood Place	21-Mar-18	0.67	<1	<2	7	<1	0.23
RMD-279	Grab	Opp. 20371 Westminster Hwy.	21-Mar-18	0.73	<1	<2	5	<1	0.16
RMD-261	Grab	9911 Sidaway Rd.	21-Mar-18	0.76	<1	<2	6	<1	0.14
RMD-260	Grab	11111 Horseshoe Way	21-Mar-18	0.71	<1	2	6	<1	0.21
RMD-259	Grab	10020 Amethyst Ave.	21-Mar-18	0.82	<1	2	6	<1	1
RMD-266	Grab	9380 General Currie Rd.	21-Mar-18	0.81	<1	<2	6	<1	0.12
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	21-Mar-18	0.76	<1	<2	6	<1	0.13
RMD-258	Grab	7000 Blk. Dyke Rd.	21-Mar-18	0.95	<1	<2	6	<1	0.15
RMD-257	Grab	6640 Blundell Rd.	21-Mar-18	0.73	<1	<2	6	<1	0.15
RMD-204	Grab	3180 Granville Ave.	23-Mar-18	0.76	<1	<2	6	<1	0.2
RMD-206	Grab	4251 Moncton St.	23-Mar-18	0.77	<1	<2	6	<1	0.15
RMD-216	Grab	11080 No. 2 Rd.	23-Mar-18	0.88	<1	2	5	<1	0.14
RMD-280	Grab	11500 McKenzie Rd.	23-Mar-18	0.84	<1	<2	6	<1	0.23
RMD-212	Grab	Opp. 8600 Ryan Rd.	23-Mar-18	0.81	<1	<2	6	<1	0.17
RMD-208	Grab	13200 No. 4 Rd.	23-Mar-18	0.83	<1	<2	6	<1	0.2
RMD-205	Grab	13851 Steveston Hwy.	23-Mar-18	0.76	<1	2	6	<1	0.16
RMD-202	Grab	1500 Valemont Way	23-Mar-18	0.71	<1	10	6	<1	0.18
RMD-214	Grab	11720 Westminster Hwy.	23-Mar-18	0.96	<1	<2	6	<1	0.17
RMD-267	Grab	17240 Fedoruk	23-Mar-18	0.75	<1	<2	6	<1	0.2
RMD-249	Grab	23000 Blk. Dyke Rd.	23-Mar-18	0.75	<1	<2	6	<1	0.14
RMD-276	Grab	22271 Cochrane Drive	23-Mar-18	0.77	<1	<2	6	<1	0.17
RMD-275	Grab	5180 Smith Cres.	23-Mar-18	0.75	<1	<2	6	<1	0.15
RMD-203	Grab	23260 Westminster Hwy.	23-Mar-18	0.84	<1	<2	6	<1	0.15
RMD-251	Grab	5951McCallan Rd.	26-Mar-18	0.97	<1	<2	7	<1	0.08
RMD-273	Grab	Opp. 8331 Fairfax Place	26-Mar-18	0.79	<1	<2	7	<1	0.11
RMD-252	Grab	9751 Pendleton Rd.	26-Mar-18	0.71	<1	<2	8	<1	0.09
RMD-274	Grab	10920 Springwood Court	26-Mar-18	0.9	<1	<2	8	<1	0.09
RMD-253	Grab	11051 No 3 Rd.	26-Mar-18	0.89	<1	<2	8	<1	0.19
RMD-269	Grab	14951 Triangle Rd.	26-Mar-18	0.91	<1	<2	8	<1	0.1
RMD-270	Grab	8200 Jones Rd.	26-Mar-18	0.95	<1	<2	8	<1	0.1
RMD-254	Grab	5300 No. 3 Rd.	26-Mar-18	0.88	<1	<2	8	<1	0.08
RMD-256	Grab	1000 Blk. McDonald Rd.	26-Mar-18	0.39	<1	<2	9	<1	0.48
RMD-255	Grab	6000 Blk. Miller Rd.	26-Mar-18	1.04	<1	<2	6	<1	0.18
RMD-271	Grab	3800 Cessna Drive	26-Mar-18	0.93	<1	<2	7	<1	0.12
RMD-272	Grab	751 Catalina Cres.	26-Mar-18	0.96	<1	<2	7	<1	0.1

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-250	Grab	6071 Azure Rd.	26-Mar-18	0.91	<1	4	7	<1	0.1
RMD-257	Grab	6640 Blundell Rd.	27-Mar-18	0.85	<1	<2	6	<1	0.1
RMD-258	Grab	7000 Blk. Dyke Rd.	27-Mar-18	0.89	<1	<2	7	<1	0.08
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	27-Mar-18	0.61	<1	2	7	<1	0.1
RMD-260	Grab	11111 Horseshoe Way	27-Mar-18	0.78	<1	<2	6	<1	0.08
RMD-259	Grab	10020 Amethyst Ave.	27-Mar-18	0.86	<1	<2	7	<1	0.47
RMD-266	Grab	9380 General Currie Rd.	27-Mar-18	0.77	<1	<2	6	<1	0.13
RMD-261	Grab	9911 Sidaway Rd.	27-Mar-18	0.66	<1	<2	6	<1	0.11
RMD-263	Grab	12560 Cambie Rd.	27-Mar-18	0.78	<1	<2	6	<1	0.15
RMD-264	Grab	13100 Mitchell Rd.	27-Mar-18	0.85	<1	<2	7	<1	0.16
RMD-277	Grab	Opp. 11280 Twigg Place	27-Mar-18	0.84	<1	<2	8	<1	0.14
RMD-262	Grab	13799 Commerce Pkwy.	27-Mar-18	0.8	<1	<2	7	<1	0.14
RMD-278	Grab	6651 Fraserwood Place	27-Mar-18	0.83	<1	<2	7	<1	0.1
RMD-279	Grab	Opp. 20371 Westminster Hwy.	27-Mar-18	0.78	<1	<2	7	<1	0.1
RMD-204	Grab	3180 Granville Ave.	28-Mar-18	0.79	<1	6	8	<1	0.09
RMD-206	Grab	4251 Moncton St.	28-Mar-18	0.86	<1	<2	7	<1	0.09
RMD-216	Grab	11080 No. 2 Rd.	28-Mar-18	0.83	<1	<2	6	<1	0.09
RMD-280	Grab	11500 McKenzie Rd.	28-Mar-18	0.84	<1	<2	7	<1	0.12
RMD-212	Grab	Opp. 8600 Ryan Rd.	28-Mar-18	0.81	<1	<2	7	<1	0.12
RMD-208	Grab	13200 No. 4 Rd.	28-Mar-18	0.83	<1	<2	7	<1	0.1
RMD-205	Grab	13851 Steveston Hwy.	28-Mar-18	0.79	<1	4	6	<1	0.08
RMD-202	Grab	1500 Valemont Way	28-Mar-18	0.91	<1	<2	5	<1	0.15
RMD-214	Grab	11720 Westminster Hwy.	28-Mar-18	0.95	<1	<2	5	<1	0.12
RMD-267	Grab	17240 Fedoruk	28-Mar-18	0.74	<1	<2	7	<1	0.12
RMD-249	Grab	23000 Blk. Dyke Rd.	28-Mar-18	0.76	<1	2	7	<1	0.09
RMD-276	Grab	22271 Cochrane Drive	28-Mar-18	0.88	<1	2	6	<1	0.09
RMD-275	Grab	5180 Smith Cres.	28-Mar-18	0.72	<1	2	7	<1	0.12
RMD-203	Grab	23260 Westminster Hwy.	28-Mar-18	0.7	<1	<2	8	<1	0.1
RMD-251	Grab	5951McCallan Rd.	3-Apr-18	0.75	<1	<2	6	<1	0.11
RMD-273	Grab	Opp. 8331 Fairfax Place	3-Apr-18	0.69	<1	<2	10	<1	0.12
RMD-252	Grab	9751 Pendleton Rd.	3-Apr-18	0.7	<1	<2	6	<1	0.12
RMD-274	Grab	10920 Springwood Court	3-Apr-18	0.82	<1	<2	7	<1	0.12
RMD-253	Grab	11051 No 3 Rd.	3-Apr-18	0.76	<1	<2	5	<1	0.13
RMD-269	Grab	14951 Triangle Rd.	3-Apr-18	0.76	<1	<2	6	<1	0.11
RMD-270	Grab	8200 Jones Rd.	3-Apr-18	0.74	<1	<2	8	<1	0.13
RMD-254	Grab	5300 No. 3 Rd.	3-Apr-18	0.72	<1	<2	8	<1	0.16
RMD-256	Grab	1000 Blk. McDonald Rd.	3-Apr-18	0.59	<1	<2	8	<1	0.84
RMD-255	Grab	6000 Blk. Miller Rd.	3-Apr-18	0.81	<1	<2	6	<1	0.14
RMD-271	Grab	3800 Cessna Drive	3-Apr-18	0.91	<1	<2	9	<1	0.17
RMD-272	Grab	751 Catalina Cres.	3-Apr-18	0.88	<1	<2	7	<1	0.13

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-250	Grab	6071 Azure Rd.	3-Apr-18	0.75	<1	<2	6	<1	0.11
RMD-263	Grab	12560 Cambie Rd.	4-Apr-18	0.54	<1	<2	5	<1	0.13
RMD-264	Grab	13100 Mitchell Rd.	4-Apr-18	0.73	<1	<2	5	<1	0.12
RMD-277	Grab	Opp. 11280 Twigg Place	4-Apr-18	0.7	<1	<2	7	<1	0.14
RMD-262	Grab	13799 Commerce Pkwy.	4-Apr-18	0.78	<1	<2	6	<1	0.1
RMD-278	Grab	6651 Fraserwood Place	4-Apr-18	0.75	<1	<2	5	<1	0.12
RMD-279	Grab	Opp. 20371 Westminster Hwy.	4-Apr-18	0.82	<1	<2	5	<1	0.1
RMD-261	Grab	9911 Sidaway Rd.	4-Apr-18	0.72	<1	<2	5	<1	1.3
RMD-260	Grab	11111 Horseshoe Way	4-Apr-18	0.68	<1	<2	5	<1	0.11
RMD-259	Grab	10020 Amethyst Ave.	4-Apr-18	0.8	<1	<2	7	<1	0.51
RMD-266	Grab	9380 General Currie Rd.	4-Apr-18	1.02	<1	<2	5	<1	0.14
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	4-Apr-18	0.72	<1	<2	5	<1	0.13
RMD-258	Grab	7000 Blk. Dyke Rd.	4-Apr-18	0.77	<1	<2	6	<1	0.16
RMD-257	Grab	6640 Blundell Rd.	4-Apr-18	0.72	<1	<2	5	<1	0.1
RMD-204	Grab	3180 Granville Ave.	6-Apr-18	0.89	<1	2	7	<1	0.11
RMD-206	Grab	4251 Moncton St.	6-Apr-18	0.85	<1	<2	6	<1	0.13
RMD-216	Grab	11080 No. 2 Rd.	6-Apr-18	0.86	<1	<2	6	<1	0.23
RMD-280	Grab	11500 McKenzie Rd.	6-Apr-18	0.86	<1	<2	7	<1	0.11
RMD-212	Grab	Opp. 8600 Ryan Rd.	6-Apr-18	0.8	<1	<2	6	<1	0.13
RMD-208	Grab	13200 No. 4 Rd.	6-Apr-18	0.81	<1	<2	7	<1	0.11
RMD-205	Grab	13851 Steveston Hwy.	6-Apr-18	0.76	<1	8	5	<1	0.13
RMD-202	Grab	1500 Valemont Way	6-Apr-18	0.63	<1	<2	6	<1	0.11
RMD-214	Grab	11720 Westminster Hwy.	6-Apr-18	0.82	<1	<2	6	<1	0.13
RMD-267	Grab	17240 Fedoruk	6-Apr-18	0.72	<1	<2	7	<1	0.12
RMD-249	Grab	23000 Blk. Dyke Rd.	6-Apr-18	0.66	<1	<2	7	<1	0.11
RMD-276	Grab	22271 Cochrane Drive	6-Apr-18	0.68	<1	<2	6	<1	0.11
RMD-275	Grab	5180 Smith Cres.	6-Apr-18	0.58	<1	<2	7	<1	0.09
RMD-203	Grab	23260 Westminster Hwy.	6-Apr-18	0.73	<1	<2	6	<1	0.12
RMD-251	Grab	5951McCallan Rd.	9-Apr-18	0.83	<1	<2	7	<1	0.14
RMD-273	Grab	Opp. 8331 Fairfax Place	9-Apr-18	0.77	<1	<2	10	<1	0.1
RMD-252	Grab	9751 Pendleton Rd.	9-Apr-18	0.7	<1	<2	8	<1	0.13
RMD-274	Grab	10920 Springwood Court	9-Apr-18	0.82	<1	2	9	<1	0.14
RMD-253	Grab	11051 No 3 Rd.	9-Apr-18	0.8	<1	<2	9	<1	0.18
RMD-269	Grab	14951 Triangle Rd.	9-Apr-18	0.82	<1	<2	9	<1	0.13
RMD-270	Grab	8200 Jones Rd.	9-Apr-18	0.78	<1	<2	9	<1	0.1
RMD-254	Grab	5300 No. 3 Rd.	9-Apr-18	0.67	<1	<2	9	<1	0.22
RMD-256	Grab	1000 Blk. McDonald Rd.	9-Apr-18	0.53	<1	<2	9	<1	0.59
RMD-255	Grab	6000 Blk. Miller Rd.	9-Apr-18	0.92	<1	<2	7	<1	0.17
RMD-271	Grab	3800 Cessna Drive	9-Apr-18	0.83	<1	<2	8	<1	0.15
RMD-272	Grab	751 Catalina Cres.	9-Apr-18	0.91	<1	<2	9	<1	0.17

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-250	Grab	6071 Azure Rd.	9-Apr-18	0.79	<1	<2	8	<1	0.14
RMD-263	Grab	12560 Cambie Rd.	11-Apr-18	0.79	<1	<2	7	<1	0.11
RMD-277	Grab	Opp. 11280 Twigg Place	11-Apr-18	0.84	<1	<2	8	<1	0.12
RMD-264	Grab	13100 Mitchell Rd.	11-Apr-18	0.8	<1	<2	7	<1	0.13
RMD-262	Grab	13799 Commerce Pkwy.	11-Apr-18	0.74	<1	<2	7	<1	0.13
RMD-278	Grab	6651 Fraserwood Place	11-Apr-18	0.64	<1	2	7	<1	0.08
RMD-279	Grab	Opp. 20371 Westminster Hwy.	11-Apr-18	0.85	<1	<2	7	<1	0.13
RMD-261	Grab	9911 Sidaway Rd.	11-Apr-18	0.83	<1	2	7	<1	0.13
RMD-260	Grab	11111 Horseshoe Way	11-Apr-18	0.84	<1	<2	7	<1	0.11
RMD-259	Grab	10020 Amethyst Ave.	11-Apr-18	0.75	<1	2	8	<1	1.6
RMD-266	Grab	9380 General Currie Rd.	11-Apr-18	0.79	<1	<2	7	<1	0.11
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	11-Apr-18	0.8	<1	<2	7	<1	0.13
RMD-258	Grab	7000 Blk. Dyke Rd.	11-Apr-18	0.68	<1	<2	8	<1	0.1
RMD-257	Grab	6640 Blundell Rd.	11-Apr-18	0.72	<1	<2	7	<1	0.09
RMD-204	Grab	3180 Granville Ave.	12-Apr-18	0.86	<1	<2	8	<1	0.12
RMD-206	Grab	4251 Moncton St.	12-Apr-18	0.78	<1	<2	8	<1	0.13
RMD-216	Grab	11080 No. 2 Rd.	12-Apr-18	0.9	<1	<2	8	<1	0.11
RMD-280	Grab	11500 McKenzie Rd.	12-Apr-18	0.68	<1	<2	9	<1	0.14
RMD-212	Grab	Opp. 8600 Ryan Rd.	12-Apr-18	0.87	<1	<2	8	<1	0.12
RMD-208	Grab	13200 No. 4 Rd.	12-Apr-18	0.92	<1	<2	9	<1	0.11
RMD-205	Grab	13851 Steveston Hwy.	12-Apr-18	0.78	<1	<2	8	<1	0.11
RMD-202	Grab	1500 Valemont Way	12-Apr-18	0.76	<1	<2	7	<1	0.12
RMD-214	Grab	11720 Westminster Hwy.	12-Apr-18	0.78	<1	<2	8	<1	0.1
RMD-267	Grab	17240 Fedoruk	12-Apr-18	0.75	<1	<2	8	<1	0.13
RMD-249	Grab	23000 Blk. Dyke Rd.	12-Apr-18	0.74	<1	<2	8	<1	0.13
RMD-276	Grab	22271 Cochrane Drive	12-Apr-18	0.76	<1	<2	8	<1	0.14
RMD-275	Grab	5180 Smith Cres.	12-Apr-18	0.71	<1	<2	8	<1	0.13
RMD-203	Grab	23260 Westminster Hwy.	12-Apr-18	0.75	<1	<2	8	<1	0.13
RMD-251	Grab	5951McCallan Rd.	16-Apr-18	0.85	<1	<2	8	<1	0.11
RMD-273	Grab	Opp. 8331 Fairfax Place	16-Apr-18	0.72	<1	<2	10	<1	0.11
RMD-252	Grab	9751 Pendleton Rd.	16-Apr-18	0.77	<1	<2	9	<1	0.13
RMD-274	Grab	10920 Springwood Court	16-Apr-18	0.89	<1	<2	8	<1	0.11
RMD-253	Grab	11051 No 3 Rd.	16-Apr-18	0.91	<1	<2	9	<1	0.1
RMD-269	Grab	14951 Triangle Rd.	16-Apr-18	0.66	<1	2	9	<1	0.21
RMD-270	Grab	8200 Jones Rd.	16-Apr-18	0.84	<1	<2	9	<1	0.11
RMD-254	Grab	5300 No. 3 Rd.	16-Apr-18	0.64	<1	<2	9	<1	0.11
RMD-256	Grab	1000 Blk. McDonald Rd.	16-Apr-18	0.53	<1	<2	9	<1	0.93
RMD-255	Grab	6000 Blk. Miller Rd.	16-Apr-18	1.02	<1	<2	8	<1	0.19
RMD-271	Grab	3800 Cessna Drive	16-Apr-18	0.93	<1	<2	9	<1	0.11
RMD-272	Grab	751 Catalina Cres.	16-Apr-18	0.76	<1	ontamina	8	<1	0.17

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-250	Grab	6071 Azure Rd.	16-Apr-18	0.78	<1	<2	8	<1	0.1
RMD-263	Grab	12560 Cambie Rd.	18-Apr-18	0.84	<1	<2	7	<1	0.18
RMD-277	Grab	Opp. 11280 Twigg Place	18-Apr-18	0.89	<1	<2	8	<1	0.97
RMD-264	Grab	13100 Mitchell Rd.	18-Apr-18	0.89	<1	<2	8	<1	0.24
RMD-262	Grab	13799 Commerce Pkwy.	18-Apr-18	0.72	<1	<2	8	<1	0.13
RMD-278	Grab	6651 Fraserwood Place	18-Apr-18	0.73	<1	<2	8	<1	0.19
RMD-279	Grab	Opp. 20371 Westminster Hwy.	18-Apr-18	0.73	<1	<2	8	<1	0.14
RMD-261	Grab	9911 Sidaway Rd.	18-Apr-18	0.69	<1	<2	8	<1	0.16
RMD-260	Grab	11111 Horseshoe Way	18-Apr-18	0.88	<1	<2	8	<1	0.11
RMD-259	Grab	10020 Amethyst Ave.	18-Apr-18	0.6	<1	<2	8	<1	0.38
RMD-266	Grab	9380 General Currie Rd.	18-Apr-18	0.87	<1	<2	8	<1	0.21
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	18-Apr-18	0.82	<1	<2	8	<1	0.36
RMD-258	Grab	7000 Blk. Dyke Rd.	18-Apr-18	0.79	<1	<2	8	<1	0.1
RMD-257	Grab	6640 Blundell Rd.	18-Apr-18	0.78	<1	<2	8	<1	0.13
RMD-206	Grab	4251 Moncton St.	20-Apr-18	0.81	<1	2	8	<1	0.09
RMD-216	Grab	11080 No. 2 Rd.	20-Apr-18	0.87	<1	<2	9	<1	0.1
RMD-280	Grab	11500 McKenzie Rd.	20-Apr-18	0.8	<1	<2	9	<1	0.11
RMD-212	Grab	Opp. 8600 Ryan Rd.	20-Apr-18	0.69	<1	<2	9	<1	0.16
RMD-208	Grab	13200 No. 4 Rd.	20-Apr-18	0.74	<1	<2	9	<1	0.15
RMD-205	Grab	13851 Steveston Hwy.	20-Apr-18	0.79	<1	<2	7	<1	0.4
RMD-202	Grab	1500 Valemont Way	20-Apr-18	0.78	<1	<2	7	<1	0.18
RMD-214	Grab	11720 Westminster Hwy.	20-Apr-18	0.86	<1	<2	8	<1	0.1
RMD-267	Grab	17240 Fedoruk	20-Apr-18	0.71	<1	<2	7	<1	0.18
RMD-249	Grab	23000 Blk. Dyke Rd.	20-Apr-18	0.7	<1	<2	8	<1	0.4
RMD-276	Grab	22271 Cochrane Drive	20-Apr-18	0.74	<1	<2	9	<1	0.3
RMD-275	Grab	5180 Smith Cres.	20-Apr-18	0.7	<1	<2	9	<1	0.4
RMD-251	Grab	5951McCallan Rd.	23-Apr-18	0.72	<1	<2	8	<1	0.36
RMD-273	Grab	Opp. 8331 Fairfax Place	23-Apr-18	0.76	<1	2	12	<1	0.33
RMD-252	Grab	9751 Pendleton Rd.	23-Apr-18	0.64	<1	<2	9	<1	0.37
RMD-274	Grab	10920 Springwood Court	23-Apr-18	0.79	<1	<2	11	<1	0.19
RMD-253	Grab	11051 No 3 Rd.	23-Apr-18	0.72	<1	2	9	<1	0.39
RMD-269	Grab	14951 Triangle Rd.	23-Apr-18	0.71	<1	<2	9	<1	0.18
RMD-270	Grab	8200 Jones Rd.	23-Apr-18	0.8	<1	2	10	<1	0.19
RMD-254	Grab	5300 No. 3 Rd.	23-Apr-18	0.79	<1	<2	9	<1	0.57
RMD-256	Grab	1000 Blk. McDonald Rd.	23-Apr-18	0.56	<1	<2	10	<1	0.75
RMD-255	Grab	6000 Blk. Miller Rd.	23-Apr-18	0.72	<1	<2	7	<1	0.65
RMD-271	Grab	3800 Cessna Drive	23-Apr-18	0.61	<1	<2	9	<1	0.28
RMD-272	Grab	751 Catalina Cres.	23-Apr-18	0.69	<1	<2	9	<1	0.19
RMD-250	Grab	6071 Azure Rd.	23-Apr-18	0.75	<1	<2	9	<1	0.18
RMD-263	Grab	12560 Cambie Rd.	23-Apr-18	0.86	<1	2	8	<1	0.18

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-264	Grab	13100 Mitchell Rd.	25-Apr-18	0.82	<1	<2	8	<1	0.22
RMD-277	Grab	Opp. 11280 Twigg Place	25-Apr-18	0.81	<1	2	9	<1	0.16
RMD-262	Grab	13799 Commerce Pkwy.	25-Apr-18	0.67	<1	<2	8	<1	0.14
RMD-278	Grab	6651 Fraserwood Place	25-Apr-18	0.66	<1	<2	9	<1	0.2
RMD-279	Grab	Opp. 20371 Westminster Hwy.	25-Apr-18	0.77	<1	<2	8	<1	0.15
RMD-261	Grab	9911 Sidaway Rd.	25-Apr-18	0.74	<1	<2	8	<1	0.11
RMD-260	Grab	11111 Horseshoe Way	25-Apr-18	0.89	<1	<2	7	<1	0.1
RMD-259	Grab	10020 Amethyst Ave.	25-Apr-18	0.77	<1	2	8	<1	0.24
RMD-266	Grab	9380 General Currie Rd.	25-Apr-18	0.96	<1	<2	7	<1	0.12
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	25-Apr-18	0.77	<1	<2	8	<1	0.12
RMD-258	Grab	7000 Blk. Dyke Rd.	25-Apr-18	0.82	<1	4	8	<1	0.17
RMD-257	Grab	6640 Blundell Rd.	25-Apr-18	0.6	<1	<2	8	<1	0.29
RMD-204	Grab	3180 Granville Ave.	26-Apr-18	0.78	<1	<2	9	<1	0.12
RMD-206	Grab	4251 Moncton St.	26-Apr-18	0.71	<1	<2	8	<1	0.3
RMD-216	Grab	11080 No. 2 Rd.	26-Apr-18	0.7	<1	<2	8	<1	0.13
RMD-280	Grab	11500 McKenzie Rd.	26-Apr-18	0.73	<1	<2	10	<1	0.26
RMD-212	Grab	Opp. 8600 Ryan Rd.	26-Apr-18	0.77	<1	2	8	<1	0.13
RMD-208	Grab	13200 No. 4 Rd.	26-Apr-18	0.79	<1	<2	9	<1	0.12
RMD-205	Grab	13851 Steveston Hwy.	26-Apr-18	0.69	<1	<2	9	<1	0.15
RMD-202	Grab	1500 Valemont Way	26-Apr-18	0.7	<1	<2	9	<1	0.11
RMD-214	Grab	11720 Westminster Hwy.	26-Apr-18	0.83	<1	<2	9	<1	0.11
RMD-267	Grab	17240 Fedoruk	26-Apr-18	0.66	<1	<2	9	<1	0.13
RMD-249	Grab	23000 Blk. Dyke Rd.	26-Apr-18	0.7	<1	2	9	<1	0.17
RMD-275	Grab	5180 Smith Cres.	26-Apr-18	0.75	<1	<2	10	<1	0.13
RMD-276	Grab	22271 Cochrane Drive	26-Apr-18	0.76	<1	<2	9	<1	0.12
RMD-203	Grab	23260 Westminster Hwy.	26-Apr-18	0.71	<1	<2	9	<1	0.12
RMD-251	Grab	5951McCallan Rd.	30-Apr-18	0.72	<1	<2	8	<1	0.28
RMD-273	Grab	Opp. 8331 Fairfax Place	30-Apr-18	0.76	<1	<2	15	<1	0.14
RMD-252	Grab	9751 Pendleton Rd.	30-Apr-18	0.78	<1	2	9	<1	0.14
RMD-274	Grab	10920 Springwood Court	30-Apr-18	0.78	<1	2	11	<1	0.1
RMD-253	Grab	11051 No 3 Rd.	30-Apr-18	0.71	<1	<2	9	<1	0.1
RMD-269	Grab	14951 Triangle Rd.	30-Apr-18	0.77	<1	6	8	<1	0.13
RMD-270	Grab	8200 Jones Rd.	30-Apr-18	0.43	<1	<2	10	<1	0.13
RMD-254	Grab	5300 No. 3 Rd.	30-Apr-18	0.7	<1	<2	9	<1	0.19
RMD-256	Grab	1000 Blk. McDonald Rd.	30-Apr-18	0.56	<1	<2	10	<1	0.47
RMD-255	Grab	6000 Blk. Miller Rd.	30-Apr-18	0.72	<1	<2	8	<1	0.36
RMD-271	Grab	3800 Cessna Drive	30-Apr-18	0.72	<1	<2	9	<1	0.1
RMD-272	Grab	751 Catalina Cres.	30-Apr-18	0.74	<1	<2	9	<1	0.13
RMD-250	Grab	6071 Azure Rd.	30-Apr-18	0.88	<1	<2	9	<1	0.31
RMD-263	Grab	12560 Cambie Rd.	1-May-18	0.84	<1	<2	9	<1	0.12

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-264	Grab	13100 Mitchell Rd.	2-May-18	0.94	<1	2	10	<1	0.12
RMD-277	Grab	Opp. 11280 Twigg Place	2-May-18	0.81	<1	<2	11	<1	0.25
RMD-262	Grab	13799 Commerce Pkwy.	2-May-18	0.92	<1	<2	10	<1	0.12
RMD-278	Grab	6651 Fraserwood Place	2-May-18	0.52	<1	<2	10	<1	0.14
RMD-279	Grab	Opp. 20371 Westminster Hwy.	2-May-18	0.8	<1	<2	10	<1	0.13
RMD-261	Grab	9911 Sidaway Rd.	2-May-18	0.89	<1	<2	10	<1	0.13
RMD-260	Grab	11111 Horseshoe Way	2-May-18	0.77	<1	<2	9	<1	0.11
RMD-259	Grab	10020 Amethyst Ave.	2-May-18	0.81	<1	<2	9	<1	0.13
RMD-266	Grab	9380 General Currie Rd.	2-May-18	0.96	<1	<2	9	<1	0.15
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	2-May-18	0.86	<1	<2	10	<1	0.11
RMD-258	Grab	7000 Blk. Dyke Rd.	2-May-18	1	<1	2	11	<1	0.12
RMD-257	Grab	6640 Blundell Rd.	2-May-18	1.06	<1	2	9	<1	0.13
RMD-204	Grab	3180 Granville Ave.	4-May-18	0.78	<1	<2	11	<1	0.13
RMD-206	Grab	4251 Moncton St.	4-May-18	0.73	<1	<2	8	<1	0.1
RMD-216	Grab	11080 No. 2 Rd.	4-May-18	0.8	<1	<2	10	<1	0.09
RMD-280	Grab	11500 McKenzie Rd.	4-May-18	0.79	<1	<2	11	<1	0.09
RMD-212	Grab	Opp. 8600 Ryan Rd.	4-May-18	0.79	<1	<2	10	<1	0.1
RMD-208	Grab	13200 No. 4 Rd.	4-May-18	0.79	<1	2	9	<1	0.1
RMD-205	Grab	13851 Steveston Hwy.	4-May-18	0.93	<1	<2	9	<1	0.19
RMD-202	Grab	1500 Valemont Way	4-May-18	0.81	<1	2	9	<1	0.29
RMD-214	Grab	11720 Westminster Hwy.	4-May-18	0.79	<1	<2	8	<1	0.1
RMD-267	Grab	17240 Fedoruk	4-May-18	0.81	<1	<2	11	<1	0.13
RMD-249	Grab	23000 Blk. Dyke Rd.	4-May-18	0.73	<1	<2	11	<1	0.11
RMD-276	Grab	22271 Cochrane Drive	4-May-18	0.81	<1	<2	9	<1	0.22
RMD-275	Grab	5180 Smith Cres.	4-May-18	0.71	<1	<2	11	<1	0.11
RMD-203	Grab	23260 Westminster Hwy.	4-May-18	0.83	<1	<2	9	<1	0.15
RMD-251	Grab	5951McCallan Rd.	7-May-18	0.65	<1	2	10	<1	0.11
RMD-273	Grab	Opp. 8331 Fairfax Place	7-May-18	0.69	<1	oor sprea	15	<1	0.09
RMD-252	Grab	9751 Pendleton Rd.	7-May-18	0.72	<1	2	10	<1	0.12
RMD-274	Grab	10920 Springwood Court	7-May-18	0.76	<1	<2	13	<1	0.14
RMD-253	Grab	11051 No 3 Rd.	7-May-18	0.83	<1	<2	9	<1	0.14
RMD-269	Grab	14951 Triangle Rd.	7-May-18	0.78	<1	2	10	<1	0.2
RMD-270	Grab	8200 Jones Rd.	7-May-18	0.71	<1	<2	10	<1	0.11
RMD-254	Grab	5300 No. 3 Rd.	7-May-18	0.75	<1	2	10	<1	0.12
RMD-256	Grab	1000 Blk. McDonald Rd.	7-May-18	0.66	<1	<2	11	<1	0.14
RMD-255	Grab	6000 Blk. Miller Rd.	7-May-18	0.82	<1	<2	9	<1	2.5
RMD-271	Grab	3800 Cessna Drive	7-May-18	0.79	<1	<2	13	<1	0.1
RMD-272	Grab	751 Catalina Cres.	7-May-18	0.75	<1	<2	10	<1	0.11
RMD-250	Grab	6071 Azure Rd.	7-May-18	0.73	<1	<2	9	<1	0.19
RMD-263	Grab	12560 Cambie Rd.	9-May-18	0.71	<1	<2	11	<1	0.14

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-277	Grab	Opp. 11280 Twigg Place	9-May-18	0.72	<1	<2	10	<1	0.13
RMD-264	Grab	13100 Mitchell Rd.	9-May-18	0.76	<1	<2	9	<1	0.09
RMD-262	Grab	13799 Commerce Pkwy.	9-May-18	0.71	<1	<2	10	<1	0.1
RMD-278	Grab	6651 Fraserwood Place	9-May-18	0.72	<1	<2	10	<1	0.21
RMD-279	Grab	Opp. 20371 Westminster Hwy.	9-May-18	0.75	<1	<2	9	<1	0.14
RMD-261	Grab	9911 Sidaway Rd.	9-May-18	0.69	<1	<2	10	<1	0.1
RMD-260	Grab	11111 Horseshoe Way	9-May-18	0.71	<1	2	9	<1	0.1
RMD-259	Grab	10020 Amethyst Ave.	9-May-18	0.69	<1	<2	12	<1	0.17
RMD-266	Grab	9380 General Currie Rd.	9-May-18	0.69	<1	<2	10	<1	0.11
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	9-May-18	0.73	<1	<2	10	<1	0.09
RMD-258	Grab	7000 Blk. Dyke Rd.	9-May-18	0.74	<1	<2	10	<1	0.14
RMD-257	Grab	6640 Blundell Rd.	9-May-18	0.72	<1	<2	10	<1	0.1
RMD-204	Grab	3180 Granville Ave.	10-May-18	0.68	<1	<2	11	<1	0.1
RMD-206	Grab	4251 Moncton St.	10-May-18	0.76	<1	<2	9	<1	0.13
RMD-216	Grab	11080 No. 2 Rd.	10-May-18	0.81	<1	2	9	<1	0.15
RMD-280	Grab	11500 McKenzie Rd.	10-May-18	0.6	<1	4	12	<1	0.18
RMD-212	Grab	Opp. 8600 Ryan Rd.	10-May-18	0.85	<1	<2	9	<1	0.12
RMD-208	Grab	13200 No. 4 Rd.	10-May-18	0.91	<1	<2	9	<1	0.11
RMD-205	Grab	13851 Steveston Hwy.	10-May-18	0.7	<1	<2	9	<1	0.1
RMD-202	Grab	1500 Valemont Way	10-May-18	0.72	<1	<2	9	<1	0.12
RMD-214	Grab	11720 Westminster Hwy.	10-May-18	0.89	<1	<2	9	<1	0.16
RMD-267	Grab	17240 Fedoruk	10-May-18	0.71	<1	<2	11	<1	0.1
RMD-249	Grab	23000 Blk. Dyke Rd.	10-May-18	0.65	<1	<2	10	<1	0.14
RMD-276	Grab	22271 Cochrane Drive	10-May-18	0.72	<1	<2	9	<1	0.1
RMD-275	Grab	5180 Smith Cres.	10-May-18	0.62	<1	<2	9	<1	0.29
RMD-203	Grab	23260 Westminster Hwy.	10-May-18	0.69	<1	<2	9	<1	0.08
RMD-251	Grab	5951McCallan Rd.	14-May-18	0.79	<1	<2	10	<1	0.1
RMD-273	Grab	Opp. 8331 Fairfax Place	14-May-18	0.63	<1	<2	15	<1	0.11
RMD-252	Grab	9751 Pendleton Rd.	14-May-18	0.87	<1	<2	11	<1	0.11
RMD-274	Grab	10920 Springwood Court	14-May-18	0.86	<1	<2	11	<1	0.16
RMD-253	Grab	11051 No 3 Rd.	14-May-18	0.68	<1	<2	11	<1	0.11
RMD-269	Grab	14951 Triangle Rd.	14-May-18	0.79	<1	<2	10	<1	0.18
RMD-270	Grab	8200 Jones Rd.	14-May-18	0.95	<1	<2	11	<1	0.13
RMD-254	Grab	5300 No. 3 Rd.	14-May-18	0.82	<1	<2	10	<1	0.15
RMD-256	Grab	1000 Blk. McDonald Rd.	14-May-18	0.59	<1	<2	12	<1	0.26
RMD-255	Grab	6000 Blk. Miller Rd.	14-May-18	0.8	<1	<2	10	<1	1.6
RMD-271	Grab	3800 Cessna Drive	14-May-18	0.92	<1	<2	10	<1	0.17
RMD-272	Grab	751 Catalina Cres.	14-May-18	0.78	<1	<2	10	<1	0.11
RMD-250	Grab	6071 Azure Rd.	14-May-18	0.81	<1	2	10	<1	0.1
RMD-263	Grab	12560 Cambie Rd.	14-May-18	0.74	<1	<2	9	<1	0.12

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-264	Grab	13100 Mitchell Rd.	16-May-18	0.77	<1	<2	9	<1	0.14
RMD-277	Grab	Opp. 11280 Twigg Place	16-May-18	0.76	<1	<2	10	<1	0.15
RMD-262	Grab	13799 Commerce Pkwy.	16-May-18	0.71	<1	<2	10	<1	0.17
RMD-278	Grab	6651 Fraserwood Place	16-May-18	0.75	<1	<2	11	<1	0.39
RMD-279	Grab	Opp. 20371 Westminster Hwy.	16-May-18	0.96	<1	<2	9	<1	0.37
RMD-261	Grab	9911 Sidaway Rd.	16-May-18	0.68	<1	<2	10	<1	0.25
RMD-260	Grab	11111 Horseshoe Way	16-May-18	0.79	<1	<2	9	<1	0.15
RMD-259	Grab	10020 Amethyst Ave.	16-May-18	0.63	<1	<2	10	<1	0.4
RMD-266	Grab	9380 General Currie Rd.	16-May-18	0.85	<1	<2	10	<1	0.11
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	16-May-18	0.79	<1	<2	11	<1	0.16
RMD-258	Grab	7000 Blk. Dyke Rd.	16-May-18	0.68	<1	<2	10	<1	0.14
RMD-257	Grab	6640 Blundell Rd.	16-May-18	0.76	<1	<2	10	<1	0.12
RMD-204	Grab	3180 Granville Ave.	18-May-18	0.79	<1	<2	11	<1	0.18
RMD-206	Grab	4251 Moncton St.	18-May-18	0.7	<1	<2	10	<1	0.15
RMD-216	Grab	11080 No. 2 Rd.	18-May-18	0.73	<1	<2	10	<1	0.17
RMD-280	Grab	11500 McKenzie Rd.	18-May-18	0.66	<1	<2	12	<1	0.19
RMD-212	Grab	Opp. 8600 Ryan Rd.	18-May-18	0.74	<1	<2	10	<1	0.2
RMD-208	Grab	13200 No. 4 Rd.	18-May-18	0.73	<1	2	11	<1	0.23
RMD-205	Grab	13851 Steveston Hwy.	18-May-18	0.7	<1	<2	10	<1	0.38
RMD-202	Grab	1500 Valemont Way	18-May-18	0.73	<1	<2	9	<1	0.49
RMD-214	Grab	11720 Westminster Hwy.	18-May-18	0.8	<1	2	9	<1	0.16
RMD-267	Grab	17240 Fedoruk	18-May-18	0.69	<1	<2	13	<1	0.14
RMD-249	Grab	23000 Blk. Dyke Rd.	18-May-18	0.65	<1	2	11	<1	0.23
RMD-276	Grab	22271 Cochrane Drive	18-May-18	0.59	<1	<2	11	<1	0.29
RMD-275	Grab	5180 Smith Cres.	18-May-18	0.5	<1	<2	11	<1	0.35
RMD-203	Grab	23260 Westminster Hwy.	18-May-18	0.54	<1	<2	10	<1	0.45
RMD-251	Grab	5951McCallan Rd.	22-May-18	0.87	<1	2	10	<1	0.11
RMD-273	Grab	Opp. 8331 Fairfax Place	22-May-18	0.69	<1	<2	12	<1	0.1
RMD-252	Grab	9751 Pendleton Rd.	22-May-18	0.79	<1	<2	11	<1	0.08
RMD-274	Grab	10920 Springwood Court	22-May-18	0.77	<1	<2	13	<1	0.1
RMD-253	Grab	11051 No 3 Rd.	22-May-18	0.8	<1	2	12	<1	0.09
RMD-269	Grab	14951 Triangle Rd.	22-May-18	0.78	<1	<2	10	<1	0.1
RMD-254	Grab	5300 No. 3 Rd.	22-May-18	0.88	<1	<2	11	<1	0.13
RMD-270	Grab	8200 Jones Rd.	22-May-18	0.8	<1	<2	12	<1	0.09
RMD-256	Grab	1000 Blk. McDonald Rd.	22-May-18	0.57	<1	<2	12	<1	1.2
RMD-255	Grab	6000 Blk. Miller Rd.	22-May-18	0.83	<1	<2	11	<1	0.77
RMD-271	Grab	3800 Cessna Drive	22-May-18	0.64	<1	<2	13	<1	0.1
RMD-272	Grab	751 Catalina Cres.	22-May-18	0.83	<1	<2	10	<1	0.1
RMD-250	Grab	6071 Azure Rd.	22-May-18	0.83	<1	<2	12	<1	0.1
RMD-263	Grab	12560 Cambie Rd.	23-May-18	0.74	<1	<2	10	<1	0.2

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-264	Grab	13100 Mitchell Rd.	23-May-18	0.6	<1	<2	10	<1	0.18
RMD-277	Grab	Opp. 11280 Twigg Place	23-May-18	0.69	<1	<2	11	<1	0.24
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	23-May-18	0.63	<1	<2	10	<1	0.18
RMD-262	Grab	13799 Commerce Pkwy.	23-May-18	0.75	<1	<2	10	<1	0.18
RMD-278	Grab	6651 Fraserwood Place	23-May-18	0.7	<1	<2	10	<1	0.16
RMD-279	Grab	Opp. 20371 Westminster Hwy.	23-May-18	0.68	<1	<2	10	<1	0.17
RMD-261	Grab	9911 Sidaway Rd.	23-May-18	0.75	<1	<2	10	<1	0.21
RMD-260	Grab	11111 Horseshoe Way	23-May-18	0.68	<1	<2	10	<1	0.19
RMD-259	Grab	10020 Amethyst Ave.	23-May-18	0.65	<1	<2	10	<1	0.28
RMD-266	Grab	9380 General Currie Rd.	23-May-18	0.73	<1	<2	10	<1	0.16
RMD-258	Grab	7000 Blk. Dyke Rd.	23-May-18	0.67	<1	<2	10	<1	0.17
RMD-257	Grab	6640 Blundell Rd.	23-May-18	0.7	<1	<2	11	<1	0.16
RMD-204	Grab	3180 Granville Ave.	24-May-18	0.72	<1	<2	12	<1	0.22
RMD-206	Grab	4251 Moncton St.	24-May-18	0.7	<1	<2	11	<1	0.27
RMD-216	Grab	11080 No. 2 Rd.	24-May-18	0.77	<1	<2	10	<1	0.24
RMD-280	Grab	11500 McKenzie Rd.	24-May-18	0.57	<1	<2	13	<1	0.15
RMD-212	Grab	Opp. 8600 Ryan Rd.	24-May-18	0.76	<1	<2	10	<1	0.2
RMD-208	Grab	13200 No. 4 Rd.	24-May-18	0.82	<1	<2	9	<1	0.21
RMD-205	Grab	13851 Steveston Hwy.	24-May-18	0.77	<1	2	10	<1	0.19
RMD-202	Grab	1500 Valemont Way	24-May-18	0.74	<1	<2	10	<1	0.23
RMD-214	Grab	11720 Westminster Hwy.	24-May-18	0.75	<1	<2	10	<1	0.2
RMD-267	Grab	17240 Fedoruk	24-May-18	0.75	<1	<2	12	<1	0.16
RMD-249	Grab	23000 Blk. Dyke Rd.	24-May-18	0.76	<1	<2	10	<1	0.18
RMD-276	Grab	22271 Cochrane Drive	24-May-18	0.76	<1	<2	11	<1	0.23
RMD-275	Grab	5180 Smith Cres.	24-May-18	0.77	<1	<2	11	<1	0.2
RMD-203	Grab	23260 Westminster Hwy.	24-May-18	0.66	<1	<2	10	<1	0.2
RMD-251	Grab	5951McCallan Rd.	28-May-18	0.82	<1	<2	10	<1	0.27
RMD-273	Grab	Opp. 8331 Fairfax Place	28-May-18	0.78	<1	<2	19	<1	0.27
RMD-252	Grab	9751 Pendleton Rd.	28-May-18	0.71	<1	<2	12	<1	0.21
RMD-274	Grab	10920 Springwood Court	28-May-18	0.79	<1	<2	15	<1	0.24
RMD-253	Grab	11051 No 3 Rd.	28-May-18	0.83	<1	<2	11	<1	0.26
RMD-269	Grab	14951 Triangle Rd.	28-May-18	0.72	<1	<2	11	<1	0.2
RMD-270	Grab	8200 Jones Rd.	28-May-18	0.8	<1	2	11	<1	0.36
RMD-254	Grab	5300 No. 3 Rd.	28-May-18	0.8	<1	<2	10	<1	0.49
RMD-256	Grab	1000 Blk. McDonald Rd.	28-May-18	0.67	<1	<2	13	<1	0.67
RMD-255	Grab	6000 Blk. Miller Rd.	28-May-18	0.82	<1	<2	10	<1	1.6
RMD-271	Grab	3800 Cessna Drive	28-May-18	0.85	<1	<2	12	<1	0.4
RMD-272	Grab	751 Catalina Cres.	28-May-18	0.82	<1	<2	10	<1	0.27
RMD-250	Grab	6071 Azure Rd.	28-May-18	0.78	<1	<2	11	<1	0.23
RMD-263	Grab	12560 Cambie Rd.	28-May-18	0.74	<1	2	10	<1	0.16

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-264	Grab	13100 Mitchell Rd.	30-May-18	0.82	<1	<2	10	<1	0.23
RMD-277	Grab	Opp. 11280 Twigg Place	30-May-18	0.9	<1	<2	11	<1	0.2
RMD-262	Grab	13799 Commerce Pkwy.	30-May-18	0.79	<1	<2	11	<1	0.11
RMD-278	Grab	6651 Fraserwood Place	30-May-18	0.76	<1	<2	10	<1	0.15
RMD-279	Grab	Opp. 20371 Westminster Hwy.	30-May-18	0.59	<1	18	11	<1	0.16
RMD-261	Grab	9911 Sidaway Rd.	30-May-18	0.77	<1	<2	10	<1	0.21
RMD-260	Grab	11111 Horseshoe Way	30-May-18	0.76	<1	<2	10	<1	0.18
RMD-259	Grab	10020 Amethyst Ave.	30-May-18	0.75	<1	2	12	<1	2
RMD-266	Grab	9380 General Currie Rd.	30-May-18	0.82	<1	<2	11	<1	0.17
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	30-May-18	0.77	<1	<2	12	<1	0.13
RMD-258	Grab	7000 Blk. Dyke Rd.	30-May-18	0.79	<1	<2	11	<1	0.15
RMD-257	Grab	6640 Blundell Rd.	30-May-18	0.78	<1	<2	10	<1	0.14
RMD-204	Grab	3180 Granville Ave.	1-Jun-18	0.79	<1	<2	11	<1	0.12
RMD-216	Grab	11080 No. 2 Rd.	1-Jun-18	0.77	<1	<2	10	<1	0.12
RMD-206	Grab	4251 Moncton St.	1-Jun-18	0.74	<1	<2	11	<1	0.12
RMD-280	Grab	11500 McKenzie Rd.	1-Jun-18	0.8	<1	<2	12	<1	0.11
RMD-212	Grab	Opp. 8600 Ryan Rd.	1-Jun-18	0.73	<1	<2	11	<1	0.14
RMD-208	Grab	13200 No. 4 Rd.	1-Jun-18	0.71	<1	<2	10	<1	0.13
RMD-205	Grab	13851 Steveston Hwy.	1-Jun-18	0.72	<1	2	10	<1	0.15
RMD-202	Grab	1500 Valemont Way	1-Jun-18	0.68	<1	<2	9	<1	0.08
RMD-214	Grab	11720 Westminster Hwy.	1-Jun-18	0.79	<1	<2	9	<1	0.16
RMD-267	Grab	17240 Fedoruk	1-Jun-18	0.6	<1	<2	12	<1	0.11
RMD-249	Grab	23000 Blk. Dyke Rd.	1-Jun-18	0.61	<1	6	11	<1	0.15
RMD-276	Grab	22271 Cochrane Drive	1-Jun-18	0.71	<1	76	10	<1	0.13
RMD-275	Grab	5180 Smith Cres.	1-Jun-18	0.63	<1	<2	11	<1	0.09
RMD-203	Grab	23260 Westminster Hwy.	1-Jun-18	0.67	<1	4	9	<1	0.1
RMD-251	Grab	5951McCallan Rd.	4-Jun-18	0.78	<1	<2	11	<1	0.1
RMD-273	Grab	Opp. 8331 Fairfax Place	4-Jun-18	0.67	<1	<2	18	<1	0.1
RMD-252	Grab	9751 Pendleton Rd.	4-Jun-18	0.67	<1	<2	14	<1	0.09
RMD-274	Grab	10920 Springwood Court	4-Jun-18	0.73	<1	2	14	<1	0.08
RMD-253	Grab	11051 No 3 Rd.	4-Jun-18	0.7	<1	<2	13	<1	0.08
RMD-269	Grab	14951 Triangle Rd.	4-Jun-18	0.75	<1	<2	13	<1	0.09
RMD-270	Grab	8200 Jones Rd.	4-Jun-18	0.73	<1	<2	13	<1	0.1
RMD-254	Grab	5300 No. 3 Rd.	4-Jun-18	0.68	<1	<2	13	<1	0.1
RMD-256	Grab	1000 Blk. McDonald Rd.	4-Jun-18	0.66	<1	2	14	<1	1.1
RMD-255	Grab	6000 Blk. Miller Rd.	4-Jun-18	0.82	<1	2	10	<1	2.9
RMD-271	Grab	3800 Cessna Drive	4-Jun-18	0.66	<1	<2	13	<1	0.08
RMD-272	Grab	751 Catalina Cres.	4-Jun-18	0.88	<1	<2	10	<1	0.1
RMD-250	Grab	6071 Azure Rd.	4-Jun-18	0.74	<1	2	13	<1	0.16
RMD-263	Grab	12560 Cambie Rd.	4-Jun-18	0.64	<1	<2	9	<1	0.19

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-264	Grab	13100 Mitchell Rd.	6-Jun-18	0.61	<1	<2	10	<1	0.25
RMD-277	Grab	Opp. 11280 Twigg Place	6-Jun-18	0.69	<1	<2	10	<1	0.25
RMD-262	Grab	13799 Commerce Pkwy.	6-Jun-18	0.73	<1	<2	10	<1	0.21
RMD-278	Grab	6651 Fraserwood Place	6-Jun-18	0.66	<1	<2	11	<1	0.16
RMD-279	Grab	Opp. 20371 Westminster Hwy.	6-Jun-18	0.72	<1	<2	10	<1	0.15
RMD-261	Grab	9911 Sidaway Rd.	6-Jun-18	0.7	<1	<2	11	<1	0.19
RMD-260	Grab	11111 Horseshoe Way	6-Jun-18	0.71	<1	<2	11	<1	0.28
RMD-259	Grab	10020 Amethyst Ave.	6-Jun-18	0.65	<1	4	13	<1	1.4
RMD-266	Grab	9380 General Currie Rd.	6-Jun-18	0.71	<1	<2	10	<1	0.22
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	6-Jun-18	0.66	<1	<2	11	<1	0.18
RMD-258	Grab	7000 Blk. Dyke Rd.	6-Jun-18	0.75	<1	2	10	<1	0.21
RMD-257	Grab	6640 Blundell Rd.	6-Jun-18	0.71	<1	<2	10	<1	0.17
RMD-204	Grab	3180 Granville Ave.	7-Jun-18	0.67	<1	<2	12	<1	0.26
RMD-206	Grab	4251 Moncton St.	7-Jun-18	0.72	<1	2	11	<1	0.23
RMD-216	Grab	11080 No. 2 Rd.	7-Jun-18	0.75	<1	<2	10	<1	0.24
RMD-280	Grab	11500 McKenzie Rd.	7-Jun-18	0.62	<1	2	14	<1	0.16
RMD-212	Grab	Opp. 8600 Ryan Rd.	7-Jun-18	0.73	<1	2	11	<1	0.22
RMD-208	Grab	13200 No. 4 Rd.	7-Jun-18	0.74	<1	<2	10	<1	0.21
RMD-205	Grab	13851 Steveston Hwy.	7-Jun-18	0.79	<1	<2	10	<1	0.2
RMD-202	Grab	1500 Valemont Way	7-Jun-18	0.74	<1	<2	10	<1	0.21
RMD-214	Grab	11720 Westminster Hwy.	7-Jun-18	0.82	<1	<2	10	<1	0.15
RMD-267	Grab	17240 Fedoruk	7-Jun-18	0.73	<1	<2	12	<1	0.16
RMD-249	Grab	23000 Blk. Dyke Rd.	7-Jun-18	0.75	<1	<2	11	<1	0.12
RMD-276	Grab	22271 Cochrane Drive	7-Jun-18	0.75	<1	<2	11	<1	0.23
RMD-275	Grab	5180 Smith Cres.	7-Jun-18	0.64	<1	<2	12	<1	0.15
RMD-203	Grab	23260 Westminster Hwy.	7-Jun-18	0.7	<1	<2	10	<1	0.4
RMD-251	Grab	5951McCallan Rd.	11-Jun-18	0.78	<1	<2	9	<1	0.13
RMD-273	Grab	Opp. 8331 Fairfax Place	11-Jun-18	0.61	<1	<2	17	<1	0.12
RMD-252	Grab	9751 Pendleton Rd.	11-Jun-18	0.71	<1	<2	11	<1	0.1
RMD-274	Grab	10920 Springwood Court	11-Jun-18	0.7	<1	2	13	<1	0.12
RMD-253	Grab	11051 No 3 Rd.	11-Jun-18	0.72	<1	<2	10	<1	0.15
RMD-269	Grab	14951 Triangle Rd.	11-Jun-18	0.7	<1	<2	11	<1	0.09
RMD-270	Grab	8200 Jones Rd.	11-Jun-18	0.83	<1	<2	11	<1	0.16
RMD-254	Grab	5300 No. 3 Rd.	11-Jun-18	0.78	<1	<2	10	<1	0.12
RMD-256	Grab	1000 Blk. McDonald Rd.	11-Jun-18	0.62	<1	2	12	<1	0.72
RMD-255	Grab	6000 Blk. Miller Rd.	11-Jun-18	0.83	<1	<2	9	<1	0.46
RMD-271	Grab	3800 Cessna Drive	11-Jun-18	0.84	<1	<2	11	<1	0.15
RMD-272	Grab	751 Catalina Cres.	11-Jun-18	0.92	<1	2	10	<1	0.13
RMD-250	Grab	6071 Azure Rd.	11-Jun-18	0.8	<1	<2	10	<1	0.15
RMD-263	Grab	12560 Cambie Rd.	11-Jun-18	0.71	<1	<2	12	<1	0.12

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-264	Grab	13100 Mitchell Rd.	13-Jun-18	0.68	<1	<2	13	<1	0.1
RMD-277	Grab	Opp. 11280 Twigg Place	13-Jun-18	0.81	<1	<2	12	<1	0.22
RMD-262	Grab	13799 Commerce Pkwy.	13-Jun-18	0.74	<1	<2	12	<1	0.11
RMD-278	Grab	6651 Fraserwood Place	13-Jun-18	0.73	<1	2	11	<1	0.11
RMD-279	Grab	Opp. 20371 Westminster Hwy.	13-Jun-18	0.76	<1	<2	11	<1	0.17
RMD-261	Grab	9911 Sidaway Rd.	13-Jun-18	0.72	<1	<2	12	<1	0.09
RMD-260	Grab	11111 Horseshoe Way	13-Jun-18	0.8	<1	<2	10	<1	0.09
RMD-259	Grab	10020 Amethyst Ave.	13-Jun-18	0.72	<1	2	13	<1	0.83
RMD-266	Grab	9380 General Currie Rd.	13-Jun-18	0.81	<1	<2	10	<1	0.11
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	13-Jun-18	0.55	<1	<2	12	<1	0.28
RMD-258	Grab	7000 Blk. Dyke Rd.	13-Jun-18	0.78	<1	22	12	<1	0.16
RMD-257	Grab	6640 Blundell Rd.	13-Jun-18	0.79	<1	<2	11	<1	0.11
RMD-204	Grab	3180 Granville Ave.	15-Jun-18	0.75	<1	<2	12	<1	0.12
RMD-206	Grab	4251 Moncton St.	15-Jun-18	0.72	<1	<2	11	<1	0.13
RMD-216	Grab	11080 No. 2 Rd.	15-Jun-18	0.77	<1	<2	10	<1	0.12
RMD-280	Grab	11500 McKenzie Rd.	15-Jun-18	0.74	<1	<2	13	<1	0.12
RMD-212	Grab	Opp. 8600 Ryan Rd.	15-Jun-18	0.78	<1	<2	11	<1	0.16
RMD-208	Grab	13200 No. 4 Rd.	15-Jun-18	0.66	<1	<2	10	<1	0.14
RMD-205	Grab	13851 Steveston Hwy.	15-Jun-18	0.79	<1	<2	11	<1	0.13
RMD-202	Grab	1500 Valemont Way	15-Jun-18	0.64	<1	<2	11	<1	0.14
RMD-214	Grab	11720 Westminster Hwy.	15-Jun-18	0.72	<1	<2	10	<1	0.11
RMD-267	Grab	17240 Fedoruk	15-Jun-18	0.7	<1	<2	12	<1	0.11
RMD-249	Grab	23000 Blk. Dyke Rd.	15-Jun-18	0.79	<1	2	11	<1	0.13
RMD-276	Grab	22271 Cochrane Drive	15-Jun-18	0.76	<1	<2	11	<1	0.12
RMD-275	Grab	5180 Smith Cres.	15-Jun-18	0.84	<1	<2	12	<1	0.1
RMD-203	Grab	23260 Westminster Hwy.	15-Jun-18	0.84	<1	<2	11	<1	0.13
RMD-251	Grab	5951McCallan Rd.	18-Jun-18	1.03	<1	2	11	<1	0.21
RMD-273	Grab	Opp. 8331 Fairfax Place	18-Jun-18	0.53	<1	<2	19	<1	0.15
RMD-252	Grab	9751 Pendleton Rd.	18-Jun-18	0.69	<1	<2	13	<1	0.11
RMD-274	Grab	10920 Springwood Court	18-Jun-18	0.75	<1	<2	15	<1	0.15
RMD-253	Grab	11051 No 3 Rd.	18-Jun-18	0.78	<1	2	12	<1	0.12
RMD-269	Grab	14951 Triangle Rd.	18-Jun-18	0.77	<1	<2	12	<1	0.16
RMD-270	Grab	8200 Jones Rd.	18-Jun-18	0.78	<1	<2	13	<1	0.18
RMD-254	Grab	5300 No. 3 Rd.	18-Jun-18	0.83	<1	<2	13	<1	0.13
RMD-256	Grab	1000 Blk. McDonald Rd.	18-Jun-18	0.43	<1	<2	13	<1	0.57
RMD-255	Grab	6000 Blk. Miller Rd.	18-Jun-18	0.9	<1	<2	10	<1	0.69
RMD-271	Grab	3800 Cessna Drive	18-Jun-18	0.86	<1	<2	11	<1	0.19
RMD-272	Grab	751 Catalina Cres.	18-Jun-18	0.89	<1	<2	11	<1	0.19
RMD-250	Grab	6071 Azure Rd.	18-Jun-18	0.71	<1	<2	11	<1	0.14
RMD-263	Grab	12560 Cambie Rd.	20-Jun-18	0.73	<1	<2	11	<1	0.32

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-264	Grab	13100 Mitchell Rd.	20-Jun-18	0.74	<1	<2	13	<1	0.51
RMD-277	Grab	Opp. 11280 Twigg Place	20-Jun-18	0.82	<1	<2	13	<1	0.34
RMD-262	Grab	13799 Commerce Pkwy.	20-Jun-18	0.79	<1	<2	13	<1	0.23
RMD-278	Grab	6651 Fraserwood Place	20-Jun-18	0.77	<1	<2	13	<1	0.33
RMD-279	Grab	Opp. 20371 Westminster Hwy.	20-Jun-18	0.83	<1	<2	12	<1	0.24
RMD-261	Grab	9911 Sidaway Rd.	20-Jun-18	0.73	<1	<2	12	<1	0.38
RMD-260	Grab	11111 Horseshoe Way	20-Jun-18	0.78	<1	2	11	<1	0.35
RMD-259	Grab	10020 Amethyst Ave.	20-Jun-18	0.79	<1	<2	12	<1	2.2
RMD-266	Grab	9380 General Currie Rd.	20-Jun-18	0.82	<1	<2	12	<1	1.3
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	20-Jun-18	0.8	<1	<2	12	<1	0.37
RMD-258	Grab	7000 Blk. Dyke Rd.	20-Jun-18	0.78	<1	<2	12	<1	0.31
RMD-257	Grab	6640 Blundell Rd.	20-Jun-18	0.84	<1	<2	12	<1	0.41
RMD-204	Grab	3180 Granville Ave.	21-Jun-18	0.78	<1	4	11	<1	0.41
RMD-206	Grab	4251 Moncton St.	21-Jun-18	0.72	<1	<2	11	<1	0.5
RMD-216	Grab	11080 No. 2 Rd.	21-Jun-18	0.77	<1	<2	11	<1	0.39
RMD-280	Grab	11500 McKenzie Rd.	21-Jun-18	0.63	<1	<2	15	<1	0.26
RMD-212	Grab	Opp. 8600 Ryan Rd.	21-Jun-18	0.74	<1	<2	12	<1	0.41
RMD-208	Grab	13200 No. 4 Rd.	21-Jun-18	0.88	<1	<2	11	<1	0.35
RMD-205	Grab	13851 Steveston Hwy.	21-Jun-18	0.73	<1	<2	11	<1	0.23
RMD-202	Grab	1500 Valemont Way	21-Jun-18	0.79	<1	<2	11	<1	0.19
RMD-214	Grab	11720 Westminster Hwy.	21-Jun-18	0.8	<1	<2	11	<1	0.42
RMD-267	Grab	17240 Fedoruk	21-Jun-18	0.68	<1	<2	13	<1	0.18
RMD-249	Grab	23000 Blk. Dyke Rd.	21-Jun-18	0.7	<1	34	13	<1	0.19
RMD-276	Grab	22271 Cochrane Drive	21-Jun-18	0.71	<1	<2	12	<1	0.16
RMD-275	Grab	5180 Smith Cres.	21-Jun-18	0.69	<1	<2	12	<1	0.2
RMD-203	Grab	23260 Westminster Hwy.	21-Jun-18	0.74	<1	<2	12	<1	0.18
RMD-251	Grab	5951McCallan Rd.	25-Jun-18	0.78	<1	<2	13	<1	0.1
RMD-273	Grab	Opp. 8331 Fairfax Place	25-Jun-18	0.57	<1	<2	19	<1	0.13
RMD-252	Grab	9751 Pendleton Rd.	25-Jun-18	0.71	<1	<2	14	<1	0.09
RMD-274	Grab	10920 Springwood Court	25-Jun-18	0.65	<1	<2	16	<1	0.18
RMD-253	Grab	11051 No 3 Rd.	25-Jun-18	0.69	<1	<2	14	<1	0.12
RMD-269	Grab	14951 Triangle Rd.	25-Jun-18	0.71	<1	<2	11	<1	0.12
RMD-270	Grab	8200 Jones Rd.	25-Jun-18	0.75	<1	<2	12	<1	0.12
RMD-254	Grab	5300 No. 3 Rd.	25-Jun-18	0.79	<1	<2	14	<1	0.22
RMD-256	Grab	1000 Blk. McDonald Rd.	25-Jun-18	0.57	<1	<2	14	<1	0.75
RMD-255	Grab	6000 Blk. Miller Rd.	25-Jun-18	0.71	<1	34	13	<1	0.32
RMD-271	Grab	3800 Cessna Drive	25-Jun-18	0.79	<1	2	12	<1	0.09
RMD-272	Grab	751 Catalina Cres.	25-Jun-18	0.78	<1	<2	12	<1	0.1
RMD-250	Grab	6071 Azure Rd.	25-Jun-18	0.84	<1	2	13	<1	0.1
RMD-263	Grab	12560 Cambie Rd.	25-Jun-18	0.84	<1	<2	11	<1	0.13

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-264	Grab	13100 Mitchell Rd.	27-Jun-18	0.6	<1	2	14	<1	0.14
RMD-277	Grab	Opp. 11280 Twigg Place	27-Jun-18	0.7	<1	<2	13	<1	0.2
RMD-262	Grab	13799 Commerce Pkwy.	27-Jun-18	0.68	<1	<2	14	<1	0.16
RMD-278	Grab	6651 Fraserwood Place	27-Jun-18	0.71	<1	<2	13	<1	0.13
RMD-279	Grab	Opp. 20371 Westminster Hwy.	27-Jun-18	0.57	<1	<2	11	<1	0.17
RMD-261	Grab	9911 Sidaway Rd.	27-Jun-18	0.71	<1	<2	13	<1	0.15
RMD-260	Grab	11111 Horseshoe Way	27-Jun-18	0.79	<1	<2	13	<1	0.18
RMD-259	Grab	10020 Amethyst Ave.	27-Jun-18	0.89	<1	<2	12	<1	0.68
RMD-266	Grab	9380 General Currie Rd.	27-Jun-18	0.82	<1	<2	13	<1	0.21
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	27-Jun-18	0.72	<1	<2	12	<1	0.15
RMD-258	Grab	7000 Blk. Dyke Rd.	27-Jun-18	0.86	<1	2	13	<1	0.11
RMD-257	Grab	6640 Blundell Rd.	27-Jun-18	0.87	<1	<2	12	<1	0.16
RMD-204	Grab	3180 Granville Ave.	29-Jun-18	0.81	<1	<2	12	<1	0.32
RMD-206	Grab	4251 Moncton St.	29-Jun-18	0.79	<1	<2	10	<1	0.35
RMD-216	Grab	11080 No. 2 Rd.	29-Jun-18	0.89	<1	<2	10	<1	0.22
RMD-280	Grab	11500 McKenzie Rd.	29-Jun-18	0.79	<1	<2	14	<1	0.19
RMD-212	Grab	Opp. 8600 Ryan Rd.	29-Jun-18	0.88	<1	<2	10	<1	0.18
RMD-208	Grab	13200 No. 4 Rd.	29-Jun-18	0.95	<1	<2	11	<1	0.39
RMD-205	Grab	13851 Steveston Hwy.	29-Jun-18	0.52	<1	<2	11	<1	0.3
RMD-202	Grab	1500 Valemont Way	29-Jun-18	0.7	<1	<2	11	<1	0.31
RMD-214	Grab	11720 Westminster Hwy.	29-Jun-18	0.88	<1	<2	11	<1	0.42
RMD-267	Grab	17240 Fedoruk	29-Jun-18	0.66	<1	<2	13	<1	0.32
RMD-249	Grab	23000 Blk. Dyke Rd.	29-Jun-18	0.72	<1	4	13	<1	0.34
RMD-276	Grab	22271 Cochrane Drive	29-Jun-18	0.68	<1	<2	12	<1	0.2
RMD-275	Grab	5180 Smith Cres.	29-Jun-18	0.65	<1	<2	12	<1	0.18
RMD-203	Grab	23260 Westminster Hwy.	29-Jun-18	0.71	<1	<2	11	<1	0.16
RMD-251	Grab	5951McCallan Rd.	3-Jul-18	0.88	<1	<2	11	<1	0.19
RMD-273	Grab	Opp. 8331 Fairfax Place	3-Jul-18	0.73	<1	<2	19	<1	0.21
RMD-252	Grab	9751 Pendleton Rd.	3-Jul-18	0.73	<1	4	14	<1	0.16
RMD-274	Grab	10920 Springwood Court	3-Jul-18	0.81	<1	<2	14	<1	0.21
RMD-253	Grab	11051 No 3 Rd.	3-Jul-18	0.87	<1	<2	11	<1	0.23
RMD-269	Grab	14951 Triangle Rd.	3-Jul-18	0.7	<1	<2	11	<1	0.13
RMD-270	Grab	8200 Jones Rd.	3-Jul-18	0.87	<1	<2	14	<1	0.11
RMD-254	Grab	5300 No. 3 Rd.	3-Jul-18	0.93	<1	<2	13	<1	0.18
RMD-256	Grab	1000 Blk. McDonald Rd.	3-Jul-18	0.65	<1	<2	15	<1	0.43
RMD-255	Grab	6000 Blk. Miller Rd.	3-Jul-18	0.88	<1	<2	11	<1	0.43
RMD-271	Grab	3800 Cessna Drive	3-Jul-18	0.76	<1	2	14	<1	0.12
RMD-272	Grab	751 Catalina Cres.	3-Jul-18	0.91	<1	<2	11	<1	0.14
RMD-250	Grab	6071 Azure Rd.	3-Jul-18	0.74	<1	<2	13	<1	0.14
RMD-263	Grab	12560 Cambie Rd.	4-Jul-18	0.79	<1	<2	11	<1	0.26

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-264	Grab	13100 Mitchell Rd.	4-Jul-18	0.69	<1	2	13	<1	0.22
RMD-277	Grab	Opp. 11280 Twigg Place	4-Jul-18	0.73	<1	<2	13	<1	0.19
RMD-262	Grab	13799 Commerce Pkwy.	4-Jul-18	0.72	<1	2	12	<1	0.22
RMD-278	Grab	6651 Fraserwood Place	4-Jul-18	0.74	<1	<2	12	<1	0.22
RMD-279	Grab	Opp. 20371 Westminster Hwy.	4-Jul-18	0.76	<1	<2	11	<1	0.27
RMD-261	Grab	9911 Sidaway Rd.	4-Jul-18	0.78	<1	<2	11	<1	0.26
RMD-260	Grab	11111 Horseshoe Way	4-Jul-18	0.82	<1	<2	11	<1	0.19
RMD-259	Grab	10020 Amethyst Ave.	4-Jul-18	0.72	<1	<2	14	<1	0.89
RMD-266	Grab	9380 General Currie Rd.	4-Jul-18	0.72	<1	<2	11	<1	0.18
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	4-Jul-18	0.67	<1	<2	14	<1	0.28
RMD-258	Grab	7000 Blk. Dyke Rd.	4-Jul-18	0.68	<1	<2	13	<1	0.16
RMD-257	Grab	6640 Blundell Rd.	4-Jul-18	0.82	<1	<2	12	<1	0.2
RMD-206	Grab	4251 Moncton St.	5-Jul-18	0.73	<1	<2	12	<1	0.38
RMD-216	Grab	11080 No. 2 Rd.	5-Jul-18	0.84	<1	<2	13	<1	0.28
RMD-280	Grab	11500 McKenzie Rd.	5-Jul-18	0.59	<1	4	18	<1	0.19
RMD-212	Grab	Opp. 8600 Ryan Rd.	5-Jul-18	0.93	<1	4	12	<1	0.3
RMD-208	Grab	13200 No. 4 Rd.	5-Jul-18	0.98	<1	<2	14	<1	0.34
RMD-205	Grab	13851 Steveston Hwy.	5-Jul-18	0.78	<1	<2	13	<1	0.23
RMD-202	Grab	1500 Valemont Way	5-Jul-18	0.8	<1	<2	11	<1	0.23
RMD-214	Grab	11720 Westminster Hwy.	5-Jul-18	0.92	<1	<2	12	<1	0.26
RMD-267	Grab	17240 Fedoruk	5-Jul-18	0.68	<1	2	15	<1	0.18
RMD-249	Grab	23000 Blk. Dyke Rd.	5-Jul-18	0.67	<1	8	13	<1	0.2
RMD-275	Grab	5180 Smith Cres.	5-Jul-18	0.57	<1	<2	14	<1	0.25
RMD-251	Grab	5951McCallan Rd.	9-Jul-18	0.77	<1	<2	11	<1	0.1
RMD-273	Grab	Opp. 8331 Fairfax Place	9-Jul-18	0.62	<1	<2	20	<1	0.11
RMD-252	Grab	9751 Pendleton Rd.	9-Jul-18	0.7	<1	<2	14	<1	0.13
RMD-274	Grab	10920 Springwood Court	9-Jul-18	0.76	<1	2	13	<1	0.21
RMD-253	Grab	11051 No 3 Rd.	9-Jul-18	0.77	<1	<2	13	<1	0.15
RMD-269	Grab	14951 Triangle Rd.	9-Jul-18	0.69	<1	<2	11	<1	0.11
RMD-270	Grab	8200 Jones Rd.	9-Jul-18	0.74	<1	2	13	<1	0.12
RMD-254	Grab	5300 No. 3 Rd.	9-Jul-18	0.65	<1	<2	13	<1	0.19
RMD-256	Grab	1000 Blk. McDonald Rd.	9-Jul-18	0.61	<1	<2	14	<1	0.45
RMD-255	Grab	6000 Blk. Miller Rd.	9-Jul-18	0.72	<1	<2	11	<1	0.33
RMD-271	Grab	3800 Cessna Drive	9-Jul-18	0.69	<1	<2	13	<1	0.35
RMD-272	Grab	751 Catalina Cres.	9-Jul-18	0.81	<1	<2	13	<1	0.15
RMD-250	Grab	6071 Azure Rd.	9-Jul-18	0.73	<1	2	12	<1	0.14
RMD-263	Grab	12560 Cambie Rd.	11-Jul-18	0.86	<1	<2	11	<1	0.15
RMD-264	Grab	13100 Mitchell Rd.	11-Jul-18	0.68	<1	2	13	<1	0.15
RMD-277	Grab	Opp. 11280 Twigg Place	11-Jul-18	0.69	<1	4	12	<1	0.14
RMD-262	Grab	13799 Commerce Pkwy.	11-Jul-18	0.72	<1	<2	11	<1	0.12

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-278	Grab	6651 Fraserwood Place	11-Jul-18	0.7	<1	<2	11	<1	0.35
RMD-279	Grab	Opp. 20371 Westminster Hwy.	11-Jul-18	0.75	<1	<2	10	<1	0.33
RMD-261	Grab	9911 Sidaway Rd.	11-Jul-18	0.75	<1	<2	11	<1	0.24
RMD-260	Grab	11111 Horseshoe Way	11-Jul-18	0.72	<1	<2	11	<1	0.22
RMD-259	Grab	10020 Amethyst Ave.	11-Jul-18	0.68	<1	4	12	<1	0.79
RMD-266	Grab	9380 General Currie Rd.	11-Jul-18	0.76	<1	<2	10	<1	0.19
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	11-Jul-18	0.73	<1	<2	11	<1	0.17
RMD-258	Grab	7000 Blk. Dyke Rd.	11-Jul-18	0.72	<1	8	12	<1	0.11
RMD-257	Grab	6640 Blundell Rd.	11-Jul-18	0.78	<1	<2	11	<1	0.21
RMD-204	Grab	3180 Granville Ave.	13-Jul-18	0.63	<1	2	15	<1	0.21
RMD-206	Grab	4251 Moncton St.	13-Jul-18	0.73	<1	<2	12	<1	0.24
RMD-216	Grab	11080 No. 2 Rd.	13-Jul-18	0.67	<1	2	10	<1	0.15
RMD-280	Grab	11500 McKenzie Rd.	13-Jul-18	0.76	<1	<2	14	<1	0.13
RMD-212	Grab	Opp. 8600 Ryan Rd.	13-Jul-18	0.67	<1	oor sprea	12	<1	0.13
RMD-208	Grab	13200 No. 4 Rd.	13-Jul-18	0.77	<1	<2	12	<1	0.12
RMD-205	Grab	13851 Steveston Hwy.	13-Jul-18	0.67	<1	2	11	<1	0.21
RMD-202	Grab	1500 Valemont Way	13-Jul-18	0.75	<1	<2	11	<1	0.14
RMD-214	Grab	11720 Westminster Hwy.	13-Jul-18	0.75	<1	2	10	<1	0.14
RMD-267	Grab	17240 Fedoruk	13-Jul-18	0.71	<1	<2	13	<1	0.13
RMD-249	Grab	23000 Blk. Dyke Rd.	13-Jul-18	0.68	<1	2	12	<1	0.14
RMD-276	Grab	22271 Cochrane Drive	13-Jul-18	0.71	<1	<2	12	<1	0.12
RMD-275	Grab	5180 Smith Cres.	13-Jul-18	0.69	<1	2	13	<1	0.12
RMD-203	Grab	23260 Westminster Hwy.	13-Jul-18	0.72	<1	2	11	<1	0.12
RMD-251	Grab	5951McCallan Rd.	16-Jul-18	0.89	<1	<2	12	<1	0.2
RMD-273	Grab	Opp. 8331 Fairfax Place	16-Jul-18	0.58	<1	4	21	<1	0.29
RMD-252	Grab	9751 Pendleton Rd.	16-Jul-18	0.72	<1	2	15	<1	0.23
RMD-274	Grab	10920 Springwood Court	16-Jul-18	0.71	<1	<2	17	<1	0.3
RMD-253	Grab	11051 No 3 Rd.	16-Jul-18	0.74	<1	2	15	<1	0.3
RMD-269	Grab	14951 Triangle Rd.	16-Jul-18	0.75	<1	<2	13	<1	0.2
RMD-270	Grab	8200 Jones Rd.	16-Jul-18	0.81	<1	<2	15	<1	0.33
RMD-254	Grab	5300 No. 3 Rd.	16-Jul-18	0.79	<1	<2	14	<1	0.25
RMD-256	Grab	1000 Blk. McDonald Rd.	16-Jul-18	0.62	<1	<2	15	<1	0.7
RMD-255	Grab	6000 Blk. Miller Rd.	16-Jul-18	0.89	<1	<2	11	<1	0.46
RMD-271	Grab	3800 Cessna Drive	16-Jul-18	0.91	<1	<2	14	<1	0.35
RMD-272	Grab	751 Catalina Cres.	16-Jul-18	0.91	<1	<2	12	<1	0.28
RMD-250	Grab	6071 Azure Rd.	16-Jul-18	0.78	<1	<2	14	<1	0.11
RMD-263	Grab	12560 Cambie Rd.	18-Jul-18	0.92	<1	<2	11	<1	0.33
RMD-264	Grab	13100 Mitchell Rd.	18-Jul-18	0.78	<1	2	13	<1	0.23
RMD-277	Grab	Opp. 11280 Twigg Place	18-Jul-18	0.91	<1	<2	12	<1	0.18
RMD-262	Grab	13799 Commerce Pkwy.	18-Jul-18	0.77	<1	<2	13	<1	0.22

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-278	Grab	6651 Fraserwood Place	18-Jul-18	0.71	<1	2	13	<1	0.19
RMD-279	Grab	Opp. 20371 Westminster Hwy.	18-Jul-18	0.75	<1	<2	11	<1	0.17
RMD-261	Grab	9911 Sidaway Rd.	18-Jul-18	0.73	<1	<2	12	<1	0.14
RMD-260	Grab	11111 Horseshoe Way	18-Jul-18	0.78	<1	<2	13	<1	0.67
RMD-259	Grab	10020 Amethyst Ave.	18-Jul-18	0.75	<1	<2	14	<1	0.67
RMD-266	Grab	9380 General Currie Rd.	18-Jul-18	0.79	<1	<2	13	<1	0.35
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	18-Jul-18	0.76	<1	4	14	<1	0.19
RMD-258	Grab	7000 Blk. Dyke Rd.	18-Jul-18	0.76	<1	2	13	<1	0.13
RMD-257	Grab	6640 Blundell Rd.	18-Jul-18	0.82	<1	<2	12	<1	0.38
RMD-204	Grab	3180 Granville Ave.	19-Jul-18	0.67	<1	<2	14	<1	0.33
RMD-206	Grab	4251 Moncton St.	19-Jul-18	0.72	<1	<2	13	<1	0.29
RMD-216	Grab	11080 No. 2 Rd.	19-Jul-18	0.82	<1	<2	12	<1	0.32
RMD-280	Grab	11500 McKenzie Rd.	19-Jul-18	0.7	<1	<2	16	<1	0.3
RMD-212	Grab	Opp. 8600 Ryan Rd.	19-Jul-18	0.72	<1	2	12	<1	0.23
RMD-208	Grab	13200 No. 4 Rd.	19-Jul-18	0.63	<1	<2	13	<1	0.23
RMD-205	Grab	13851 Steveston Hwy.	19-Jul-18	0.68	<1	2	14	<1	0.22
RMD-202	Grab	1500 Valemont Way	19-Jul-18	0.89	<1	<2	14	<1	0.14
RMD-214	Grab	11720 Westminster Hwy.	19-Jul-18	0.71	<1	2	12	<1	0.18
RMD-267	Grab	17240 Fedoruk	19-Jul-18	0.71	<1	<2	17	<1	0.17
RMD-249	Grab	23000 Blk. Dyke Rd.	19-Jul-18	0.56	<1	12	15	<1	0.19
RMD-276	Grab	22271 Cochrane Drive	19-Jul-18	0.97	<1	<2	16	<1	0.21
RMD-275	Grab	5180 Smith Cres.	19-Jul-18	0.79	<1	<2	17	<1	0.14
RMD-203	Grab	23260 Westminster Hwy.	19-Jul-18	0.52	<1	<2	13	<1	0.15
RMD-251	Grab	5951McCallan Rd.	23-Jul-18	0.77	<1	<2	14	<1	0.2
RMD-273	Grab	Opp. 8331 Fairfax Place	23-Jul-18	0.73	<1	4	22	<1	0.19
RMD-252	Grab	9751 Pendleton Rd.	23-Jul-18	0.7	<1	<2	14	<1	0.16
RMD-274	Grab	10920 Springwood Court	23-Jul-18	0.74	<1	<2	17	<1	0.43
RMD-253	Grab	11051 No 3 Rd.	23-Jul-18	0.84	<1	<2	13	<1	0.17
RMD-269	Grab	14951 Triangle Rd.	23-Jul-18	0.78	<1	<2	15	<1	0.15
RMD-270	Grab	8200 Jones Rd.	23-Jul-18	0.77	<1	<2	16	<1	0.17
RMD-254	Grab	5300 No. 3 Rd.	23-Jul-18	0.81	<1	<2	14	<1	0.21
RMD-256	Grab	1000 Blk. McDonald Rd.	23-Jul-18	0.6	<1	<2	14	<1	0.93
RMD-255	Grab	6000 Blk. Miller Rd.	23-Jul-18	0.85	<1	2	13	<1	0.39
RMD-271	Grab	3800 Cessna Drive	23-Jul-18	0.91	<1	<2	14	<1	0.2
RMD-272	Grab	751 Catalina Cres.	23-Jul-18	0.83	<1	<2	13	<1	0.16
RMD-250	Grab	6071 Azure Rd.	23-Jul-18	0.79	<1	<2	14	<1	0.2
RMD-263	Grab	12560 Cambie Rd.	25-Jul-18	0.92	<1	<2	12	<1	0.38
RMD-264	Grab	13100 Mitchell Rd.	25-Jul-18	0.55	<1	6	14	<1	0.83
RMD-277	Grab	Opp. 11280 Twigg Place	25-Jul-18	0.76	<1	<2	14	<1	0.5
RMD-262	Grab	13799 Commerce Pkwy.	25-Jul-18	0.77	<1	<2	14	<1	0.32

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-278	Grab	6651 Fraserwood Place	25-Jul-18	0.69	<1	<2	15	<1	0.21
RMD-279	Grab	Opp. 20371 Westminster Hwy.	25-Jul-18	0.87	<1	<2	14	<1	0.11
RMD-261	Grab	9911 Sidaway Rd.	25-Jul-18	0.62	<1	2	15	<1	0.14
RMD-260	Grab	11111 Horseshoe Way	25-Jul-18	0.7	<1	<2	13	<1	0.16
RMD-259	Grab	10020 Amethyst Ave.	25-Jul-18	0.74	<1	<2	16	<1	0.87
RMD-266	Grab	9380 General Currie Rd.	25-Jul-18	0.81	<1	<2	13	<1	0.22
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	25-Jul-18	0.75	<1	<2	15	<1	0.21
RMD-258	Grab	7000 Blk. Dyke Rd.	25-Jul-18	0.78	<1	12	13	<1	0.18
RMD-257	Grab	6640 Blundell Rd.	25-Jul-18	0.8	<1	<2	14	<1	0.14
RMD-204	Grab	3180 Granville Ave.	27-Jul-18	0.76	<1	<2	15	<1	0.11
RMD-206	Grab	4251 Moncton St.	27-Jul-18	0.78	<1	<2	13	<1	0.38
RMD-216	Grab	11080 No. 2 Rd.	27-Jul-18	0.78	<1	<2	13	<1	0.14
RMD-280	Grab	11500 McKenzie Rd.	27-Jul-18	1.05	<1	<2	16	<1	0.12
RMD-212	Grab	Opp. 8600 Ryan Rd.	27-Jul-18	0.84	<1	<2	13	<1	0.19
RMD-208	Grab	13200 No. 4 Rd.	27-Jul-18	0.8	<1	<2	12	<1	0.15
RMD-205	Grab	13851 Steveston Hwy.	27-Jul-18	0.98	<1	<2	13	<1	0.29
RMD-202	Grab	1500 Valemont Way	27-Jul-18	0.8	<1	<2	12	<1	0.21
RMD-214	Grab	11720 Westminster Hwy.	27-Jul-18	0.78	<1	2	13	<1	0.18
RMD-267	Grab	17240 Fedoruk	27-Jul-18	0.77	<1	<2	15	<1	0.19
RMD-249	Grab	23000 Blk. Dyke Rd.	27-Jul-18	0.8	<1	4	16	<1	0.13
RMD-276	Grab	22271 Cochrane Drive	27-Jul-18	0.73	<1	<2	14	<1	0.17
RMD-275	Grab	5180 Smith Cres.	27-Jul-18	0.83	<1	<2	15	<1	0.2
RMD-203	Grab	23260 Westminster Hwy.	27-Jul-18	0.78	<1	2	13	<1	0.29
RMD-251	Grab	5951McCallan Rd.	30-Jul-18	0.73	<1	<2	14	<1	0.14
RMD-273	Grab	Opp. 8331 Fairfax Place	30-Jul-18	0.67	<1	14	20	<1	0.25
RMD-252	Grab	9751 Pendleton Rd.	30-Jul-18	0.62	<1	<2	16	<1	0.26
RMD-274	Grab	10920 Springwood Court	30-Jul-18	0.66	<1	12	16	<1	0.23
RMD-253	Grab	11051 No 3 Rd.	30-Jul-18	0.72	<1	2	13	<1	0.19
RMD-269	Grab	14951 Triangle Rd.	30-Jul-18	1.02	<1	4	14	<1	0.23
RMD-270	Grab	8200 Jones Rd.	30-Jul-18	0.7	<1	<2	16	<1	0.14
RMD-254	Grab	5300 No. 3 Rd.	30-Jul-18	0.72	<1	2	15	<1	0.26
RMD-255	Grab	6000 Blk. Miller Rd.	30-Jul-18	0.93	<1	<2	13	<1	0.72
RMD-256	Grab	1000 Blk. McDonald Rd.	30-Jul-18	0.66	<1	<2	16	<1	0.69
RMD-271	Grab	3800 Cessna Drive	30-Jul-18	0.89	<1	<2	14	<1	0.15
RMD-272	Grab	751 Catalina Cres.	30-Jul-18	0.76	<1	<2	14	<1	0.17
RMD-250	Grab	6071 Azure Rd.	30-Jul-18	0.66	<1	10	15	<1	0.18
RMD-263	Grab	12560 Cambie Rd.	1-Aug-18	0.79	<1	<2	12	<1	0.14
RMD-264	Grab	13100 Mitchell Rd.	1-Aug-18	0.76	<1	<2	14	<1	0.2
RMD-277	Grab	Opp. 11280 Twigg Place	1-Aug-18	0.72	<1	<2	14	<1	0.3
RMD-262	Grab	13799 Commerce Pkwy.	1-Aug-18	0.71	<1	<2	13	<1	0.18

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-278	Grab	6651 Fraserwood Place	1-Aug-18	0.74	<1	<2	14	<1	0.16
RMD-279	Grab	Opp. 20371 Westminster Hwy.	1-Aug-18	0.77	<1	<2	14	<1	0.2
RMD-261	Grab	9911 Sidaway Rd.	1-Aug-18	0.59	<1	<2	14	<1	0.14
RMD-260	Grab	11111 Horseshoe Way	1-Aug-18	0.68	<1	2	14	<1	0.12
RMD-259	Grab	10020 Amethyst Ave.	1-Aug-18	0.62	<1	14	16	<1	0.62
RMD-266	Grab	9380 General Currie Rd.	1-Aug-18	0.65	<1	58	15	<1	0.55
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	1-Aug-18	0.65	<1	<2	16	<1	0.15
RMD-258	Grab	7000 Blk. Dyke Rd.	1-Aug-18	0.62	<1	24	15	<1	0.15
RMD-257	Grab	6640 Blundell Rd.	1-Aug-18	0.71	<1	<2	14	<1	0.15
RMD-204	Grab	3180 Granville Ave.	2-Aug-18	0.72	<1	2	15	<1	0.34
RMD-206	Grab	4251 Moncton St.	2-Aug-18	0.74	<1	2	13	<1	0.78
RMD-216	Grab	11080 No. 2 Rd.	2-Aug-18	0.83	<1	<2	13	<1	0.13
RMD-280	Grab	11500 McKenzie Rd.	2-Aug-18	0.4	<1	<2	17	<1	0.19
RMD-212	Grab	Opp. 8600 Ryan Rd.	2-Aug-18	0.84	<1	<2	14	<1	0.17
RMD-208	Grab	13200 No. 4 Rd.	2-Aug-18	0.93	<1	<2	13	<1	0.13
RMD-205	Grab	13851 Steveston Hwy.	2-Aug-18	0.73	<1	<2	13	<1	0.15
RMD-202	Grab	1500 Valemont Way	2-Aug-18	0.71	<1	<2	13	<1	0.13
RMD-214	Grab	11720 Westminster Hwy.	2-Aug-18	0.88	<1	<2	13	<1	0.28
RMD-267	Grab	17240 Fedoruk	2-Aug-18	0.64	<1	<2	14	<1	0.14
RMD-249	Grab	23000 Blk. Dyke Rd.	2-Aug-18	0.61	<1	<2	17	<1	0.18
RMD-276	Grab	22271 Cochrane Drive	2-Aug-18	0.6	<1	<2	15	<1	0.15
RMD-275	Grab	5180 Smith Cres.	2-Aug-18	0.69	<1	<2	14	<1	0.16
RMD-203	Grab	23260 Westminster Hwy.	2-Aug-18	0.79	<1	<2	14	<1	0.15
RMD-251	Grab	5951McCallan Rd.	7-Aug-18	0.77	<1	<2	14	<1	0.22
RMD-273	Grab	Opp. 8331 Fairfax Place	7-Aug-18	0.64	<1	2	21	<1	0.16
RMD-252	Grab	9751 Pendleton Rd.	7-Aug-18	0.63	<1	<2	15	<1	3.2
RMD-274	Grab	10920 Springwood Court	7-Aug-18	0.72	<1	<2	18	<1	0.25
RMD-253	Grab	11051 No 3 Rd.	7-Aug-18	0.74	<1	4	14	<1	0.21
RMD-269	Grab	14951 Triangle Rd.	7-Aug-18	0.8	<1	<2	14	<1	0.25
RMD-270	Grab	8200 Jones Rd.	7-Aug-18	0.78	<1	<2	14	<1	0.2
RMD-254	Grab	5300 No. 3 Rd.	7-Aug-18	0.75	<1	2	15	<1	0.21
RMD-256	Grab	1000 Blk. McDonald Rd.	7-Aug-18	0.67	<1	<2	17	<1	4.4
RMD-255	Grab	6000 Blk. Miller Rd.	7-Aug-18	0.89	<1	<2	14	<1	0.62
RMD-271	Grab	3800 Cessna Drive	7-Aug-18	0.73	<1	<2	16	<1	0.2
RMD-272	Grab	751 Catalina Cres.	7-Aug-18	0.81	<1	<2	14	<1	0.2
RMD-250	Grab	6071 Azure Rd.	7-Aug-18	0.79	<1	<2	15	<1	0.13
RMD-263	Grab	12560 Cambie Rd.	8-Aug-18	0.84	<1	<2	13	<1	0.14
RMD-264	Grab	13100 Mitchell Rd.	8-Aug-18	0.85	<1	<2	15	<1	0.27
RMD-277	Grab	Opp. 11280 Twigg Place	8-Aug-18	0.89	<1	<2	14	<1	0.23
RMD-262	Grab	13799 Commerce Pkwy.	8-Aug-18	0.81	<1	<2	13	<1	0.15

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-278	Grab	6651 Fraserwood Place	8-Aug-18	0.76	<1	4	14	<1	0.4
RMD-279	Grab	Opp. 20371 Westminster Hwy.	8-Aug-18	0.69	<1	ontamina	14	<1	0.2
RMD-261	Grab	9911 Sidaway Rd.	8-Aug-18	0.74	<1	<2	15	<1	0.12
RMD-260	Grab	11111 Horseshoe Way	8-Aug-18	0.83	<1	<2	14	<1	0.14
RMD-259	Grab	10020 Amethyst Ave.	8-Aug-18	0.77	<1	90	17	<1	1.1
RMD-266	Grab	9380 General Currie Rd.	8-Aug-18	0.83	<1	<2	13	<1	0.11
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	8-Aug-18	0.81	<1	<2	13	<1	0.15
RMD-258	Grab	7000 Blk. Dyke Rd.	8-Aug-18	0.82	<1	6	16	<1	0.12
RMD-257	Grab	6640 Blundell Rd.	8-Aug-18	0.83	<1	<2	14	<1	0.14
RMD-204	Grab	3180 Granville Ave.	10-Aug-18	0.7	<1	<2	14	<1	0.13
RMD-206	Grab	4251 Moncton St.	10-Aug-18	0.75	<1	2	14	<1	0.27
RMD-216	Grab	11080 No. 2 Rd.	10-Aug-18	0.84	<1	<2	14	<1	0.14
RMD-280	Grab	11500 McKenzie Rd.	10-Aug-18	0.81	<1	8	16	<1	0.13
RMD-212	Grab	Opp. 8600 Ryan Rd.	10-Aug-18	0.83	<1	4	14	<1	0.19
RMD-208	Grab	13200 No. 4 Rd.	10-Aug-18	0.8	<1	2	14	<1	0.15
RMD-205	Grab	13851 Steveston Hwy.	10-Aug-18	0.87	<1	4	14	<1	0.26
RMD-202	Grab	1500 Valemont Way	10-Aug-18	0.84	<1	2	14	<1	0.28
RMD-214	Grab	11720 Westminster Hwy.	10-Aug-18	0.84	<1	<2	14	<1	0.18
RMD-267	Grab	17240 Fedoruk	10-Aug-18	0.9	<1	<2	15	<1	0.25
RMD-249	Grab	23000 Blk. Dyke Rd.	10-Aug-18	0.81	<1	4	15	<1	0.22
RMD-276	Grab	22271 Cochrane Drive	10-Aug-18	0.86	<1	28	14	<1	0.19
RMD-275	Grab	5180 Smith Cres.	10-Aug-18	0.79	<1	<2	14	<1	0.27
RMD-203	Grab	23260 Westminster Hwy.	10-Aug-18	0.74	<1	<2	14	<1	0.17
RMD-251	Grab	5951McCallan Rd.	13-Aug-18	0.68	<1	<2	15	<1	0.21
RMD-273	Grab	Opp. 8331 Fairfax Place	13-Aug-18	0.66	<1	<2	23	<1	0.11
RMD-252	Grab	9751 Pendleton Rd.	13-Aug-18	0.71	<1	<2	12	<1	0.2
RMD-274	Grab	10920 Springwood Court	13-Aug-18	0.63	<1	<2	18	<1	0.17
RMD-253	Grab	11051 No 3 Rd.	13-Aug-18	0.48	<1	2	14	<1	0.19
RMD-269	Grab	14951 Triangle Rd.	13-Aug-18	0.75	<1	<2	15	<1	0.18
RMD-270	Grab	8200 Jones Rd.	13-Aug-18	0.77	<1	<2	14	<1	0.15
RMD-254	Grab	5300 No. 3 Rd.	13-Aug-18	0.74	<1	<2	15	<1	0.12
RMD-256	Grab	1000 Blk. McDonald Rd.	13-Aug-18	0.38	<1	<2	17	<1	0.61
RMD-255	Grab	6000 Blk. Miller Rd.	13-Aug-18	0.68	<1	<2	14	<1	0.54
RMD-271	Grab	3800 Cessna Drive	13-Aug-18	0.71	<1	<2	16	<1	0.18
RMD-272	Grab	751 Catalina Cres.	13-Aug-18	0.73	<1	<2	15	<1	0.46
RMD-250	Grab	6071 Azure Rd.	13-Aug-18	0.78	<1	2	16	<1	0.1
RMD-263	Grab	12560 Cambie Rd.	15-Aug-18	0.7	<1	<2	14	<1	0.16
RMD-264	Grab	13100 Mitchell Rd.	15-Aug-18	0.75	<1	2	15	<1	0.19
RMD-277	Grab	Opp. 11280 Twigg Place	15-Aug-18	0.73	<1	<2	15	<1	0.22
RMD-262	Grab	13799 Commerce Pkwy.	15-Aug-18	0.71	<1	<2	15	<1	0.17

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-278	Grab	6651 Fraserwood Place	15-Aug-18	0.68	<1	2	16	<1	0.19
RMD-279	Grab	Opp. 20371 Westminster Hwy.	15-Aug-18	0.73	<1	<2	15	<1	0.19
RMD-261	Grab	9911 Sidaway Rd.	15-Aug-18	0.74	<1	2	14	<1	0.16
RMD-260	Grab	11111 Horseshoe Way	15-Aug-18	0.81	<1	<2	15	<1	0.18
RMD-259	Grab	10020 Amethyst Ave.	15-Aug-18	0.75	<1	10	14	<1	0.52
RMD-266	Grab	9380 General Currie Rd.	15-Aug-18	0.87	<1	<2	15	<1	0.22
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	15-Aug-18	0.82	<1	2	15	<1	0.16
RMD-258	Grab	7000 Blk. Dyke Rd.	15-Aug-18	0.82	<1	26	16	<1	0.13
RMD-257	Grab	6640 Blundell Rd.	15-Aug-18	0.81	<1	<2	15	<1	0.11
RMD-204	Grab	3180 Granville Ave.	16-Aug-18	0.76	<1	2	17	<1	0.2
RMD-206	Grab	4251 Moncton St.	16-Aug-18	0.8	<1	<2	15	<1	0.22
RMD-216	Grab	11080 No. 2 Rd.	16-Aug-18	0.78	<1	<2	15	<1	0.21
RMD-280	Grab	11500 McKenzie Rd.	16-Aug-18	0.5	<1	2	18	<1	0.13
RMD-212	Grab	Opp. 8600 Ryan Rd.	16-Aug-18	0.79	<1	<2	16	<1	0.22
RMD-208	Grab	13200 No. 4 Rd.	16-Aug-18	0.9	<1	<2	15	<1	0.19
RMD-205	Grab	13851 Steveston Hwy.	16-Aug-18	0.75	<1	4	16	<1	0.15
RMD-202	Grab	1500 Valemont Way	16-Aug-18	0.67	<1	<2	16	<1	0.13
RMD-267	Grab	17240 Fedoruk	16-Aug-18	0.7	<1	<2	18	<1	0.13
RMD-249	Grab	23000 Blk. Dyke Rd.	16-Aug-18	0.64	<1	<2	17	<1	0.13
RMD-276	Grab	22271 Cochrane Drive	16-Aug-18	0.66	<1	<2	17	<1	0.11
RMD-275	Grab	5180 Smith Cres.	16-Aug-18	0.67	<1	<2	17	<1	0.13
RMD-203	Grab	23260 Westminster Hwy.	16-Aug-18	0.71	<1	<2	16	<1	0.12
RMD-251	Grab	5951McCallan Rd.	20-Aug-18	0.82	<1	<2	14	<1	0.12
RMD-273	Grab	Opp. 8331 Fairfax Place	20-Aug-18	0.78	<1	90	21	<1	0.15
RMD-252	Grab	9751 Pendleton Rd.	20-Aug-18	0.73	<1	2	17	<1	0.12
RMD-274	Grab	10920 Springwood Court	20-Aug-18	0.74	<1	4	19	<1	0.14
RMD-253	Grab	11051 No 3 Rd.	20-Aug-18	0.92	<1	2	15	<1	0.13
RMD-269	Grab	14951 Triangle Rd.	20-Aug-18	0.76	<1	2	16	<1	0.15
RMD-270	Grab	8200 Jones Rd.	20-Aug-18	0.8	<1	12	17	<1	0.14
RMD-254	Grab	5300 No. 3 Rd.	20-Aug-18	0.82	<1	2	17	<1	0.11
RMD-256	Grab	1000 Blk. McDonald Rd.	20-Aug-18	0.61	<1	12	19	<1	1.1
RMD-255	Grab	6000 Blk. Miller Rd.	20-Aug-18	0.67	<1	14	16	<1	0.68
RMD-272	Grab	751 Catalina Cres.	20-Aug-18	0.7	<1	<2	16	<1	0.13
RMD-271	Grab	3800 Cessna Drive	20-Aug-18	0.81	<1	<2	18	<1	0.13
RMD-250	Grab	6071 Azure Rd.	20-Aug-18	0.86	<1	<2	17	<1	0.18
RMD-263	Grab	12560 Cambie Rd.	22-Aug-18	0.68	<1	<2	16	<1	0.35
RMD-264	Grab	13100 Mitchell Rd.	22-Aug-18	0.74	<1	2	16	<1	0.27
RMD-277	Grab	Opp. 11280 Twigg Place	22-Aug-18	0.67	<1	<2	16	<1	0.32
RMD-262	Grab	13799 Commerce Pkwy.	22-Aug-18	0.67	<1	<2	16	<1	0.16
RMD-278	Grab	6651 Fraserwood Place	22-Aug-18	0.73	<1	4	16	<1	0.2

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-279	Grab	Opp. 20371 Westminster Hwy.	22-Aug-18	0.69	<1	<2	16	<1	0.27
RMD-261	Grab	9911 Sidaway Rd.	22-Aug-18	0.61	<1	<2	16	<1	0.27
RMD-260	Grab	11111 Horseshoe Way	22-Aug-18	0.68	<1	2	15	<1	0.28
RMD-259	Grab	10020 Amethyst Ave.	22-Aug-18	0.62	<1	8	17	<1	0.89
RMD-266	Grab	9380 General Currie Rd.	22-Aug-18	0.71	<1	<2	15	<1	0.3
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	22-Aug-18	0.66	<1	<2	15	<1	0.2
RMD-258	Grab	7000 Blk. Dyke Rd.	22-Aug-18	0.74	<1	16	17	<1	0.27
RMD-257	Grab	6640 Blundell Rd.	22-Aug-18	0.66	<1	<2	15	<1	0.21
RMD-204	Grab	3180 Granville Ave.	24-Aug-18	0.64	<1	<2	14	<1	0.12
RMD-206	Grab	4251 Moncton St.	24-Aug-18	0.8	<1	2	16	<1	0.25
RMD-216	Grab	11080 No. 2 Rd.	24-Aug-18	0.78	<1	2	16	<1	0.14
RMD-280	Grab	11500 McKenzie Rd.	24-Aug-18	0.76	<1	2	17	<1	0.16
RMD-212	Grab	Opp. 8600 Ryan Rd.	24-Aug-18	0.79	<1	<2	15	<1	0.12
RMD-208	Grab	13200 No. 4 Rd.	24-Aug-18	0.83	<1	8	15	<1	0.14
RMD-205	Grab	13851 Steveston Hwy.	24-Aug-18	0.83	<1	2	15	<1	0.27
RMD-202	Grab	1500 Valemont Way	24-Aug-18	0.84	<1	<2	15	<1	0.16
RMD-214	Grab	11720 Westminster Hwy.	24-Aug-18	0.8	<1	<2	15	<1	0.2
RMD-267	Grab	17240 Fedoruk	24-Aug-18	0.84	<1	<2	18	<1	0.17
RMD-249	Grab	23000 Blk. Dyke Rd.	24-Aug-18	0.8	<1	8	15	<1	0.24
RMD-276	Grab	22271 Cochrane Drive	24-Aug-18	0.79	<1	14	15	<1	0.25
RMD-275	Grab	5180 Smith Cres.	24-Aug-18	0.76	<1	<2	16	<1	0.2
RMD-203	Grab	23260 Westminster Hwy.	24-Aug-18	0.83	<1	<2	16	<1	0.27
RMD-251	Grab	5951McCallan Rd.	27-Aug-18	0.87	<1	<2	16	<1	0.2
RMD-273	Grab	Opp. 8331 Fairfax Place	27-Aug-18	0.73	<1	12	20	<1	1.4
RMD-252	Grab	9751 Pendleton Rd.	27-Aug-18	0.79	<1	<2	18	<1	0.16
RMD-274	Grab	10920 Springwood Court	27-Aug-18	0.87	<1	26	18	<1	0.32
RMD-253	Grab	11051 No 3 Rd.	27-Aug-18	0.8	<1	<2	17	<1	0.34
RMD-269	Grab	14951 Triangle Rd.	27-Aug-18	1.02	<1	<2	14	<1	0.33
RMD-270	Grab	8200 Jones Rd.	27-Aug-18	0.84	<1	8	14	<1	0.17
RMD-254	Grab	5300 No. 3 Rd.	27-Aug-18	0.83	<1	<2	17	<1	0.14
RMD-256	Grab	1000 Blk. McDonald Rd.	27-Aug-18	0.58	<1	<2	18	<1	1.8
RMD-255	Grab	6000 Blk. Miller Rd.	27-Aug-18	0.87	<1	<2	15	<1	0.57
RMD-272	Grab	751 Catalina Cres.	27-Aug-18	0.88	<1	<2	16	<1	0.14
RMD-271	Grab	3800 Cessna Drive	27-Aug-18	0.85	<1	<2	16	<1	0.14
RMD-250	Grab	6071 Azure Rd.	27-Aug-18	0.83	<1	2	17	<1	0.3
RMD-263	Grab	12560 Cambie Rd.	29-Aug-18	0.82	<1	<2	16	<1	0.18
RMD-264	Grab	13100 Mitchell Rd.	29-Aug-18	0.61	<1	2	17	<1	0.12
RMD-277	Grab	Opp. 11280 Twigg Place	29-Aug-18	0.85	<1	<2	13	<1	0.22
RMD-262	Grab	13799 Commerce Pkwy.	29-Aug-18	0.85	<1	<2	16	<1	0.22
RMD-278	Grab	6651 Fraserwood Place	29-Aug-18	0.71	<1	4	15	<1	0.18

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-279	Grab	Opp. 20371 Westminster Hwy.	29-Aug-18	1.02	<1	<2	16	<1	0.23
RMD-261	Grab	9911 Sidaway Rd.	29-Aug-18	0.86	<1	<2	17	<1	0.3
RMD-260	Grab	11111 Horseshoe Way	29-Aug-18	0.89	<1	2	16	<1	0.15
RMD-259	Grab	10020 Amethyst Ave.	29-Aug-18	0.8	<1	46	18	<1	1
RMD-266	Grab	9380 General Currie Rd.	29-Aug-18	0.87	<1	<2	16	<1	0.18
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	29-Aug-18	0.77	<1	<2	16	<1	0.15
RMD-258	Grab	7000 Blk. Dyke Rd.	29-Aug-18	0.8	<1	32	17	<1	0.19
RMD-257	Grab	6640 Blundell Rd.	29-Aug-18	0.86	<1	<2	15	<1	0.12
RMD-204	Grab	3180 Granville Ave.	30-Aug-18	0.82	<1	<2	18	<1	0.36
RMD-206	Grab	4251 Moncton St.	30-Aug-18	0.8	<1	<2	18	<1	0.32
RMD-216	Grab	11080 No. 2 Rd.	30-Aug-18	0.84	<1	<2	17	<1	0.39
RMD-280	Grab	11500 McKenzie Rd.	30-Aug-18	0.46	<1	2	17	<1	0.25
RMD-212	Grab	Opp. 8600 Ryan Rd.	30-Aug-18	0.81	<1	6	16	<1	0.3
RMD-208	Grab	13200 No. 4 Rd.	30-Aug-18	0.8	<1	<2	16	<1	0.22
RMD-205	Grab	13851 Steveston Hwy.	30-Aug-18	0.81	<1	8	16	<1	0.18
RMD-202	Grab	1500 Valemont Way	30-Aug-18	0.73	<1	<2	16	<1	0.16
RMD-214	Grab	11720 Westminster Hwy.	30-Aug-18	0.84	<1	<2	15	<1	0.21
RMD-267	Grab	17240 Fedoruk	30-Aug-18	0.74	<1	<2	18	<1	0.18
RMD-249	Grab	23000 Blk. Dyke Rd.	30-Aug-18	0.81	<1	4	17	<1	0.16
RMD-276	Grab	22271 Cochrane Drive	30-Aug-18	0.76	<1	6	17	<1	0.17
RMD-275	Grab	5180 Smith Cres.	30-Aug-18	0.67	<1	<2	18	<1	0.19
RMD-203	Grab	23260 Westminster Hwy.	30-Aug-18	0.74	<1	4	17	<1	0.21
RMD-251	Grab	5951McCallan Rd.	4-Sep-18	0.78	<1	<2	15	<1	0.11
RMD-273	Grab	Opp. 8331 Fairfax Place	4-Sep-18	0.72	<1	12	20	<1	0.15
RMD-252	Grab	9751 Pendleton Rd.	4-Sep-18	0.75	<1	<2	17	<1	0.17
RMD-274	Grab	10920 Springwood Court	4-Sep-18	0.78	<1	24	17	<1	0.2
RMD-253	Grab	11051 No 3 Rd.	4-Sep-18	0.79	<1	<2	17	<1	0.12
RMD-269	Grab	14951 Triangle Rd.	4-Sep-18	0.86	<1	<2	17	<1	0.25
RMD-270	Grab	8200 Jones Rd.	4-Sep-18	0.77	<1	8	16	<1	0.14
RMD-254	Grab	5300 No. 3 Rd.	4-Sep-18	0.8	<1	<2	16	<1	0.14
RMD-256	Grab	1000 Blk. McDonald Rd.	4-Sep-18	0.52	<1	2	19	<1	0.98
RMD-255	Grab	6000 Blk. Miller Rd.	4-Sep-18	0.9	<1	<2	15	<1	0.29
RMD-271	Grab	3800 Cessna Drive	4-Sep-18	0.75	<1	<2	15	<1	0.16
RMD-272	Grab	751 Catalina Cres.	4-Sep-18	0.9	<1	<2	16	<1	0.15
RMD-250	Grab	6071 Azure Rd.	4-Sep-18	0.76	<1	<2	16	<1	0.12
RMD-263	Grab	12560 Cambie Rd.	5-Sep-18	0.85	<1	<2	16	<1	0.34
RMD-264	Grab	13100 Mitchell Rd.	5-Sep-18	0.69	<1	<2	17	<1	0.22
RMD-277	Grab	Opp. 11280 Twigg Place	5-Sep-18	0.84	<1	<2	17	<1	0.54
RMD-262	Grab	13799 Commerce Pkwy.	5-Sep-18	0.92	<1	<2	16	<1	0.26
RMD-278	Grab	6651 Fraserwood Place	5-Sep-18	0.79	<1	8	16	<1	0.38

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-279	Grab	Opp. 20371 Westminster Hwy.	5-Sep-18	0.86	<1	<2	16	<1	0.31
RMD-261	Grab	9911 Sidaway Rd.	5-Sep-18	0.71	<1	<2	17	<1	0.62
RMD-260	Grab	11111 Horseshoe Way	5-Sep-18	0.81	<1	<2	17	<1	0.19
RMD-259	Grab	10020 Amethyst Ave.	5-Sep-18	0.74	<1	160	18	<1	2.2
RMD-266	Grab	9380 General Currie Rd.	5-Sep-18	0.84	<1	<2	16	<1	0.17
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	5-Sep-18	0.74	<1	<2	17	<1	0.19
RMD-258	Grab	7000 Blk. Dyke Rd.	5-Sep-18	0.8	<1	4	17	<1	0.18
RMD-257	Grab	6640 Blundell Rd.	5-Sep-18	0.84	<1	2	16	<1	0.29
RMD-204	Grab	3180 Granville Ave.	7-Sep-18	0.78	<1	<2	17	<1	0.11
RMD-206	Grab	4251 Moncton St.	7-Sep-18	0.79	<1	6	16	<1	0.38
RMD-216	Grab	11080 No. 2 Rd.	7-Sep-18	0.79	<1	<2	17	<1	0.12
RMD-280	Grab	11500 McKenzie Rd.	7-Sep-18	0.69	<1	4	17	<1	0.12
RMD-212	Grab	Opp. 8600 Ryan Rd.	7-Sep-18	0.88	<1	<2	17	<1	0.13
RMD-208	Grab	13200 No. 4 Rd.	7-Sep-18	0.85	<1	<2	16	<1	0.17
RMD-205	Grab	13851 Steveston Hwy.	7-Sep-18	0.98	<1	2	16	<1	0.31
RMD-202	Grab	1500 Valemont Way	7-Sep-18	1.03	<1	<2	16	<1	0.21
RMD-214	Grab	11720 Westminster Hwy.	7-Sep-18	0.75	<1	<2	16	<1	0.12
RMD-267	Grab	17240 Fedoruk	7-Sep-18	0.92	<1	<2	17	<1	0.18
RMD-249	Grab	23000 Blk. Dyke Rd.	7-Sep-18	1	<1	26	17	<1	1
RMD-276	Grab	22271 Cochrane Drive	7-Sep-18	0.93	<1	<2	17	<1	0.22
RMD-275	Grab	5180 Smith Cres.	7-Sep-18	1.09	<1	<2	18	<1	0.17
RMD-203	Grab	23260 Westminster Hwy.	7-Sep-18	0.97	<1	<2	17	<1	0.26
RMD-251	Grab	5951McCallan Rd.	10-Sep-18	0.78	<1	<2	16	<1	0.12
RMD-273	Grab	Opp. 8331 Fairfax Place	10-Sep-18	0.62	<1	<2	20	<1	0.1
RMD-252	Grab	9751 Pendleton Rd.	10-Sep-18	0.63	<1	<2	16	<1	0.14
RMD-274	Grab	10920 Springwood Court	10-Sep-18	0.62	<1	8	17	<1	0.18
RMD-253	Grab	11051 No 3 Rd.	10-Sep-18	0.62	<1	<2	17	<1	0.1
RMD-269	Grab	14951 Triangle Rd.	10-Sep-18	0.91	<1	<2	17	<1	0.16
RMD-270	Grab	8200 Jones Rd.	10-Sep-18	0.65	<1	<2	18	<1	0.15
RMD-254	Grab	5300 No. 3 Rd.	10-Sep-18	0.76	<1	<2	17	<1	0.1
RMD-256	Grab	1000 Blk. McDonald Rd.	10-Sep-18	0.61	<1	<2	17	<1	1.7
RMD-255	Grab	6000 Blk. Miller Rd.	10-Sep-18	0.79	<1	4	15	<1	0.14
RMD-271	Grab	3800 Cessna Drive	10-Sep-18	0.74	<1	<2	17	<1	0.11
RMD-272	Grab	751 Catalina Cres.	10-Sep-18	0.86	<1	<2	16	<1	0.13
RMD-250	Grab	6071 Azure Rd.	10-Sep-18	0.7	<1	4	17	<1	0.13
RMD-263	Grab	12560 Cambie Rd.	12-Sep-18	0.87	<1	<2	17	<1	0.16
RMD-264	Grab	13100 Mitchell Rd.	12-Sep-18	0.68	<1	4	17	<1	0.22
RMD-277	Grab	Opp. 11280 Twigg Place	12-Sep-18	0.86	<1	2	17	<1	0.26
RMD-262	Grab	13799 Commerce Pkwy.	12-Sep-18	0.77	<1	<2	18	<1	0.23
RMD-278	Grab	6651 Fraserwood Place	12-Sep-18	0.86	<1	8	16	<1	0.19

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-279	Grab	Opp. 20371 Westminster Hwy.	12-Sep-18	1.02	<1	<2	17	<1	0.22
RMD-261	Grab	9911 Sidaway Rd.	12-Sep-18	0.81	<1	2	16	<1	0.25
RMD-260	Grab	11111 Horseshoe Way	12-Sep-18	0.88	<1	4	17	<1	0.3
RMD-259	Grab	10020 Amethyst Ave.	12-Sep-18	0.94		300	18		3.6
RMD-266	Grab	9380 General Currie Rd.	12-Sep-18	0.82	<1	<2	16	<1	0.15
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	12-Sep-18	0.72	<1	<2	17	<1	0.26
RMD-258	Grab	7000 Blk. Dyke Rd.	12-Sep-18	0.71	<1	12	17	<1	0.1
RMD-257	Grab	6640 Blundell Rd.	12-Sep-18	0.83	<1	<2	15	<1	0.13
RMD-204	Grab	3180 Granville Ave.	13-Sep-18	0.76	<1	2	18	<1	0.13
RMD-206	Grab	4251 Moncton St.	13-Sep-18	0.72	<1	<2	17	<1	1.1
RMD-216	Grab	11080 No. 2 Rd.	13-Sep-18	0.78	<1	<2	17	<1	0.18
RMD-280	Grab	11500 McKenzie Rd.	13-Sep-18	0.67	<1	4	18	<1	0.23
RMD-212	Grab	Opp. 8600 Ryan Rd.	13-Sep-18	0.87	<1	2	17	<1	0.31
RMD-208	Grab	13200 No. 4 Rd.	13-Sep-18	0.85	<1	4	16	<1	0.19
RMD-205	Grab	13851 Steveston Hwy.	13-Sep-18	0.78	<1	10	17	<1	0.23
RMD-202	Grab	1500 Valemont Way	13-Sep-18	0.65	<1	<2	16	<1	0.18
RMD-214	Grab	11720 Westminster Hwy.	13-Sep-18	0.61	<1	<2	16	<1	0.23
RMD-267	Grab	17240 Fedoruk	13-Sep-18	0.82	<1	<2	18	<1	0.18
RMD-249	Grab	23000 Blk. Dyke Rd.	13-Sep-18	0.86	<1	2	17	<1	0.2
RMD-276	Grab	22271 Cochrane Drive	13-Sep-18	0.77	<1	<2	18	<1	0.25
RMD-275	Grab	5180 Smith Cres.	13-Sep-18	0.79	<1	<2	18	<1	0.24
RMD-203	Grab	23260 Westminster Hwy.	13-Sep-18	0.72	<1	<2	16	<1	0.17
RMD-251	Grab	5951McCallan Rd.	17-Sep-18	0.73	<1	<2	15	<1	0.22
RMD-273	Grab	Opp. 8331 Fairfax Place	17-Sep-18	0.65	<1	<2	18	<1	0.21
RMD-252	Grab	9751 Pendleton Rd.	17-Sep-18	0.47	<1	<2	16	<1	0.2
RMD-274	Grab	10920 Springwood Court	17-Sep-18	0.68	<1	<2	16	<1	0.25
RMD-253	Grab	11051 No 3 Rd.	17-Sep-18	0.7	<1	<2	16	<1	0.23
RMD-269	Grab	14951 Triangle Rd.	17-Sep-18	0.68	<1	<2	16	<1	0.24
RMD-270	Grab	8200 Jones Rd.	17-Sep-18	0.71	<1	2	16	<1	0.22
RMD-254	Grab	5300 No. 3 Rd.	17-Sep-18	0.75	<1	<2	16	<1	0.21
RMD-256	Grab	1000 Blk. McDonald Rd.	17-Sep-18	0.56	<1	4	16	<1	2
RMD-255	Grab	6000 Blk. Miller Rd.	17-Sep-18	0.82	<1	<2	15	<1	0.23
RMD-271	Grab	3800 Cessna Drive	17-Sep-18	0.8	<1	<2	15	<1	0.17
RMD-272	Grab	751 Catalina Cres.	17-Sep-18	0.83	<1	2	15	<1	0.21
RMD-250	Grab	6071 Azure Rd.	17-Sep-18	0.76	<1	<2	16	<1	0.21
RMD-263	Grab	12560 Cambie Rd.	19-Sep-18	0.73	<1	<2	15	<1	0.17
RMD-264	Grab	13100 Mitchell Rd.	19-Sep-18	0.76	<1	<2	16	<1	0.49
RMD-277	Grab	Opp. 11280 Twigg Place	19-Sep-18	0.83	<1	<2	16	<1	1.5
RMD-262	Grab	13799 Commerce Pkwy.	19-Sep-18	0.73	<1	<2	15	<1	0.21
RMD-278	Grab	6651 Fraserwood Place	19-Sep-18	0.75	<1	2	16	<1	0.54

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-279	Grab	Opp. 20371 Westminster Hwy.	19-Sep-18	0.93	<1	<2	15	<1	0.25
RMD-261	Grab	9911 Sidaway Rd.	19-Sep-18	0.75	<1	<2	15	<1	0.25
RMD-260	Grab	11111 Horseshoe Way	19-Sep-18	0.76	<1	<2	15	<1	0.14
RMD-259	Grab	10020 Amethyst Ave.	19-Sep-18	0.73	<1	<2	16	<1	0.12
RMD-266	Grab	9380 General Currie Rd.	19-Sep-18	0.77	<1	<2	15	<1	0.12
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	19-Sep-18	0.72	<1	<2	15	<1	0.51
RMD-258	Grab	7000 Blk. Dyke Rd.	19-Sep-18	0.73	<1	8	16	<1	0.74
RMD-257	Grab	6640 Blundell Rd.	19-Sep-18	0.71	<1	<2	16	<1	0.18
RMD-204	Grab	3180 Granville Ave.	21-Sep-18	0.57	<1	<2	16	<1	0.19
RMD-206	Grab	4251 Moncton St.	21-Sep-18	0.71	<1	2	15	<1	0.19
RMD-216	Grab	11080 No. 2 Rd.	21-Sep-18	0.53	<1	<2	15	<1	0.17
RMD-280	Grab	11500 McKenzie Rd.	21-Sep-18	0.58	<1	<2	16	<1	0.14
RMD-212	Grab	Opp. 8600 Ryan Rd.	21-Sep-18	0.62	<1	2	15	<1	0.21
RMD-208	Grab	13200 No. 4 Rd.	21-Sep-18	0.64	<1	<2	15	<1	0.2
RMD-205	Grab	13851 Steveston Hwy.	21-Sep-18	0.97	<1	<2	15	<1	0.39
RMD-202	Grab	1500 Valemont Way	21-Sep-18	0.92	<1	<2	14	<1	0.3
RMD-214	Grab	11720 Westminster Hwy.	21-Sep-18	0.66	<1	<2	14	<1	0.2
RMD-267	Grab	17240 Fedoruk	21-Sep-18	0.86	<1	4	15	<1	0.4
RMD-249	Grab	23000 Blk. Dyke Rd.	21-Sep-18	1.02	<1	4	15	<1	0.67
RMD-276	Grab	22271 Cochrane Drive	21-Sep-18	1	<1	<2	15	<1	0.41
RMD-275	Grab	5180 Smith Cres.	21-Sep-18	0.91	<1	<2	15	<1	2.3
RMD-203	Grab	23260 Westminster Hwy.	21-Sep-18	0.94	<1	<2	14	<1	0.36
RMD-251	Grab	5951McCallan Rd.	24-Sep-18	0.72	<1	2	16	<1	0.17
RMD-273	Grab	Opp. 8331 Fairfax Place	24-Sep-18	0.6	<1	2	18	<1	0.15
RMD-252	Grab	9751 Pendleton Rd.	24-Sep-18	0.64	<1	<2	15	<1	0.34
RMD-274	Grab	10920 Springwood Court	24-Sep-18	0.58	<1	6	17	<1	0.22
RMD-253	Grab	11051 No 3 Rd.	24-Sep-18	0.53	<1	<2	14	<1	0.25
RMD-269	Grab	14951 Triangle Rd.	24-Sep-18	0.58	<1	<2	14	<1	0.17
RMD-270	Grab	8200 Jones Rd.	24-Sep-18	0.67	<1	6	15	<1	0.21
RMD-254	Grab	5300 No. 3 Rd.	24-Sep-18	0.72	<1	2	14	<1	0.22
RMD-256	Grab	1000 Blk. McDonald Rd.	24-Sep-18	0.49	<1	4	16	<1	0.67
RMD-255	Grab	6000 Blk. Miller Rd.	24-Sep-18	0.69	<1	4	14	<1	0.78
RMD-271	Grab	3800 Cessna Drive	24-Sep-18	0.69	<1	2	14	<1	0.28
RMD-272	Grab	751 Catalina Cres.	24-Sep-18	0.68	<1	<2	13	<1	0.21
RMD-250	Grab	6071 Azure Rd.	24-Sep-18	0.73	<1	2	13	<1	0.21
RMD-263	Grab	12560 Cambie Rd.	26-Sep-18	0.71	<1	<2	14	<1	0.21
RMD-264	Grab	13100 Mitchell Rd.	26-Sep-18	0.62	<1	<2	15	<1	0.19
RMD-277	Grab	Opp. 11280 Twigg Place	26-Sep-18	0.65	<1	<2	15	<1	0.2
RMD-262	Grab	13799 Commerce Pkwy.	26-Sep-18	0.68	<1	6	15	<1	0.18
RMD-278	Grab	6651 Fraserwood Place	26-Sep-18	0.8	<1	<2	15	<1	0.18

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-279	Grab	Opp. 20371 Westminster Hwy.	26-Sep-18	0.86	<1	<2	15	<1	0.25
RMD-261	Grab	9911 Sidaway Rd.	26-Sep-18	0.79	<1	<2	15	<1	0.21
RMD-260	Grab	11111 Horseshoe Way	26-Sep-18	0.81	<1	<2	15	<1	0.21
RMD-259	Grab	10020 Amethyst Ave.	26-Sep-18	0.65	<1	<2	15	<1	0.19
RMD-266	Grab	9380 General Currie Rd.	26-Sep-18	0.74	<1	<2	14	<1	0.19
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	26-Sep-18	0.72	<1	2	15	<1	3.2
RMD-258	Grab	7000 Blk. Dyke Rd.	26-Sep-18	0.78	<1	6	15	<1	3.9
RMD-257	Grab	6640 Blundell Rd.	26-Sep-18	0.68	<1	<2	15	<1	0.13
RMD-204	Grab	3180 Granville Ave.	27-Sep-18	0.61	<1	6	17	<1	0.22
RMD-206	Grab	4251 Moncton St.	27-Sep-18	0.68	<1	<2	17	<1	0.49
RMD-216	Grab	11080 No. 2 Rd.	27-Sep-18	0.63	<1	2	17	<1	0.22
RMD-280	Grab	11500 McKenzie Rd.	27-Sep-18	0.39	<1	2	16	<1	0.15
RMD-212	Grab	Opp. 8600 Ryan Rd.	27-Sep-18	0.68	<1	2	15	<1	0.17
RMD-208	Grab	13200 No. 4 Rd.	27-Sep-18	0.61	<1	2	16	<1	0.14
RMD-205	Grab	13851 Steveston Hwy.	27-Sep-18	0.82	<1	4	14	<1	0.22
RMD-202	Grab	1500 Valemont Way	27-Sep-18	0.85	<1	<2	12	<1	0.21
RMD-214	Grab	11720 Westminster Hwy.	27-Sep-18	0.74	<1	2	14	<1	0.14
RMD-267	Grab	17240 Fedoruk	27-Sep-18	0.76	<1	<2	18	<1	0.17
RMD-249	Grab	23000 Blk. Dyke Rd.	27-Sep-18	0.58	<1	<2	16	<1	0.19
RMD-276	Grab	22271 Cochrane Drive	27-Sep-18	0.73	<1	<2	13	<1	0.21
RMD-275	Grab	5180 Smith Cres.	27-Sep-18	0.67	<1	<2	14	<1	0.25
RMD-203	Grab	23260 Westminster Hwy.	27-Sep-18	0.78	<1	<2	14	<1	0.21
RMD-251	Grab	5951McCallan Rd.	1-Oct-18	0.59	<1	<2	14	<1	0.54
RMD-273	Grab	Opp. 8331 Fairfax Place	1-Oct-18	0.71	<1	4	17	<1	0.32
RMD-252	Grab	9751 Pendleton Rd.	1-Oct-18	0.6	<1	<2	14	<1	0.27
RMD-274	Grab	10920 Springwood Court	1-Oct-18	0.73	<1	<2	15	<1	0.37
RMD-253	Grab	11051 No 3 Rd.	1-Oct-18	0.69	<1	<2	13	<1	0.44
RMD-269	Grab	14951 Triangle Rd.	1-Oct-18	0.72	<1	<2	14	<1	0.47
RMD-270	Grab	8200 Jones Rd.	1-Oct-18	0.73	<1	2	16	<1	0.61
RMD-254	Grab	5300 No. 3 Rd.	1-Oct-18	0.71	<1	<2	16	<1	0.48
RMD-256	Grab	1000 Blk. McDonald Rd.	1-Oct-18	0.56	<1	12	16	<1	0.69
RMD-255	Grab	6000 Blk. Miller Rd.	1-Oct-18	0.88	<1	2	14	<1	0.58
RMD-271	Grab	3800 Cessna Drive	1-Oct-18	0.81	<1	<2	15	<1	0.43
RMD-272	Grab	751 Catalina Cres.	1-Oct-18	0.85	<1	<2	14	<1	0.41
RMD-250	Grab	6071 Azure Rd.	1-Oct-18	0.64	<1	<2	14	<1	0.37
RMD-263	Grab	12560 Cambie Rd.	3-Oct-18	0.81	<1	<2	16	<1	0.13
RMD-264	Grab	13100 Mitchell Rd.	3-Oct-18	0.63	<1	<2	15	<1	0.12
RMD-277	Grab	Opp. 11280 Twigg Place	3-Oct-18	0.77	<1	<2	12	<1	0.16
RMD-262	Grab	13799 Commerce Pkwy.	3-Oct-18	0.79	<1	<2	12	<1	0.15
RMD-278	Grab	6651 Fraserwood Place	3-Oct-18	0.7	<1	<2	13	<1	0.18

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-279	Grab	Opp. 20371 Westminster Hwy.	3-Oct-18	0.69	<1	<2	13	<1	0.19
RMD-261	Grab	9911 Sidaway Rd.	3-Oct-18	0.66	<1	<2	12	<1	0.13
RMD-260	Grab	11111 Horseshoe Way	3-Oct-18	0.72	<1	<2	14	<1	0.2
RMD-259	Grab	10020 Amethyst Ave.	3-Oct-18	0.68	<1	<2	14	<1	0.13
RMD-266	Grab	9380 General Currie Rd.	3-Oct-18	0.73	<1	<2	13	<1	0.14
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	3-Oct-18	0.74	<1	<2	13	<1	0.11
RMD-258	Grab	7000 Blk. Dyke Rd.	3-Oct-18	0.65	<1	<2	13	<1	0.12
RMD-257	Grab	6640 Blundell Rd.	3-Oct-18	0.73	<1	<2	14	<1	0.16
RMD-204	Grab	3180 Granville Ave.	5-Oct-18	0.94	<1	<2	14	<1	0.26
RMD-206	Grab	4251 Moncton St.	5-Oct-18	0.66	<1	<2	14	<1	0.37
RMD-216	Grab	11080 No. 2 Rd.	5-Oct-18	0.69	<1	<2	14	<1	0.3
RMD-280	Grab	11500 McKenzie Rd.	5-Oct-18	0.63	<1	36	14	<1	0.16
RMD-212	Grab	Opp. 8600 Ryan Rd.	5-Oct-18	0.7	<1	26	14	<1	0.26
RMD-208	Grab	13200 No. 4 Rd.	5-Oct-18	0.74	<1	<2	14	<1	0.16
RMD-205	Grab	13851 Steveston Hwy.	5-Oct-18	0.69	<1	<2	14	<1	0.26
RMD-202	Grab	1500 Valemont Way	5-Oct-18	0.75	<1	<2	13	<1	0.24
RMD-214	Grab	11720 Westminster Hwy.	5-Oct-18	0.8	<1	<2	13	<1	0.23
RMD-267	Grab	17240 Fedoruk	5-Oct-18	0.63	<1	2	14	<1	0.31
RMD-249	Grab	23000 Blk. Dyke Rd.	5-Oct-18	0.72	<1	<2	14	<1	0.41
RMD-276	Grab	22271 Cochrane Drive	5-Oct-18	0.76	<1	2	14	<1	0.24
RMD-275	Grab	5180 Smith Cres.	5-Oct-18	0.65	<1	<2	15	<1	0.34
RMD-203	Grab	23260 Westminster Hwy.	5-Oct-18	0.66	<1	2	14	<1	0.21
RMD-251	Grab	5951McCallan Rd.	9-Oct-18	0.6	<1	<2	12	<1	0.3
RMD-273	Grab	Opp. 8331 Fairfax Place	9-Oct-18	0.73	<1	6	16	<1	0.2
RMD-252	Grab	9751 Pendleton Rd.	9-Oct-18	0.64	<1	<2	13	<1	0.35
RMD-274	Grab	10920 Springwood Court	9-Oct-18	0.61	<1	<2	15	<1	0.19
RMD-253	Grab	11051 No 3 Rd.	9-Oct-18	0.83	<1	<2	12	<1	0.35
RMD-269	Grab	14951 Triangle Rd.	9-Oct-18	0.46	<1	<2	15	<1	0.18
RMD-270	Grab	8200 Jones Rd.	9-Oct-18	0.73	<1	<2	12	<1	0.52
RMD-254	Grab	5300 No. 3 Rd.	9-Oct-18	0.71	<1	<2	13	<1	0.3
RMD-256	Grab	1000 Blk. McDonald Rd.	9-Oct-18	0.42	<1	2	14	<1	0.57
RMD-255	Grab	6000 Blk. Miller Rd.	9-Oct-18	0.84	<1	2	12	<1	0.51
RMD-271	Grab	3800 Cessna Drive	9-Oct-18	0.76	<1	<2	13	<1	0.44
RMD-272	Grab	751 Catalina Cres.	9-Oct-18	0.78	<1	<2	14	<1	0.58
RMD-250	Grab	6071 Azure Rd.	9-Oct-18	0.64	<1	2	13	<1	0.3
RMD-263	Grab	12560 Cambie Rd.	10-Oct-18	0.82	<1	<2	13	<1	0.26
RMD-264	Grab	13100 Mitchell Rd.	10-Oct-18	0.74	<1	<2	14	<1	0.36
RMD-277	Grab	Opp. 11280 Twigg Place	10-Oct-18	0.93	<1	<2	14	<1	0.23
RMD-262	Grab	13799 Commerce Pkwy.	10-Oct-18	0.63	<1	<2	14	<1	0.15
RMD-278	Grab	6651 Fraserwood Place	10-Oct-18	0.52	<1	<2	13	<1	0.15

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-279	Grab	Opp. 20371 Westminster Hwy.	10-Oct-18	0.6	<1	<2	13	<1	0.19
RMD-261	Grab	9911 Sidaway Rd.	10-Oct-18	0.75	<1	<2	13	<1	0.72
RMD-259	Grab	10020 Amethyst Ave.	10-Oct-18	0.85	<1	<2	14	<1	0.17
RMD-266	Grab	9380 General Currie Rd.	10-Oct-18	0.75	<1	<2	14	<1	0.28
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	10-Oct-18	0.75	<1	<2	14	<1	0.2
RMD-258	Grab	7000 Blk. Dyke Rd.	10-Oct-18	0.7	<1	4	14	<1	0.13
RMD-257	Grab	6640 Blundell Rd.	10-Oct-18	0.75	<1	<2	13	<1	0.24
RMD-204	Grab	3180 Granville Ave.	11-Oct-18	1.01	<1	4	12	<1	0.32
RMD-206	Grab	4251 Moncton St.	11-Oct-18	0.78	<1	<2	11	<1	0.23
RMD-216	Grab	11080 No. 2 Rd.	11-Oct-18	0.8	<1	<2	12	<1	0.25
RMD-280	Grab	11500 McKenzie Rd.	11-Oct-18	0.63	<1	<2	14	<1	0.14
RMD-212	Grab	Opp. 8600 Ryan Rd.	11-Oct-18	0.82	<1	<2	12	<1	0.32
RMD-208	Grab	13200 No. 4 Rd.	11-Oct-18	0.79	<1	<2	13	<1	0.24
RMD-205	Grab	13851 Steveston Hwy.	11-Oct-18	0.69	<1	<2	13	<1	0.28
RMD-202	Grab	1500 Valemont Way	11-Oct-18	0.59	<1	<2	12	<1	0.35
RMD-214	Grab	11720 Westminster Hwy.	11-Oct-18	0.74	<1	<2	13	<1	0.21
RMD-267	Grab	17240 Fedoruk	11-Oct-18	0.52	<1	<2	14	<1	0.33
RMD-249	Grab	23000 Blk. Dyke Rd.	11-Oct-18	0.57	<1	6	13	<1	0.27
RMD-276	Grab	22271 Cochrane Drive	11-Oct-18	0.56	<1	<2	13	<1	0.83
RMD-275	Grab	5180 Smith Cres.	11-Oct-18	0.49	<1	2	14	<1	0.67
RMD-203	Grab	23260 Westminster Hwy.	11-Oct-18	0.52	<1	<2	13	<1	0.58
RMD-251	Grab	5951McCallan Rd.	15-Oct-18	0.71	<1	<2	13	<1	0.38
RMD-273	Grab	Opp. 8331 Fairfax Place	15-Oct-18	0.66	<1	2	16	<1	0.21
RMD-252	Grab	9751 Pendleton Rd.	15-Oct-18	0.64	<1	2	14	<1	0.24
RMD-274	Grab	10920 Springwood Court	15-Oct-18	0.63	<1	6	15	<1	0.15
RMD-253	Grab	11051 No 3 Rd.	15-Oct-18	0.63	<1	2	13	<1	0.12
RMD-269	Grab	14951 Triangle Rd.	15-Oct-18	0.46	<1	<2	15	<1	0.4
RMD-270	Grab	8200 Jones Rd.	15-Oct-18	0.71	<1	<2	14	<1	0.3
RMD-254	Grab	5300 No. 3 Rd.	15-Oct-18	0.71	<1	<2	13	<1	0.36
RMD-256	Grab	1000 Blk. McDonald Rd.	15-Oct-18	0.52	<1	16	15	<1	1.2
RMD-255	Grab	6000 Blk. Miller Rd.	15-Oct-18	0.73	<1	2	13	<1	0.63
RMD-271	Grab	3800 Cessna Drive	15-Oct-18	0.82	<1	<2	14	<1	0.34
RMD-272	Grab	751 Catalina Cres.	15-Oct-18	0.75	<1	<2	13	<1	0.26
RMD-250	Grab	6071 Azure Rd.	15-Oct-18	0.77	<1	8	14	<1	0.31
RMD-263	Grab	12560 Cambie Rd.	17-Oct-18	0.62	<1	<2	13	<1	0.14
RMD-264	Grab	13100 Mitchell Rd.	17-Oct-18	0.7	<1	<2	13	<1	0.12
RMD-277	Grab	Opp. 11280 Twigg Place	17-Oct-18	0.67	<1	<2	14	<1	0.16
RMD-262	Grab	13799 Commerce Pkwy.	17-Oct-18	0.56	<1	<2	13	<1	0.09
RMD-278	Grab	6651 Fraserwood Place	17-Oct-18	0.55	<1	<2	14	<1	0.12
RMD-279	Grab	Opp. 20371 Westminster Hwy.	17-Oct-18	0.51	<1	<2	12	<1	0.1

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-261	Grab	9911 Sidaway Rd.	17-Oct-18	0.57	<1	<2	13	<1	0.11
RMD-259	Grab	10020 Amethyst Ave.	17-Oct-18	0.54	<1	<2	12	<1	0.11
RMD-266	Grab	9380 General Currie Rd.	17-Oct-18	0.86	<1	<2	13	<1	0.19
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	17-Oct-18	0.57	<1	4	14	<1	0.16
RMD-258	Grab	7000 Blk. Dyke Rd.	17-Oct-18	0.63	<1	4	13	<1	0.1
RMD-257	Grab	6640 Blundell Rd.	17-Oct-18	0.66	<1	<2	13	<1	0.12
RMD-204	Grab	3180 Granville Ave.	19-Oct-18	0.86	<1	2	13	<1	0.12
RMD-206	Grab	4251 Moncton St.	19-Oct-18	0.65	<1	<2	12	<1	0.25
RMD-216	Grab	11080 No. 2 Rd.	19-Oct-18	0.54	<1	<2	13	<1	0.11
RMD-280	Grab	11500 McKenzie Rd.	19-Oct-18	0.52	<1	2	13	<1	0.11
RMD-212	Grab	Opp. 8600 Ryan Rd.	19-Oct-18	0.72	<1	<2	14	<1	0.12
RMD-208	Grab	13200 No. 4 Rd.	19-Oct-18	0.68	<1	<2	14	<1	0.12
RMD-205	Grab	13851 Steveston Hwy.	19-Oct-18	0.67	<1	4	13	<1	0.13
RMD-202	Grab	1500 Valemont Way	19-Oct-18	0.49	<1	<2	12	<1	0.14
RMD-214	Grab	11720 Westminster Hwy.	19-Oct-18	0.7	<1	<2	12	<1	0.15
RMD-267	Grab	17240 Fedoruk	19-Oct-18	0.54	<1	<2	13	<1	0.14
RMD-249	Grab	23000 Blk. Dyke Rd.	19-Oct-18	0.62	<1	<2	13	<1	0.14
RMD-276	Grab	22271 Cochrane Drive	19-Oct-18	0.6	<1	2	13	<1	0.11
RMD-275	Grab	5180 Smith Cres.	19-Oct-18	0.6	<1	<2	15	<1	0.23
RMD-203	Grab	23260 Westminster Hwy.	19-Oct-18	0.54	<1	8	13	<1	0.13
RMD-251	Grab	5951McCallan Rd.	22-Oct-18	0.79	<1	<2	12	<1	0.35
RMD-273	Grab	Opp. 8331 Fairfax Place	22-Oct-18	0.69	<1	<2	14	<1	0.1
RMD-252	Grab	9751 Pendleton Rd.	22-Oct-18	0.74	<1	<2	13	<1	0.1
RMD-274	Grab	10920 Springwood Court	22-Oct-18	0.77	<1	<2	13	<1	0.18
RMD-253	Grab	11051 No 3 Rd.	22-Oct-18	0.71	<1	<2	13	<1	0.13
RMD-269	Grab	14951 Triangle Rd.	22-Oct-18	0.6	<1	<2	14	<1	0.11
RMD-270	Grab	8200 Jones Rd.	22-Oct-18	0.73	<1	2	13	<1	0.11
RMD-254	Grab	5300 No. 3 Rd.	22-Oct-18	0.75	<1	<2	13	<1	0.23
RMD-255	Grab	6000 Blk. Miller Rd.	22-Oct-18	0.86	<1	6	12	<1	0.19
RMD-256	Grab	1000 Blk. McDonald Rd.	22-Oct-18	0.51	<1	4	14	<1	0.96
RMD-271	Grab	3800 Cessna Drive	22-Oct-18	0.82	<1	<2	13	<1	0.12
RMD-272	Grab	751 Catalina Cres.	22-Oct-18	0.84	<1	2	12	<1	0.11
RMD-250	Grab	6071 Azure Rd.	22-Oct-18	0.81	<1	<2	13	<1	0.1
RMD-263	Grab	12560 Cambie Rd.	24-Oct-18	0.81	<1	<2	12	<1	0.11
RMD-264	Grab	13100 Mitchell Rd.	24-Oct-18	0.63	<1	2	12	<1	0.1
RMD-277	Grab	Opp. 11280 Twigg Place	24-Oct-18	0.82	<1	100	13	<1	0.11
RMD-262	Grab	13799 Commerce Pkwy.	24-Oct-18	0.67	<1	<2	13	<1	0.11
RMD-278	Grab	6651 Fraserwood Place	24-Oct-18	0.54	<1	<2	13	<1	0.1
RMD-279	Grab	Opp. 20371 Westminster Hwy.	24-Oct-18	0.62	<1	<2	12	<1	0.11
RMD-261	Grab	9911 Sidaway Rd.	24-Oct-18	0.7	<1	20	13	<1	0.11

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-260	Grab	11111 Horseshoe Way	24-Oct-18	0.73	<1	<2	13	<1	0.15
RMD-259	Grab	10020 Amethyst Ave.	24-Oct-18	0.7	<1	<2	13	<1	0.12
RMD-266	Grab	9380 General Currie Rd.	24-Oct-18	0.73	<1	<2	13	<1	0.09
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	24-Oct-18	0.81	<1	<2	13	<1	0.53
RMD-258	Grab	7000 Blk. Dyke Rd.	24-Oct-18	0.72	<1	<2	13	<1	0.11
RMD-257	Grab	6640 Blundell Rd.	24-Oct-18	0.8	<1	2	13	<1	0.11
RMD-204	Grab	3180 Granville Ave.	25-Oct-18	0.83	<1	4	13	<1	0.12
RMD-206	Grab	4251 Moncton St.	25-Oct-18	0.6	<1	<2	12	<1	0.33
RMD-267	Grab	17240 Fedoruk	25-Oct-18	0.58	<1	<2	13	<1	0.14
RMD-216	Grab	11080 No. 2 Rd.	25-Oct-18	0.77	<1	<2	13	<1	0.1
RMD-276	Grab	22271 Cochrane Drive	25-Oct-18	0.55	<1	2	13	<1	0.18
RMD-275	Grab	5180 Smith Cres.	25-Oct-18	0.58	<1	<2	13	<1	0.1
RMD-280	Grab	11500 McKenzie Rd.	25-Oct-18	0.48	<1	2	14	<1	0.15
RMD-203	Grab	23260 Westminster Hwy.	25-Oct-18	0.58	<1	<2	13	<1	0.13
RMD-212	Grab	Opp. 8600 Ryan Rd.	25-Oct-18	0.7	<1	<2	13	<1	0.11
RMD-249	Grab	23000 Blk. Dyke Rd.	25-Oct-18	0.63	<1	<2	13	<1	0.11
RMD-208	Grab	13200 No. 4 Rd.	25-Oct-18	0.74	<1	2	13	<1	0.1
RMD-205	Grab	13851 Steveston Hwy.	25-Oct-18	0.57	<1	<2	12	<1	0.11
RMD-202	Grab	1500 Valemont Way	25-Oct-18	0.6	<1	<2	13	<1	0.09
RMD-214	Grab	11720 Westminster Hwy.	25-Oct-18	0.81	<1	<2	13	<1	0.13
RMD-251	Grab	5951McCallan Rd.	29-Oct-18	0.85	<1	<2	12	<1	0.15
RMD-273	Grab	Opp. 8331 Fairfax Place	29-Oct-18	0.67	<1	<2	14	<1	0.14
RMD-252	Grab	9751 Pendleton Rd.	29-Oct-18	0.72	<1	<2	12	<1	0.11
RMD-274	Grab	10920 Springwood Court	29-Oct-18	0.77	<1	<2	12	<1	0.11
RMD-253	Grab	11051 No 3 Rd.	29-Oct-18	0.68	<1	<2	12	<1	0.16
RMD-269	Grab	14951 Triangle Rd.	29-Oct-18	0.58	<1	2	12	<1	0.1
RMD-270	Grab	8200 Jones Rd.	29-Oct-18	0.72	<1	<2	12	<1	0.13
RMD-254	Grab	5300 No. 3 Rd.	29-Oct-18	0.87	<1	<2	11	<1	0.18
RMD-256	Grab	1000 Blk. McDonald Rd.	29-Oct-18	0.58	<1	<2	12	<1	0.48
RMD-255	Grab	6000 Blk. Miller Rd.	29-Oct-18	0.97	<1	<2	11	<1	0.37
RMD-271	Grab	3800 Cessna Drive	29-Oct-18	0.93	<1	<2	12	<1	0.14
RMD-272	Grab	751 Catalina Cres.	29-Oct-18	0.91	<1	<2	12	<1	0.28
RMD-250	Grab	6071 Azure Rd.	29-Oct-18	0.86	<1	<2	12	<1	0.22
RMD-263	Grab	12560 Cambie Rd.	31-Oct-18	0.75	<1	<2	12	<1	0.14
RMD-264	Grab	13100 Mitchell Rd.	31-Oct-18	0.59	<1	4	10	<1	0.34
RMD-277	Grab	Opp. 11280 Twigg Place	31-Oct-18	0.82	<1	<2	11	<1	0.15
RMD-262	Grab	13799 Commerce Pkwy.	31-Oct-18	0.63	<1	10	11	<1	0.24
RMD-278	Grab	6651 Fraserwood Place	31-Oct-18	0.68	<1	2	11	<1	0.15
RMD-279	Grab	Opp. 20371 Westminster Hwy.	31-Oct-18	0.66	<1	<2	10	<1	0.14
RMD-261	Grab	9911 Sidaway Rd.	31-Oct-18	0.59	<1	2	12	<1	0.14

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-260	Grab	11111 Horseshoe Way	31-Oct-18	0.76	<1	<2	12	<1	0.14
RMD-259	Grab	10020 Amethyst Ave.	31-Oct-18	0.76	<1	<2	11	<1	0.15
RMD-266	Grab	9380 General Currie Rd.	31-Oct-18	0.72	<1	<2	11	<1	0.12
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	31-Oct-18	0.83	<1	4	13	<1	0.16
RMD-258	Grab	7000 Blk. Dyke Rd.	31-Oct-18	0.76	<1	<2	12	<1	0.12
RMD-257	Grab	6640 Blundell Rd.	31-Oct-18	0.73	<1	<2	10	<1	0.13
RMD-204	Grab	3180 Granville Ave.	2-Nov-18	0.74	<1	<2	12	<1	0.18
RMD-206	Grab	4251 Moncton St.	2-Nov-18	0.71	<1	<2	12	<1	0.29
RMD-216	Grab	11080 No. 2 Rd.	2-Nov-18	0.8	<1	<2	12	<1	0.18
RMD-280	Grab	11500 McKenzie Rd.	2-Nov-18	0.7	<1	<2	13	<1	0.13
RMD-212	Grab	Opp. 8600 Ryan Rd.	2-Nov-18	0.75	<1	<2	13	<1	0.18
RMD-208	Grab	13200 No. 4 Rd.	2-Nov-18	0.79	<1	2	13	<1	0.13
RMD-205	Grab	13851 Steveston Hwy.	2-Nov-18	0.71	<1	<2	13	<1	0.18
RMD-202	Grab	1500 Valemont Way	2-Nov-18	0.72	<1	<2	12	<1	0.22
RMD-214	Grab	11720 Westminster Hwy.	2-Nov-18	0.81	<1	<2	13	<1	0.17
RMD-267	Grab	17240 Fedoruk	2-Nov-18	0.65	<1	<2	14	<1	0.12
RMD-249	Grab	23000 Blk. Dyke Rd.	2-Nov-18	0.69	<1	<2	13	<1	0.18
RMD-276	Grab	22271 Cochrane Drive	2-Nov-18	0.71	<1	<2	14	<1	0.19
RMD-275	Grab	5180 Smith Cres.	2-Nov-18	0.63	<1	<2	13	<1	0.16
RMD-203	Grab	23260 Westminster Hwy.	2-Nov-18	0.67	<1	<2	12	<1	0.18
RMD-251	Grab	5951McCallan Rd.	5-Nov-18	0.86	<1	<2	10	<1	0.17
RMD-273	Grab	Opp. 8331 Fairfax Place	5-Nov-18	0.68	<1	<2	12	<1	0.19
RMD-252	Grab	9751 Pendleton Rd.	5-Nov-18	0.55	<1	<2	11	<1	0.12
RMD-274	Grab	10920 Springwood Court	5-Nov-18	0.71	<1	<2	12	<1	0.18
RMD-253	Grab	11051 No 3 Rd.	5-Nov-18	0.69	<1	<2	11	<1	0.17
RMD-269	Grab	14951 Triangle Rd.	5-Nov-18	0.59	<1	<2	11	<1	0.53
RMD-270	Grab	8200 Jones Rd.	5-Nov-18	0.65	<1	<2	11	<1	0.23
RMD-254	Grab	5300 No. 3 Rd.	5-Nov-18	0.75	<1	<2	11	<1	0.27
RMD-256	Grab	1000 Blk. McDonald Rd.	5-Nov-18	0.53	<1	<2	11	<1	1.5
RMD-255	Grab	6000 Blk. Miller Rd.	5-Nov-18	0.8	<1	2	10	<1	0.25
RMD-271	Grab	3800 Cessna Drive	5-Nov-18	0.84	<1	<2	11	<1	0.15
RMD-272	Grab	751 Catalina Cres.	5-Nov-18	0.87	<1	2	11	<1	0.28
RMD-250	Grab	6071 Azure Rd.	5-Nov-18	0.76	<1	<2	11	<1	0.16
RMD-263	Grab	12560 Cambie Rd.	7-Nov-18	0.72	<1	<2	10	<1	0.23
RMD-264	Grab	13100 Mitchell Rd.	7-Nov-18	0.79	<1	<2	10	<1	0.27
RMD-277	Grab	Opp. 11280 Twigg Place	7-Nov-18	0.77	<1	<2	10	<1	0.26
RMD-262	Grab	13799 Commerce Pkwy.	7-Nov-18	0.7	<1	4	10	<1	0.18
RMD-278	Grab	6651 Fraserwood Place	7-Nov-18	0.64	<1	2	10	<1	0.36
RMD-279	Grab	Opp. 20371 Westminster Hwy.	7-Nov-18	0.68	<1	<2	10	<1	0.18
RMD-261	Grab	9911 Sidaway Rd.	7-Nov-18	0.67	<1	<2	10	<1	0.22

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-260	Grab	11111 Horseshoe Way	7-Nov-18	0.87	<1	<2	10	<1	0.17
RMD-259	Grab	10020 Amethyst Ave.	7-Nov-18	0.8	<1	6	10	<1	0.15
RMD-266	Grab	9380 General Currie Rd.	7-Nov-18	0.71	<1	2	10	<1	0.17
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	7-Nov-18	0.81	<1	<2	10	<1	0.13
RMD-258	Grab	7000 Blk. Dyke Rd.	7-Nov-18	0.84	<1	8	10	<1	0.22
RMD-257	Grab	6640 Blundell Rd.	7-Nov-18	0.75	<1	<2	10	<1	0.43
RMD-204	Grab	3180 Granville Ave.	8-Nov-18	0.61	<1	<2	11	<1	0.22
RMD-206	Grab	4251 Moncton St.	8-Nov-18	0.63	<1	<2	11	<1	0.19
RMD-216	Grab	11080 No. 2 Rd.	8-Nov-18	0.78	<1	12	10	<1	0.14
RMD-280	Grab	11500 McKenzie Rd.	8-Nov-18	0.5	<1	2	11	<1	0.13
RMD-212	Grab	Opp. 8600 Ryan Rd.	8-Nov-18	0.76	<1	<2	10	<1	0.19
RMD-208	Grab	13200 No. 4 Rd.	8-Nov-18	0.65	<1	<2	12	<1	0.14
RMD-205	Grab	13851 Steveston Hwy.	8-Nov-18	0.71	<1	<2	10	<1	0.17
RMD-202	Grab	1500 Valemont Way	8-Nov-18	0.7	<1	<2	11	<1	0.2
RMD-214	Grab	11720 Westminster Hwy.	8-Nov-18	0.64	<1	<2	9	<1	0.18
RMD-267	Grab	17240 Fedoruk	8-Nov-18	0.63	<1	<2	10	<1	0.18
RMD-249	Grab	23000 Blk. Dyke Rd.	8-Nov-18	0.71	<1	<2	10	<1	0.17
RMD-276	Grab	22271 Cochrane Drive	8-Nov-18	0.69	<1	<2	11	<1	0.17
RMD-275	Grab	5180 Smith Cres.	8-Nov-18	0.64	<1	<2	11	<1	0.14
RMD-203	Grab	23260 Westminster Hwy.	8-Nov-18	0.61	<1	<2	10	<1	0.21
RMD-251	Grab	5951McCallan Rd.	13-Nov-18	0.87	<1	<2	9	<1	0.15
RMD-273	Grab	Opp. 8331 Fairfax Place	13-Nov-18	0.65	<1	<2	12	<1	0.13
RMD-252	Grab	9751 Pendleton Rd.	13-Nov-18	0.64	<1	<2	12	<1	0.11
RMD-274	Grab	10920 Springwood Court	13-Nov-18	0.72	<1	<2	12	<1	0.13
RMD-253	Grab	11051 No 3 Rd.	13-Nov-18	0.73	<1	<2	11	<1	0.11
RMD-269	Grab	14951 Triangle Rd.	13-Nov-18	0.57	<1	<2	11	<1	0.13
RMD-270	Grab	8200 Jones Rd.	13-Nov-18	0.7	<1	<2	10	<1	0.12
RMD-254	Grab	5300 No. 3 Rd.	13-Nov-18	0.77	<1	<2	10	<1	0.11
RMD-255	Grab	6000 Blk. Miller Rd.	13-Nov-18	0.84	<1	<2	9	<1	0.32
RMD-256	Grab	1000 Blk. McDonald Rd.	13-Nov-18	0.5	<1	<2	10	<1	0.68
RMD-272	Grab	751 Catalina Cres.	13-Nov-18	0.87	<1	<2	9	<1	0.14
RMD-271	Grab	3800 Cessna Drive	13-Nov-18	0.68	<1	<2	12	<1	0.14
RMD-250	Grab	6071 Azure Rd.	13-Nov-18	0.84	<1	2	10	<1	0.14
RMD-263	Grab	12560 Cambie Rd.	14-Nov-18	0.79	<1	<2	10	<1	0.23
RMD-264	Grab	13100 Mitchell Rd.	14-Nov-18	0.78	<1	2	10	<1	0.28
RMD-277	Grab	Opp. 11280 Twigg Place	14-Nov-18	0.85	<1	<2	10	<1	0.27
RMD-278	Grab	6651 Fraserwood Place	14-Nov-18	0.58	<1	<2	11	<1	0.17
RMD-279	Grab	Opp. 20371 Westminster Hwy.	14-Nov-18	0.68	<1	<2	9	<1	0.17
RMD-261	Grab	9911 Sidaway Rd.	14-Nov-18	0.74	<1	<2	10	<1	0.17
RMD-260	Grab	11111 Horseshoe Way	14-Nov-18	0.79	<1	2	10	<1	0.21

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-259	Grab	10020 Amethyst Ave.	14-Nov-18	0.78	<1	<2	11	<1	0.18
RMD-266	Grab	9380 General Currie Rd.	14-Nov-18	0.77	<1	<2	10	<1	0.16
RMD-262	Grab	13799 Commerce Pkwy.	14-Nov-18	0.75	<1	<2	9	<1	0.26
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	14-Nov-18	0.81	<1	<2	10	<1	0.2
RMD-258	Grab	7000 Blk. Dyke Rd.	14-Nov-18	0.87	<1	<2	9	<1	0.23
RMD-257	Grab	6640 Blundell Rd.	14-Nov-18	0.81	<1	2	9	<1	0.42
RMD-204	Grab	3180 Granville Ave.	16-Nov-18	0.73	<1	<2	10	<1	0.1
RMD-206	Grab	4251 Moncton St.	16-Nov-18	0.71	<1	<2	10	<1	0.14
RMD-216	Grab	11080 No. 2 Rd.	16-Nov-18	0.76	<1	<2	9	<1	0.17
RMD-280	Grab	11500 McKenzie Rd.	16-Nov-18	0.74	<1	<2	10	<1	0.16
RMD-212	Grab	Opp. 8600 Ryan Rd.	16-Nov-18	0.8	<1	<2	9	<1	0.13
RMD-208	Grab	13200 No. 4 Rd.	16-Nov-18	0.8	<1	<2	9	<1	0.12
RMD-205	Grab	13851 Steveston Hwy.	16-Nov-18	0.63	<1	<2	10	<1	0.1
RMD-202	Grab	1500 Valemont Way	16-Nov-18	0.7	<1	<2	10	<1	0.14
RMD-214	Grab	11720 Westminster Hwy.	16-Nov-18	0.78	<1	<2	9	<1	0.1
RMD-267	Grab	17240 Fedoruk	16-Nov-18	0.62	<1	<2	10	<1	0.09
RMD-249	Grab	23000 Blk. Dyke Rd.	16-Nov-18	0.66	<1	2	9	<1	0.18
RMD-276	Grab	22271 Cochrane Drive	16-Nov-18	0.62	<1	2	10	<1	0.14
RMD-275	Grab	5180 Smith Cres.	16-Nov-18	0.63	<1	<2	10	<1	0.14
RMD-203	Grab	23260 Westminster Hwy.	16-Nov-18	0.6	<1	<2	10	<1	0.13
RMD-251	Grab	5951McCallan Rd.	19-Nov-18	0.95	<1	<2	8	<1	0.14
RMD-273	Grab	Opp. 8331 Fairfax Place	19-Nov-18	0.71	<1	2	11	<1	0.15
RMD-252	Grab	9751 Pendleton Rd.	19-Nov-18	0.76	<1	<2	10	<1	0.36
RMD-274	Grab	10920 Springwood Court	19-Nov-18	0.72	<1	<2	10	<1	0.1
RMD-253	Grab	11051 No 3 Rd.	19-Nov-18	0.82	<1	<2	10	<1	0.13
RMD-269	Grab	14951 Triangle Rd.	19-Nov-18	0.73	<1	<2	11	<1	0.14
RMD-270	Grab	8200 Jones Rd.	19-Nov-18	0.95	<1	2	9	<1	0.16
RMD-254	Grab	5300 No. 3 Rd.	19-Nov-18	0.88	<1	6	9	<1	0.34
RMD-256	Grab	1000 Blk. McDonald Rd.	19-Nov-18	0.66	<1	<2	10	<1	0.57
RMD-255	Grab	6000 Blk. Miller Rd.	19-Nov-18	1.04	<1	<2	9	<1	0.31
RMD-271	Grab	3800 Cessna Drive	19-Nov-18	0.96	<1	<2	10	<1	0.34
RMD-272	Grab	751 Catalina Cres.	19-Nov-18	1.03	<1	<2	9	<1	0.15
RMD-250	Grab	6071 Azure Rd.	19-Nov-18	0.94	<1	<2	10	<1	0.15
RMD-263	Grab	12560 Cambie Rd.	21-Nov-18	0.81	<1	<2	8	<1	0.18
RMD-264	Grab	13100 Mitchell Rd.	21-Nov-18	0.78	<1	<2	8	<1	0.15
RMD-277	Grab	Opp. 11280 Twigg Place	21-Nov-18	0.99	<1	<2	8	<1	0.16
RMD-262	Grab	13799 Commerce Pkwy.	21-Nov-18	0.71	<1	<2	9	<1	0.22
RMD-278	Grab	6651 Fraserwood Place	21-Nov-18	0.65	<1	<2	9	<1	0.16
RMD-279	Grab	Opp. 20371 Westminster Hwy.	21-Nov-18	0.69	<1	2	9	<1	0.09
RMD-261	Grab	9911 Sidaway Rd.	21-Nov-18	0.77	<1	[N/A mc	9	<1	0.23

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-260	Grab	11111 Horseshoe Way	21-Nov-18	1.13	<1	<2	8	<1	0.14
RMD-259	Grab	10020 Amethyst Ave.	21-Nov-18	0.83	<1	<2	9	<1	0.14
RMD-266	Grab	9380 General Currie Rd.	21-Nov-18	0.91	<1	<2	8	<1	0.1
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	21-Nov-18	0.78	<1	<2	9	<1	0.17
RMD-258	Grab	7000 Blk. Dyke Rd.	21-Nov-18	0.8	<1	<2	9	<1	0.1
RMD-257	Grab	6640 Blundell Rd.	21-Nov-18	0.7	<1	<2	8	<1	0.12
RMD-204	Grab	3180 Granville Ave.	22-Nov-18	0.88	<1	<2	10	<1	0.18
RMD-206	Grab	4251 Moncton St.	22-Nov-18	0.79	<1	<2	9	<1	0.11
RMD-216	Grab	11080 No. 2 Rd.	22-Nov-18	0.87	<1	<2	8	<1	0.11
RMD-280	Grab	11500 McKenzie Rd.	22-Nov-18	0.54	<1	2	9	<1	0.14
RMD-212	Grab	Opp. 8600 Ryan Rd.	22-Nov-18	0.91	<1	<2	8	<1	0.14
RMD-208	Grab	13200 No. 4 Rd.	22-Nov-18	0.8	<1	2	8	<1	0.14
RMD-205	Grab	13851 Steveston Hwy.	22-Nov-18	0.67	<1	<2	8	<1	0.11
RMD-202	Grab	1500 Valemont Way	22-Nov-18	0.63	<1	<2	9	<1	0.12
RMD-214	Grab	11720 Westminster Hwy.	22-Nov-18	1	<1	20	7	<1	0.13
RMD-267	Grab	17240 Fedoruk	22-Nov-18	0.63	<1	8	10	<1	0.12
RMD-249	Grab	23000 Blk. Dyke Rd.	22-Nov-18	0.67	<1	<2	10	<1	0.12
RMD-276	Grab	22271 Cochrane Drive	22-Nov-18	0.59	<1	<2	9	<1	0.15
RMD-275	Grab	5180 Smith Cres.	22-Nov-18	0.55	<1	<2	10	<1	0.13
RMD-203	Grab	23260 Westminster Hwy.	22-Nov-18	0.59	<1	<2	9	<1	0.11
RMD-251	Grab	5951McCallan Rd.	26-Nov-18	0.99	<1	18	8	<1	0.24
RMD-273	Grab	Opp. 8331 Fairfax Place	26-Nov-18	0.75	<1	2	10	<1	0.16
RMD-252	Grab	9751 Pendleton Rd.	26-Nov-18	0.74	<1	<2	10	<1	0.21
RMD-274	Grab	10920 Springwood Court	26-Nov-18	0.78	<1	2	10	<1	0.17
RMD-253	Grab	11051 No 3 Rd.	26-Nov-18	0.77	<1	<2	10	<1	0.15
RMD-269	Grab	14951 Triangle Rd.	26-Nov-18	0.65	<1	<2	10	<1	0.11
RMD-270	Grab	8200 Jones Rd.	26-Nov-18	0.81	<1	<2	10	<1	0.2
RMD-254	Grab	5300 No. 3 Rd.	26-Nov-18	0.86	<1	<2	10	<1	0.18
RMD-256	Grab	1000 Blk. McDonald Rd.	26-Nov-18	0.54	<1	<2	10	<1	0.39
RMD-255	Grab	6000 Blk. Miller Rd.	26-Nov-18	0.86	<1	8	9	<1	0.26
RMD-272	Grab	751 Catalina Cres.	26-Nov-18	0.93	<1	<2	10	<1	0.15
RMD-271	Grab	3800 Cessna Drive	26-Nov-18	0.95	<1	<2	10	<1	0.16
RMD-250	Grab	6071 Azure Rd.	26-Nov-18	1	<1	<2	9	<1	0.32
RMD-263	Grab	12560 Cambie Rd.	28-Nov-18	0.83	<1	<2	9	<1	0.11
RMD-264	Grab	13100 Mitchell Rd.	28-Nov-18	0.91	<1	2	9	<1	0.13
RMD-277	Grab	Opp. 11280 Twigg Place	28-Nov-18	1.08	<1	<2	9	<1	0.14
RMD-262	Grab	13799 Commerce Pkwy.	28-Nov-18	0.73	<1	<2	8	<1	0.1
RMD-278	Grab	6651 Fraserwood Place	28-Nov-18	0.74	<1	10	9	<1	0.11
RMD-279	Grab	Opp. 20371 Westminster Hwy.	28-Nov-18	0.82	<1	<2	8	<1	0.09
RMD-261	Grab	9911 Sidaway Rd.	28-Nov-18	0.9	<1	<2	9	<1	0.1

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-260	Grab	11111 Horseshoe Way	28-Nov-18	0.91	<1	4	9	<1	0.11
RMD-259	Grab	10020 Amethyst Ave.	28-Nov-18	0.96	<1	6	8	<1	0.12
RMD-266	Grab	9380 General Currie Rd.	28-Nov-18	0.92	<1	2	8	<1	0.11
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	28-Nov-18	0.97	<1	<2	9	<1	0.13
RMD-258	Grab	7000 Blk. Dyke Rd.	28-Nov-18	0.95	<1	<2	9	<1	0.12
RMD-257	Grab	6640 Blundell Rd.	28-Nov-18	1.05	<1	<2	9	<1	0.12
RMD-204	Grab	3180 Granville Ave.	30-Nov-18	0.97	<1	<2	8	<1	0.11
RMD-206	Grab	4251 Moncton St.	30-Nov-18	0.69	<1	<2	8	<1	0.12
RMD-216	Grab	11080 No. 2 Rd.	30-Nov-18	1.01	<1	<2	8	<1	0.11
RMD-280	Grab	11500 McKenzie Rd.	30-Nov-18	0.76	<1	<2	9	<1	0.1
RMD-212	Grab	Opp. 8600 Ryan Rd.	30-Nov-18	1	<1	<2	8	<1	0.11
RMD-208	Grab	13200 No. 4 Rd.	30-Nov-18	1.16	<1	<2	8	<1	0.12
RMD-205	Grab	13851 Steveston Hwy.	30-Nov-18	0.85	<1	<2	8	<1	0.13
RMD-202	Grab	1500 Valemont Way	30-Nov-18	0.65	<1	<2	7	<1	0.13
RMD-214	Grab	11720 Westminster Hwy.	30-Nov-18	0.8	<1	<2	7	<1	0.13
RMD-267	Grab	17240 Fedoruk	30-Nov-18	0.58	<1	2	8	<1	0.09
RMD-249	Grab	23000 Blk. Dyke Rd.	30-Nov-18	0.64	<1	<2	7	<1	0.12
RMD-276	Grab	22271 Cochrane Drive	30-Nov-18	0.61	<1	<2	7	<1	0.1
RMD-275	Grab	5180 Smith Cres.	30-Nov-18	0.66	<1	<2	8	<1	0.09
RMD-203	Grab	23260 Westminster Hwy.	30-Nov-18	0.67	<1	2	8	<1	0.12
RMD-251	Grab	5951McCallan Rd.	3-Dec-18	0.77	<1	<2	7	1	0.11
RMD-273	Grab	Opp. 8331 Fairfax Place	3-Dec-18	0.91	<1	<2	8	<1	0.16
RMD-252	Grab	9751 Pendleton Rd.	3-Dec-18	0.73	<1	<2	9	<1	0.12
RMD-274	Grab	10920 Springwood Court	3-Dec-18	0.87	<1	<2	9	<1	0.1
RMD-253	Grab	11051 No 3 Rd.	3-Dec-18	0.91	<1	<2	9	<1	0.12
RMD-270	Grab	8200 Jones Rd.	3-Dec-18	0.76	<1	<2	8	<1	0.18
RMD-250	Grab	6071 Azure Rd.	3-Dec-18	0.78	<1	<2	8	<1	0.1
RMD-254	Grab	5300 No. 3 Rd.	3-Dec-18	0.76	<1	<2	9	<1	0.18
RMD-256	Grab	1000 Blk. McDonald Rd.	3-Dec-18	0.48	<1	<2	9	<1	0.69
RMD-255	Grab	6000 Blk. Miller Rd.	3-Dec-18	0.96	<1	2	7	<1	0.29
RMD-272	Grab	751 Catalina Cres.	3-Dec-18	0.96	<1	6	7	<1	0.19
RMD-271	Grab	3800 Cessna Drive	3-Dec-18	0.96	<1	<2	8	<1	0.1
RMD-269	Grab	14951 Triangle Rd.	3-Dec-18	0.54	<1	<2	10	<1	0.22
RMD-263	Grab	12560 Cambie Rd.	5-Dec-18	0.74	<1	<2	6	<1	0.21
RMD-264	Grab	13100 Mitchell Rd.	5-Dec-18	0.87	<1	<2	5	<1	0.21
RMD-277	Grab	Opp. 11280 Twigg Place	5-Dec-18	0.91	<1	2	7	<1	0.23
RMD-262	Grab	13799 Commerce Pkwy.	5-Dec-18	0.75	<1	2	7	<1	0.2
RMD-278	Grab	6651 Fraserwood Place	5-Dec-18	0.66	<1	<2	7	<1	0.12
RMD-279	Grab	Opp. 20371 Westminster Hwy.	5-Dec-18	0.66	<1	4	6	<1	0.16
RMD-261	Grab	9911 Sidaway Rd.	5-Dec-18	0.95	<1	<2	7	<1	0.35

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-260	Grab	11111 Horseshoe Way	5-Dec-18	0.89	<1	<2	7	<1	0.18
RMD-259	Grab	10020 Amethyst Ave.	5-Dec-18	0.84	<1	<2	7	<1	0.24
RMD-266	Grab	9380 General Currie Rd.	5-Dec-18	0.83	<1	<2	6	<1	0.19
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	5-Dec-18	0.76	<1	<2	7	<1	0.18
RMD-258	Grab	7000 Blk. Dyke Rd.	5-Dec-18	0.84	<1	<2	7	<1	0.2
RMD-257	Grab	6640 Blundell Rd.	5-Dec-18	0.86	<1	<2	7	<1	0.22
RMD-205	Grab	13851 Steveston Hwy.	6-Dec-18	0.74	<1	<2	8	<1	0.23
RMD-202	Grab	1500 Valemont Way	6-Dec-18	0.71	<1	<2	7	<1	0.27
RMD-203	Grab	23260 Westminster Hwy.	6-Dec-18	0.64	<1	<2	7	<1	0.26
RMD-275	Grab	5180 Smith Cres.	6-Dec-18	0.7	<1	<2	8	<1	0.21
RMD-276	Grab	22271 Cochrane Drive	6-Dec-18	0.73	<1	2	6	<1	0.18
RMD-249	Grab	23000 Blk. Dyke Rd.	6-Dec-18	0.67	<1	<2	8	<1	0.27
RMD-267	Grab	17240 Fedoruk	6-Dec-18	0.67	<1	<2	8	<1	0.2
RMD-214	Grab	11720 Westminster Hwy.	6-Dec-18	0.95	<1	<2	7	<1	0.17
RMD-206	Grab	4251 Moncton St.	6-Dec-18	0.76	<1	<2	7	<1	0.23
RMD-204	Grab	3180 Granville Ave.	6-Dec-18	0.72	<1	2	7	<1	0.27
RMD-280	Grab	11500 McKenzie Rd.	6-Dec-18	0.56	<1	<2	9	<1	0.22
RMD-212	Grab	Opp. 8600 Ryan Rd.	6-Dec-18	0.88	<1	6	7	<1	0.19
RMD-208	Grab	13200 No. 4 Rd.	6-Dec-18	0.82	<1	<2	8	<1	0.22
RMD-251	Grab	5951McCallan Rd.	10-Dec-18	0.91	<1	2	8	<1	0.18
RMD-273	Grab	Opp. 8331 Fairfax Place	10-Dec-18	0.84	<1	<2	8	<1	0.15
RMD-252	Grab	9751 Pendleton Rd.	10-Dec-18	0.75	<1	<2	9	<1	0.15
RMD-274	Grab	10920 Springwood Court	10-Dec-18	0.96	<1	<2	9	<1	0.13
RMD-253	Grab	11051 No 3 Rd.	10-Dec-18	0.79	<1	<2	8	<1	0.12
RMD-269	Grab	14951 Triangle Rd.	10-Dec-18	0.74	<1	<2	9	<1	0.12
RMD-270	Grab	8200 Jones Rd.	10-Dec-18	1	<1	<2	8	<1	0.15
RMD-254	Grab	5300 No. 3 Rd.	10-Dec-18	0.89	<1	<2	8	<1	0.14
RMD-256	Grab	1000 Blk. McDonald Rd.	10-Dec-18	0.61	<1	<2	8	<1	0.24
RMD-255	Grab	6000 Blk. Miller Rd.	10-Dec-18	1	<1	2	7	<1	0.29
RMD-271	Grab	3800 Cessna Drive	10-Dec-18	1.03	<1	<2	8	<1	0.14
RMD-272	Grab	751 Catalina Cres.	10-Dec-18	0.98	<1	<2	8	<1	0.16
RMD-250	Grab	6071 Azure Rd.	10-Dec-18	0.93	<1	<2	8	<1	0.16
RMD-257	Grab	6640 Blundell Rd.	12-Dec-18	0.78	<1	<2	6	<1	0.1
RMD-258	Grab	7000 Blk. Dyke Rd.	12-Dec-18	0.78	<1	<2	6	<1	0.58
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	12-Dec-18	0.85	<1	<2	6	<1	0.25
RMD-260	Grab	11111 Horseshoe Way	12-Dec-18	0.84	<1	<2	7	<1	0.15
RMD-259	Grab	10020 Amethyst Ave.	12-Dec-18	0.95	<1	<2	7	<1	0.11
RMD-266	Grab	9380 General Currie Rd.	12-Dec-18	0.99	<1	<2	6	<1	0.11
RMD-261	Grab	9911 Sidaway Rd.	12-Dec-18	0.88	<1	<2	6	<1	0.11
RMD-262	Grab	13799 Commerce Pkwy.	12-Dec-18	0.87	<1	<2	6	<1	0.16

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-263	Grab	12560 Cambie Rd.	12-Dec-18	0.95	<1	<2	7	<1	0.12
RMD-264	Grab	13100 Mitchell Rd.	12-Dec-18	1	<1	<2	7	<1	0.14
RMD-277	Grab	Opp. 11280 Twigg Place	12-Dec-18	1.05	<1	<2	7	<1	0.14
RMD-278	Grab	6651 Fraserwood Place	12-Dec-18	0.75	<1	<2	8	<1	0.12
RMD-279	Grab	Opp. 20371 Westminster Hwy.	12-Dec-18	0.92	<1	<2	7	<1	0.15
RMD-204	Grab	3180 Granville Ave.	13-Dec-18	0.82	<1	2	6	<1	0.32
RMD-206	Grab	4251 Moncton St.	13-Dec-18	0.78	<1	<2	7	<1	0.37
RMD-216	Grab	11080 No. 2 Rd.	13-Dec-18	0.78	<1	<2	7	<1	0.35
RMD-280	Grab	11500 McKenzie Rd.	13-Dec-18	0.67	<1	<2	7	<1	0.39
RMD-212	Grab	Opp. 8600 Ryan Rd.	13-Dec-18	0.85	<1	<2	7	<1	0.3
RMD-208	Grab	13200 No. 4 Rd.	13-Dec-18	0.79	<1	<2	7	<1	0.26
RMD-205	Grab	13851 Steveston Hwy.	13-Dec-18	0.8	<1	<2	6	<1	0.27
RMD-202	Grab	1500 Valemont Way	13-Dec-18	0.7	<1	<2	6	<1	0.33
RMD-214	Grab	11720 Westminster Hwy.	13-Dec-18	0.88	<1	<2	6	<1	0.22
RMD-267	Grab	17240 Fedoruk	13-Dec-18	0.7	<1	<2	7	<1	0.38
RMD-249	Grab	23000 Blk. Dyke Rd.	13-Dec-18	0.64	<1	<2	7	<1	0.32
RMD-276	Grab	22271 Cochrane Drive	13-Dec-18	0.77	<1	<2	6	<1	0.3
RMD-275	Grab	5180 Smith Cres.	13-Dec-18	0.76	<1	<2	6	<1	1.1
RMD-203	Grab	23260 Westminster Hwy.	13-Dec-18	0.75	<1	<2	6	<1	0.38
RMD-251	Grab	5951McCallan Rd.	17-Dec-18	0.96	<1	NA	6	<1	0.15
RMD-273	Grab	Opp. 8331 Fairfax Place	17-Dec-18	0.51	<1	NA	8	<1	0.18
RMD-252	Grab	9751 Pendleton Rd.	17-Dec-18	0.73	<1	NA	7	<1	0.14
RMD-274	Grab	10920 Springwood Court	17-Dec-18	0.6	<1	NA	7	<1	0.16
RMD-253	Grab	11051 No 3 Rd.	17-Dec-18	0.74	<1	NA	6	<1	0.11
RMD-269	Grab	14951 Triangle Rd.	17-Dec-18	0.73	<1	NA	8	<1	0.13
RMD-270	Grab	8200 Jones Rd.	17-Dec-18	0.85	<1	NA	7	<1	0.42
RMD-254	Grab	5300 No. 3 Rd.	17-Dec-18	0.69	<1	NA	7	<1	0.11
RMD-256	Grab	1000 Blk. McDonald Rd.	17-Dec-18	0.62	<1	NA	7	<1	0.45
RMD-255	Grab	6000 Blk. Miller Rd.	17-Dec-18	0.79	<1	NA	6	<1	0.4
RMD-271	Grab	3800 Cessna Drive	17-Dec-18	0.84	<1	NA	8	<1	0.18
RMD-272	Grab	751 Catalina Cres.	17-Dec-18	0.87	<1	NA	6	<1	0.12
RMD-250	Grab	6071 Azure Rd.	17-Dec-18	0.81	<1	NA	7	<1	0.16
RMD-263	Grab	12560 Cambie Rd.	19-Dec-18	0.68	<1	NA	6	<1	0.15
RMD-264	Grab	13100 Mitchell Rd.	19-Dec-18	0.88	<1	NA	6	<1	0.15
RMD-277	Grab	Opp. 11280 Twigg Place	19-Dec-18	0.92	<1	NA	7	<1	0.1
RMD-262	Grab	13799 Commerce Pkwy.	19-Dec-18	0.78	<1	NA	6	<1	0.1
RMD-278	Grab	6651 Fraserwood Place	19-Dec-18	0.78	<1	NA	7	<1	0.09
RMD-279	Grab	Opp. 20371 Westminster Hwy.	19-Dec-18	0.73	<1	NA	5	<1	0.1
RMD-261	Grab	9911 Sidaway Rd.	19-Dec-18	0.73	<1	NA	6	<1	0.15
RMD-260	Grab	11111 Horseshoe Way	19-Dec-18	0.9	<1	NA	6	<1	0.13

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-259	Grab	10020 Amethyst Ave.	19-Dec-18	0.79	<1	NA	7	<1	0.12
RMD-266	Grab	9380 General Currie Rd.	19-Dec-18	0.77	<1	NA	5	<1	0.16
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	19-Dec-18	0.79	<1	NA	6	<1	0.09
RMD-258	Grab	7000 Blk. Dyke Rd.	19-Dec-18	0.82	<1	NA	7	<1	0.14
RMD-257	Grab	6640 Blundell Rd.	19-Dec-18	0.89	<1	NA	6	<1	0.1
RMD-204	Grab	3180 Granville Ave.	20-Dec-18	0.79	<1	NA	7	<1	0.12
RMD-206	Grab	4251 Moncton St.	20-Dec-18	0.74	<1	NA	6	<1	0.09
RMD-216	Grab	11080 No. 2 Rd.	20-Dec-18	0.81	<1	NA	6	<1	0.13
RMD-280	Grab	11500 McKenzie Rd.	20-Dec-18	0.61	<1	NA	8	<1	0.15
RMD-212	Grab	Opp. 8600 Ryan Rd.	20-Dec-18	0.8	<1	NA	7	<1	0.13
RMD-208	Grab	13200 No. 4 Rd.	20-Dec-18	0.77	<1	NA	7	<1	0.09
RMD-205	Grab	13851 Steveston Hwy.	20-Dec-18	0.78	<1	NA	6	<1	0.11
RMD-202	Grab	1500 Valemont Way	20-Dec-18	0.75	<1	NA	5	<1	0.14
RMD-214	Grab	11720 Westminster Hwy.	20-Dec-18	0.96	<1	NA	6	<1	0.13
RMD-267	Grab	17240 Fedoruk	20-Dec-18	0.64	<1	NA	6	<1	0.13
RMD-249	Grab	23000 Blk. Dyke Rd.	20-Dec-18	0.68	<1	NA	6	<1	0.1
RMD-276	Grab	22271 Cochrane Drive	20-Dec-18	0.65	<1	NA	6	<1	0.15
RMD-275	Grab	5180 Smith Cres.	20-Dec-18	0.63	<1	NA	7	<1	0.11
RMD-203	Grab	23260 Westminster Hwy.	20-Dec-18	0.67	<1	NA	6	<1	0.14
RMD-256	Grab	1000 Blk. McDonald Rd.	27-Dec-18	0.8	<1	NA	5	<1	0.22
RMD-255	Grab	6000 Blk. Miller Rd.	27-Dec-18	0.98	<1	NA	6	<1	0.39
RMD-257	Grab	6640 Blundell Rd.	27-Dec-18	0.85	<1	NA	6	<1	0.18
RMD-258	Grab	7000 Blk. Dyke Rd.	27-Dec-18	0.85	<1	NA	5	<1	0.16
RMD-271	Grab	3800 Cessna Drive	27-Dec-18	0.83	<1	NA	6	<1	0.5
RMD-268	Grab	13800 No. 3 Rd. (off Garden City)	27-Dec-18	0.74	<1	NA	7	<1	0.13
RMD-272	Grab	751 Catalina Cres.	27-Dec-18	0.89	<1	NA	6	<1	0.09
RMD-250	Grab	6071 Azure Rd.	27-Dec-18	0.82	<1	NA	4	<1	0.09
RMD-259	Grab	10020 Amethyst Ave.	27-Dec-18	0.86	<1	NA	7	<1	0.13
RMD-251	Grab	5951McCallan Rd.	27-Dec-18	0.66	<1	NA	6	<1	0.1
RMD-266	Grab	9380 General Currie Rd.	27-Dec-18	1	<1	NA	6	<1	0.16
RMD-260	Grab	11111 Horseshoe Way	27-Dec-18	0.86	<1	NA	6	<1	0.14
RMD-273	Grab	Opp. 8331 Fairfax Place	27-Dec-18	0.91	<1	NA	5	<1	0.12
RMD-252	Grab	9751 Pendleton Rd.	27-Dec-18	0.65	<1	NA	6	<1	0.09
RMD-261	Grab	9911 Sidaway Rd.	27-Dec-18	0.83	<1	NA	7	<1	0.13
RMD-262	Grab	13799 Commerce Pkwy.	27-Dec-18	0.87	<1	NA	5	<1	0.13
RMD-274	Grab	10920 Springwood Court	27-Dec-18	0.61	<1	NA	5	<1	0.08
RMD-253	Grab	11051 No 3 Rd.	27-Dec-18	0.73	<1	NA	6	<1	0.1
RMD-263	Grab	12560 Cambie Rd.	27-Dec-18	0.85	<1	NA	6	<1	0.2
RMD-264	Grab	13100 Mitchell Rd.	27-Dec-18	0.62	<1	NA	7	<1	0.16
RMD-269	Grab	14951 Triangle Rd.	27-Dec-18	0.77	<1	NA	6	<1	0.08

Sample Name	Sample Type	Sample Reported Name	Sampled Date	Chlorine Free (mg/L)	Ecoli (CFU/100mLs)	HPC (CFU/mL)	Temperature (°C)	Total Coliform (CFU/100mLs)	Turbidity (NTU)
RMD-277	Grab	Opp. 11280 Twigg Place	27-Dec-18	0.85	<1	NA	6	<1	0.13
RMD-270	Grab	8200 Jones Rd.	27-Dec-18	0.72	<1	NA	5	<1	0.11
RMD-278	Grab	6651 Fraserwood Place	27-Dec-18	0.85	<1	NA	7	<1	0.11
RMD-254	Grab	5300 No. 3 Rd.	27-Dec-18	0.64	<1	NA	5	<1	0.11
RMD-279	Grab	Opp. 20371 Westminster Hwy.	27-Dec-18	0.79	<1	NA	8	<1	0.12
RMD-204	Grab	3180 Granville Ave.	28-Dec-18	0.73	<1	NA	5	<1	0.14
RMD-206	Grab	4251 Moncton St.	28-Dec-18	0.73	<1	NA	5	<1	0.12
RMD-216	Grab	11080 No. 2 Rd.	28-Dec-18	0.78	<1	NA	6	<1	0.12
RMD-280	Grab	11500 McKenzie Rd.	28-Dec-18	0.67	<1	NA	7	<1	0.15
RMD-212	Grab	Opp. 8600 Ryan Rd.	28-Dec-18	0.79	<1	NA	6	<1	0.16
RMD-208	Grab	13200 No. 4 Rd.	28-Dec-18	0.86	<1	NA	6	<1	0.11
RMD-205	Grab	13851 Steveston Hwy.	28-Dec-18	0.87	<1	NA	6	<1	0.15
RMD-202	Grab	1500 Valemont Way	28-Dec-18	0.74	<1	NA	5	<1	0.13
RMD-214	Grab	11720 Westminster Hwy.	28-Dec-18	0.87	<1	NA	5	<1	0.14
RMD-267	Grab	17240 Fedoruk	28-Dec-18	0.69	<1	NA	6	<1	0.15
RMD-249	Grab	23000 Blk. Dyke Rd.	28-Dec-18	0.77	<1	NA	6	<1	0.15
RMD-276	Grab	22271 Cochrane Drive	28-Dec-18	0.77	<1	NA	6	<1	0.14
RMD-275	Grab	5180 Smith Cres.	28-Dec-18	0.76	<1	NA	7	1	0.26
RMD-203	Grab	23260 Westminster Hwy.	28-Dec-18	0.75	<1	NA	7	<1	0.13

APPENDIX 4: 2018 THM AND HAA TEST RESULTS

Sample	Date Sampled	THM (ppb)						HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average (Guileline Limit 100 ppb)	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average (Guileline Limit 80 ppb)
RMD-250	31-Aug-2016	1	<1	<1	21	24		<0.5	9	<1	4	7.3	21	
RMD-250	19-Oct-2016	<1	<1	<1	24	26		<0.5	9	<1	5	12.7	27	
RMD-250	6-Mar-2017	<1	<1	<1	17	19		<0.5	7	<1	<2	9.7	18	
RMD-250	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	11.6	24	**22**
RMD-250	23-Aug-2017	<1	<1	<1	21	21	**22**	<0.5	9	<1	<2	6.5	17	**21**
RMD-250	29-Nov-2017	<1	<1	<1	24	25	**22**	<0.5	10	<1	<2	10.6	21	**20**
RMD-250	15-Feb-2018	<1	<1	<1	20	21	**22**	<0.5	8	<1	<2	8.7	18	**20**
RMD-251	31-Aug-2016	1	<1	<1	26	28		<0.5	9	<1	3	7	20	
RMD-251	19-Oct-2016	<1	<1	<1	23	25		<0.5	9	<1	6	10.9	26	
RMD-251	6-Mar-2017	<1	<1	<1	17	18		<0.5	7	<1	<2	10.7	20	
RMD-251	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	10.8	23	**22**
RMD-251	23-Aug-2017	<1	<1	<1	21	21	**21**	<0.5	10	<1	<2	5.9	16	**21**
RMD-251	29-Nov-2017	<1	<1	<1	25	26	**22**	<0.5	8	<1	<2	5.7	15	**18**
RMD-251	15-Feb-2018	<1	<1	<1	19	20	**22**	<0.5	8	<1	<2	8.3	19	**18**
RMD-258	31-Aug-2016	1	<1	<1	26	28		<0.5	10	<1	4	7.9	23	
RMD-258	19-Oct-2016	1	<1	<1	24	26		<0.5	11	<1	7	17	36	
RMD-258	6-Mar-2017	<1	<1	<1	18	20		<0.5	7	<1	<2	10.5	19	
RMD-258	15-May-2017	<1	<1	<1	17	18	**23**	<0.5	11	<1	<2	11.1	24	**25**
RMD-258	23-Aug-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	7.7	20	**25**
	29-Nov-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	9.7	22	**21**
RMD-258	15-Feb-2018	<1	<1	<1	22	23	**23**	<0.5	9	<1	<2	10.8	23	**22**
RMD-259	31-Aug-2016	2	<1	<1	29	32		<0.5	12	<1	5	10.1	28	
RMD-259	19-Oct-2016	1	<1	<1	27	29		<0.5	12	<1	7	17.2	36	
RMD-259	6-Mar-2017	<1	<1	<1	18	20		<0.5	8	<1	<2	10.5	20	
RMD-259	15-May-2017	<1	<1	<1	21	23	**26**	<0.5	11	<1	<2	10.7	24	**27**
RMD-259	23-Aug-2017	<1	<1	<1	26	26	**25**	<0.5	11	<1	<2	7.3	19	**25**
RMD-259	29-Nov-2017	<1	<1	<1	28	29	**25**	<0.5	11	<1	<2	13.8	27	**22**
RMD-259	15-Feb-2018	<1	<1	<1	22	23	**25**	<0.5	9	<1	<2	9.7	21	**23**
RMD-250	2016/10/19	<1	<1	<1	24	26		<0.5	9	<1	5	12.7	27.3	
RMD-250	2017/03/06	<1	<1	<1	17	19		<0.5	7	<1	<2	9.7	17.9	
RMD-250	2017/05/15	<1	<1	<1	19	21		<0.5	10	<1	<2	11.6	23.6	
RMD-250	2017/08/23	<1	<1	<1	21	21	**22**	<0.5	9	<1	<2	6.5	16.9	**21**
RMD-250	2017/11/29	<1	<1	<1	24	25	**22**	<0.5	10	<1	<2	10.6	21.4	**20**

Sample	Date Sampled	THM (ppb)						HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average (Guideline Limit 100 ppb)	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average (Guideline Limit 80 ppb)
RMD-250	31-Aug-2016	1	<1	<1	21	24		<0.5	9	<1	4	7.3	21	
RMD-250	19-Oct-2016	<1	<1	<1	24	26		<0.5	9	<1	5	12.7	27	
RMD-250	6-Mar-2017	<1	<1	<1	17	19		<0.5	7	<1	<2	9.7	18	
RMD-250	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	11.6	24	**22**
RMD-250	23-Aug-2017	<1	<1	<1	21	21	**22**	<0.5	9	<1	<2	6.5	17	**21**
RMD-250	29-Nov-2017	<1	<1	<1	24	25	**22**	<0.5	10	<1	<2	10.6	21	**20**
RMD-250	15-Feb-2018	<1	<1	<1	20	21	**22**	<0.5	8	<1	<2	8.7	18	**20**
RMD-251	31-Aug-2016	1	<1	<1	26	28		<0.5	9	<1	3	7	20	
RMD-251	19-Oct-2016	<1	<1	<1	23	25		<0.5	9	<1	6	10.9	26	
RMD-251	6-Mar-2017	<1	<1	<1	17	18		<0.5	7	<1	<2	10.7	20	
RMD-251	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	10.8	23	**22**
RMD-251	23-Aug-2017	<1	<1	<1	21	21	**21**	<0.5	10	<1	<2	5.9	16	**21**
RMD-251	29-Nov-2017	<1	<1	<1	25	26	**22**	<0.5	8	<1	<2	5.7	15	**18**
RMD-251	15-Feb-2018	<1	<1	<1	19	20	**22**	<0.5	8	<1	<2	8.3	19	**18**
RMD-258	31-Aug-2016	1	<1	<1	26	28		<0.5	10	<1	4	7.9	23	
RMD-258	19-Oct-2016	1	<1	<1	24	26		<0.5	11	<1	7	17	36	
RMD-258	6-Mar-2017	<1	<1	<1	18	20		<0.5	7	<1	<2	10.5	19	
RMD-258	15-May-2017	<1	<1	<1	17	18	**23**	<0.5	11	<1	<2	11.1	24	**25**
RMD-258	23-Aug-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	7.7	20	**25**
	29-Nov-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	9.7	22	**21**
RMD-258	15-Feb-2018	<1	<1	<1	22	23	**23**	<0.5	9	<1	<2	10.8	23	**22**
RMD-259	31-Aug-2016	2	<1	<1	29	32		<0.5	12	<1	5	10.1	28	
RMD-259	19-Oct-2016	1	<1	<1	27	29		<0.5	12	<1	7	17.2	36	
RMD-259	6-Mar-2017	<1	<1	<1	18	20		<0.5	8	<1	<2	10.5	20	
RMD-259	15-May-2017	<1	<1	<1	21	23	**26**	<0.5	11	<1	<2	10.7	24	**27**
RMD-259	23-Aug-2017	<1	<1	<1	26	26	**25**	<0.5	11	<1	<2	7.3	19	**25**
RMD-259	29-Nov-2017	<1	<1	<1	28	29	**25**	<0.5	11	<1	<2	13.8	27	**22**
RMD-259	15-Feb-2018	<1	<1	<1	22	23	**25**	<0.5	9	<1	<2	9.7	21	**23**
RMD-250	2018/02/15	<1	<1	<1	20	21	**22**	<0.5	8	<1	<2	8.7	18.4	**20**
RMD-250	2018/05/30	<1	<1	<1	22	22	**22**	<0.5	7	<1	<2	5.6	14.3	**18**
RMD-251	2016/10/19	<1	<1	<1	23	25		<0.5	9	<1	6	10.9	26.2	
RMD-251	2017/03/06	<1	<1	<1	17	18		<0.5	7	<1	<2	10.7	19.9	
RMD-251	2017/05/15	<1	<1	<1	19	21		<0.5	10	<1	<2	10.8	23.3	
RMD-251	2017/08/23	<1	<1	<1	21	21	**21**	<0.5	10	<1	<2	5.9	16	**21**
RMD-251	2017/11/29	<1	<1	<1	25	25	**22**	<0.5	8	<1	<2	5.7	14.7	**18**

Sample	Date Sampled	THM (ppb)						HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average (Guideline Limit 100 ppb)	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average (Guideline Limit 80 ppb)
RMD-250	31-Aug-2016	1	<1	<1	21	24		<0.5	9	<1	4	7.3	21	
RMD-250	19-Oct-2016	<1	<1	<1	24	26		<0.5	9	<1	5	12.7	27	
RMD-250	6-Mar-2017	<1	<1	<1	17	19		<0.5	7	<1	<2	9.7	18	
RMD-250	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	11.6	24	**22**
RMD-250	23-Aug-2017	<1	<1	<1	21	21	**22**	<0.5	9	<1	<2	6.5	17	**21**
RMD-250	29-Nov-2017	<1	<1	<1	24	25	**22**	<0.5	10	<1	<2	10.6	21	**20**
RMD-250	15-Feb-2018	<1	<1	<1	20	21	**22**	<0.5	8	<1	<2	8.7	18	**20**
RMD-251	31-Aug-2016	1	<1	<1	26	28		<0.5	9	<1	3	7	20	
RMD-251	19-Oct-2016	<1	<1	<1	23	25		<0.5	9	<1	6	10.9	26	
RMD-251	6-Mar-2017	<1	<1	<1	17	18		<0.5	7	<1	<2	10.7	20	
RMD-251	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	10.8	23	**22**
RMD-251	23-Aug-2017	<1	<1	<1	21	21	**21**	<0.5	10	<1	<2	5.9	16	**21**
RMD-251	29-Nov-2017	<1	<1	<1	25	26	**22**	<0.5	8	<1	<2	5.7	15	**18**
RMD-251	15-Feb-2018	<1	<1	<1	19	20	**22**	<0.5	8	<1	<2	8.3	19	**18**
RMD-258	31-Aug-2016	1	<1	<1	26	28		<0.5	10	<1	4	7.9	23	
RMD-258	19-Oct-2016	1	<1	<1	24	26		<0.5	11	<1	7	17	36	
RMD-258	6-Mar-2017	<1	<1	<1	18	20		<0.5	7	<1	<2	10.5	19	
RMD-258	15-May-2017	<1	<1	<1	17	18	**23**	<0.5	11	<1	<2	11.1	24	**25**
RMD-258	23-Aug-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	7.7	20	**25**
	29-Nov-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	9.7	22	**21**
RMD-258	15-Feb-2018	<1	<1	<1	22	23	**23**	<0.5	9	<1	<2	10.8	23	**22**
RMD-259	31-Aug-2016	2	<1	<1	29	32		<0.5	12	<1	5	10.1	28	
RMD-259	19-Oct-2016	1	<1	<1	27	29		<0.5	12	<1	7	17.2	36	
RMD-259	6-Mar-2017	<1	<1	<1	18	20		<0.5	8	<1	<2	10.5	20	
RMD-259	15-May-2017	<1	<1	<1	21	23	**26**	<0.5	11	<1	<2	10.7	24	**27**
RMD-259	23-Aug-2017	<1	<1	<1	26	26	**25**	<0.5	11	<1	<2	7.3	19	**25**
RMD-259	29-Nov-2017	<1	<1	<1	28	29	**25**	<0.5	11	<1	<2	13.8	27	**22**
RMD-259	15-Feb-2018	<1	<1	<1	22	23	**25**	<0.5	9	<1	<2	9.7	21	**23**
RMD-251	2018/02/15	<1	<1	<1	19	20	**22**	<0.5	8	<1	<2	8.3	18.8	**18**
RMD-251	2018/05/30	<1	<1	<1	22	22	**22**	<0.5	4	<1	<2	3.5	9.1	**15**
RMD-258	2016/10/19	1	<1	<1	24	26		<0.5	11	<1	7	17	35.7	
RMD-258	2017/03/06	<1	<1	<1	18	20		<0.5	7	<1	<2	10.5	19	
RMD-258	2017/05/15	<1	<1	<1	17	18		<0.5	11	<1	<2	11.1	24.3	
RMD-258	2017/08/23	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	7.7	19.7	**25**
RMD-258	2017/11/29	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	9.7	22	**21**

Sample	Date Sampled	THM (ppb)						HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average (Guideline Limit 100 ppb)	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average (Guideline Limit 80 ppb)
RMD-250	31-Aug-2016	1	<1	<1	21	24		<0.5	9	<1	4	7.3	21	
RMD-250	19-Oct-2016	<1	<1	<1	24	26		<0.5	9	<1	5	12.7	27	
RMD-250	6-Mar-2017	<1	<1	<1	17	19		<0.5	7	<1	<2	9.7	18	
RMD-250	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	11.6	24	**22**
RMD-250	23-Aug-2017	<1	<1	<1	21	21	**22**	<0.5	9	<1	<2	6.5	17	**21**
RMD-250	29-Nov-2017	<1	<1	<1	24	25	**22**	<0.5	10	<1	<2	10.6	21	**20**
RMD-250	15-Feb-2018	<1	<1	<1	20	21	**22**	<0.5	8	<1	<2	8.7	18	**20**
RMD-251	31-Aug-2016	1	<1	<1	26	28		<0.5	9	<1	3	7	20	
RMD-251	19-Oct-2016	<1	<1	<1	23	25		<0.5	9	<1	6	10.9	26	
RMD-251	6-Mar-2017	<1	<1	<1	17	18		<0.5	7	<1	<2	10.7	20	
RMD-251	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	10.8	23	**22**
RMD-251	23-Aug-2017	<1	<1	<1	21	21	**21**	<0.5	10	<1	<2	5.9	16	**21**
RMD-251	29-Nov-2017	<1	<1	<1	25	26	**22**	<0.5	8	<1	<2	5.7	15	**18**
RMD-251	15-Feb-2018	<1	<1	<1	19	20	**22**	<0.5	8	<1	<2	8.3	19	**18**
RMD-258	31-Aug-2016	1	<1	<1	26	28		<0.5	10	<1	4	7.9	23	
RMD-258	19-Oct-2016	1	<1	<1	24	26		<0.5	11	<1	7	17	36	
RMD-258	6-Mar-2017	<1	<1	<1	18	20		<0.5	7	<1	<2	10.5	19	
RMD-258	15-May-2017	<1	<1	<1	17	18	**23**	<0.5	11	<1	<2	11.1	24	**25**
RMD-258	23-Aug-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	7.7	20	**25**
	29-Nov-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	9.7	22	**21**
RMD-258	15-Feb-2018	<1	<1	<1	22	23	**23**	<0.5	9	<1	<2	10.8	23	**22**
RMD-259	31-Aug-2016	2	<1	<1	29	32		<0.5	12	<1	5	10.1	28	
RMD-259	19-Oct-2016	1	<1	<1	27	29		<0.5	12	<1	7	17.2	36	
RMD-259	6-Mar-2017	<1	<1	<1	18	20		<0.5	8	<1	<2	10.5	20	
RMD-259	15-May-2017	<1	<1	<1	21	23	**26**	<0.5	11	<1	<2	10.7	24	**27**
RMD-259	23-Aug-2017	<1	<1	<1	26	26	**25**	<0.5	11	<1	<2	7.3	19	**25**
RMD-259	29-Nov-2017	<1	<1	<1	28	29	**25**	<0.5	11	<1	<2	13.8	27	**22**
RMD-259	15-Feb-2018	<1	<1	<1	22	23	**25**	<0.5	9	<1	<2	9.7	21	**23**
RMD-258	2018/02/15	<1	<1	<1	22	23	**23**	<0.5	9	<1	<2	10.8	22.6	**22**
RMD-258	2018/05/30	<1	<1	<1	22	22	**24**	<0.5	7	<1	<2	5.5	14.9	**20**
RMD-259	2016/10/19	1	<1	<1	27	29		<0.5	12	<1	7	17.2	36.4	
RMD-259	2017/03/06	<1	<1	<1	18	20		<0.5	8	<1	<2	10.5	19.8	
RMD-259	2017/05/15	<1	<1	<1	21	23		<0.5	11	<1	<2	10.7	23.8	
RMD-259	2017/08/23	<1	<1	<1	26	26	**25**	<0.5	11	<1	<2	7.3	18.9	**25**
RMD-259	2017/11/29	<1	<1	<1	28	29	**25**	<0.5	11	<1	<2	13.8	26.7	**22**

Sample	Date Sampled	THM (ppb)						HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average (Guileline Limit 100 ppb)	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average (Guileline Limit 80 ppb)
RMD-250	31-Aug-2016	1	<1	<1	21	24		<0.5	9	<1	4	7.3	21	
RMD-250	19-Oct-2016	<1	<1	<1	24	26		<0.5	9	<1	5	12.7	27	
RMD-250	6-Mar-2017	<1	<1	<1	17	19		<0.5	7	<1	<2	9.7	18	
RMD-250	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	11.6	24	**22**
RMD-250	23-Aug-2017	<1	<1	<1	21	21	**22**	<0.5	9	<1	<2	6.5	17	**21**
RMD-250	29-Nov-2017	<1	<1	<1	24	25	**22**	<0.5	10	<1	<2	10.6	21	**20**
RMD-250	15-Feb-2018	<1	<1	<1	20	21	**22**	<0.5	8	<1	<2	8.7	18	**20**
RMD-251	31-Aug-2016	1	<1	<1	26	28		<0.5	9	<1	3	7	20	
RMD-251	19-Oct-2016	<1	<1	<1	23	25		<0.5	9	<1	6	10.9	26	
RMD-251	6-Mar-2017	<1	<1	<1	17	18		<0.5	7	<1	<2	10.7	20	
RMD-251	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	10.8	23	**22**
RMD-251	23-Aug-2017	<1	<1	<1	21	21	**21**	<0.5	10	<1	<2	5.9	16	**21**
RMD-251	29-Nov-2017	<1	<1	<1	25	26	**22**	<0.5	8	<1	<2	5.7	15	**18**
RMD-251	15-Feb-2018	<1	<1	<1	19	20	**22**	<0.5	8	<1	<2	8.3	19	**18**
RMD-258	31-Aug-2016	1	<1	<1	26	28		<0.5	10	<1	4	7.9	23	
RMD-258	19-Oct-2016	1	<1	<1	24	26		<0.5	11	<1	7	17	36	
RMD-258	6-Mar-2017	<1	<1	<1	18	20		<0.5	7	<1	<2	10.5	19	
RMD-258	15-May-2017	<1	<1	<1	17	18	**23**	<0.5	11	<1	<2	11.1	24	**25**
RMD-258	23-Aug-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	7.7	20	**25**
	29-Nov-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	9.7	22	**21**
RMD-258	15-Feb-2018	<1	<1	<1	22	23	**23**	<0.5	9	<1	<2	10.8	23	**22**
RMD-259	31-Aug-2016	2	<1	<1	29	32		<0.5	12	<1	5	10.1	28	
RMD-259	19-Oct-2016	1	<1	<1	27	29		<0.5	12	<1	7	17.2	36	
RMD-259	6-Mar-2017	<1	<1	<1	18	20		<0.5	8	<1	<2	10.5	20	
RMD-259	15-May-2017	<1	<1	<1	21	23	**26**	<0.5	11	<1	<2	10.7	24	**27**
RMD-259	23-Aug-2017	<1	<1	<1	26	26	**25**	<0.5	11	<1	<2	7.3	19	**25**
RMD-259	29-Nov-2017	<1	<1	<1	28	29	**25**	<0.5	11	<1	<2	13.8	27	**22**
RMD-259	15-Feb-2018	<1	<1	<1	22	23	**25**	<0.5	9	<1	<2	9.7	21	**23**
RMD-259	2018/02/15	<1	<1	<1	22	23	**25**	<0.5	9	<1	<2	9.7	20.6	**23**
RMD-259	2018/05/30	<1	<1	<1	25	25	**26**	<0.5	8	<1	<2	7.4	18	**21**
RMD-250	6-Mar-17	<1	<1	<1	17	19		<0.5	7	<1	<2	9.7	17.9	
RMD-250	15-May-17	<1	<1	<1	19	21		<0.5	10	<1	<2	11.6	23.6	
RMD-250	23-Aug-17	<1	<1	<1	21	21		<0.5	9	<1	<2	6.5	16.9	
RMD-250	29-Nov-17	<1	<1	<1	24	25	22	<0.5	10	<1	<2	10.6	21.4	20
RMD-250	15-Feb-18	<1	<1	<1	20	21	22	<0.5	8	<1	<2	8.7	18.4	20

Sample	Date Sampled	THM (ppb)						HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average (Guideline Limit 100 ppb)	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average (Guideline Limit 80 ppb)
RMD-250	31-Aug-2016	1	<1	<1	21	24		<0.5	9	<1	4	7.3	21	
RMD-250	19-Oct-2016	<1	<1	<1	24	26		<0.5	9	<1	5	12.7	27	
RMD-250	6-Mar-2017	<1	<1	<1	17	19		<0.5	7	<1	<2	9.7	18	
RMD-250	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	11.6	24	**22**
RMD-250	23-Aug-2017	<1	<1	<1	21	21	**22**	<0.5	9	<1	<2	6.5	17	**21**
RMD-250	29-Nov-2017	<1	<1	<1	24	25	**22**	<0.5	10	<1	<2	10.6	21	**20**
RMD-250	15-Feb-2018	<1	<1	<1	20	21	**22**	<0.5	8	<1	<2	8.7	18	**20**
RMD-251	31-Aug-2016	1	<1	<1	26	28		<0.5	9	<1	3	7	20	
RMD-251	19-Oct-2016	<1	<1	<1	23	25		<0.5	9	<1	6	10.9	26	
RMD-251	6-Mar-2017	<1	<1	<1	17	18		<0.5	7	<1	<2	10.7	20	
RMD-251	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	10.8	23	**22**
RMD-251	23-Aug-2017	<1	<1	<1	21	21	**21**	<0.5	10	<1	<2	5.9	16	**21**
RMD-251	29-Nov-2017	<1	<1	<1	25	26	**22**	<0.5	8	<1	<2	5.7	15	**18**
RMD-251	15-Feb-2018	<1	<1	<1	19	20	**22**	<0.5	8	<1	<2	8.3	19	**18**
RMD-258	31-Aug-2016	1	<1	<1	26	28		<0.5	10	<1	4	7.9	23	
RMD-258	19-Oct-2016	1	<1	<1	24	26		<0.5	11	<1	7	17	36	
RMD-258	6-Mar-2017	<1	<1	<1	18	20		<0.5	7	<1	<2	10.5	19	
RMD-258	15-May-2017	<1	<1	<1	17	18	**23**	<0.5	11	<1	<2	11.1	24	**25**
RMD-258	23-Aug-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	7.7	20	**25**
	29-Nov-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	9.7	22	**21**
RMD-258	15-Feb-2018	<1	<1	<1	22	23	**23**	<0.5	9	<1	<2	10.8	23	**22**
RMD-259	31-Aug-2016	2	<1	<1	29	32		<0.5	12	<1	5	10.1	28	
RMD-259	19-Oct-2016	1	<1	<1	27	29		<0.5	12	<1	7	17.2	36	
RMD-259	6-Mar-2017	<1	<1	<1	18	20		<0.5	8	<1	<2	10.5	20	
RMD-259	15-May-2017	<1	<1	<1	21	23	**26**	<0.5	11	<1	<2	10.7	24	**27**
RMD-259	23-Aug-2017	<1	<1	<1	26	26	**25**	<0.5	11	<1	<2	7.3	19	**25**
RMD-259	29-Nov-2017	<1	<1	<1	28	29	**25**	<0.5	11	<1	<2	13.8	27	**22**
RMD-259	15-Feb-2018	<1	<1	<1	22	23	**25**	<0.5	9	<1	<2	9.7	21	**23**
RMD-250	30-May-18	<1	<1	<1	22	22	22	<0.5	7	<1	<2	5.6	14.3	18
RMD-250	8-Aug-18	<1	<1	<1	18	18	22	<0.5	6	<1	<2	5.2	12.2	17
RMD-251	6-Mar-17	<1	<1	<1	17	18		<0.5	7	<1	<2	10.7	19.9	
RMD-251	15-May-17	<1	<1	<1	19	21		<0.5	10	<1	<2	10.8	23.3	
RMD-251	23-Aug-17	<1	<1	<1	21	21		<0.5	10	<1	<2	5.9	16	
RMD-251	29-Nov-17	<1	<1	<1	25	26	22	<0.5	8	<1	<2	5.7	14.7	18
RMD-251	15-Feb-18	<1	<1	<1	19	20	22	<0.5	8	<1	<2	8.3	18.8	18

Sample	Date Sampled	THM (ppb)						HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average (Guideline Limit 100 ppb)	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average (Guideline Limit 80 ppb)
RMD-250	31-Aug-2016	1	<1	<1	21	24		<0.5	9	<1	4	7.3	21	
RMD-250	19-Oct-2016	<1	<1	<1	24	26		<0.5	9	<1	5	12.7	27	
RMD-250	6-Mar-2017	<1	<1	<1	17	19		<0.5	7	<1	<2	9.7	18	
RMD-250	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	11.6	24	**22**
RMD-250	23-Aug-2017	<1	<1	<1	21	21	**22**	<0.5	9	<1	<2	6.5	17	**21**
RMD-250	29-Nov-2017	<1	<1	<1	24	25	**22**	<0.5	10	<1	<2	10.6	21	**20**
RMD-250	15-Feb-2018	<1	<1	<1	20	21	**22**	<0.5	8	<1	<2	8.7	18	**20**
RMD-251	31-Aug-2016	1	<1	<1	26	28		<0.5	9	<1	3	7	20	
RMD-251	19-Oct-2016	<1	<1	<1	23	25		<0.5	9	<1	6	10.9	26	
RMD-251	6-Mar-2017	<1	<1	<1	17	18		<0.5	7	<1	<2	10.7	20	
RMD-251	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	10.8	23	**22**
RMD-251	23-Aug-2017	<1	<1	<1	21	21	**21**	<0.5	10	<1	<2	5.9	16	**21**
RMD-251	29-Nov-2017	<1	<1	<1	25	26	**22**	<0.5	8	<1	<2	5.7	15	**18**
RMD-251	15-Feb-2018	<1	<1	<1	19	20	**22**	<0.5	8	<1	<2	8.3	19	**18**
RMD-258	31-Aug-2016	1	<1	<1	26	28		<0.5	10	<1	4	7.9	23	
RMD-258	19-Oct-2016	1	<1	<1	24	26		<0.5	11	<1	7	17	36	
RMD-258	6-Mar-2017	<1	<1	<1	18	20		<0.5	7	<1	<2	10.5	19	
RMD-258	15-May-2017	<1	<1	<1	17	18	**23**	<0.5	11	<1	<2	11.1	24	**25**
RMD-258	23-Aug-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	7.7	20	**25**
	29-Nov-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	9.7	22	**21**
RMD-258	15-Feb-2018	<1	<1	<1	22	23	**23**	<0.5	9	<1	<2	10.8	23	**22**
RMD-259	31-Aug-2016	2	<1	<1	29	32		<0.5	12	<1	5	10.1	28	
RMD-259	19-Oct-2016	1	<1	<1	27	29		<0.5	12	<1	7	17.2	36	
RMD-259	6-Mar-2017	<1	<1	<1	18	20		<0.5	8	<1	<2	10.5	20	
RMD-259	15-May-2017	<1	<1	<1	21	23	**26**	<0.5	11	<1	<2	10.7	24	**27**
RMD-259	23-Aug-2017	<1	<1	<1	26	26	**25**	<0.5	11	<1	<2	7.3	19	**25**
RMD-259	29-Nov-2017	<1	<1	<1	28	29	**25**	<0.5	11	<1	<2	13.8	27	**22**
RMD-259	15-Feb-2018	<1	<1	<1	22	23	**25**	<0.5	9	<1	<2	9.7	21	**23**
RMD-251	30-May-18	<1	<1	<1	22	22	22	<0.5	4	<1	<2	3.5	9.1	15
RMD-251	8-Aug-18	<1	<1	<1	16	16	21	<0.5	6	<1	<2	4.8	11.7	14
RMD-258	6-Mar-17	<1	<1	<1	18	20		<0.5	7	<1	<2	10.5	19	
RMD-258	15-May-17	<1	<1	<1	17	18		<0.5	11	<1	<2	11.1	24.3	
RMD-258	23-Aug-17	<1	<1	<1	25	25		<0.5	11	<1	<2	7.7	19.7	
RMD-258	29-Nov-17	<1	<1	<1	25	25	22	<0.5	11	<1	<2	9.7	22	21
RMD-258	15-Feb-18	<1	<1	<1	22	23	23	<0.5	9	<1	<2	10.8	22.6	22

Sample	Date Sampled	THM (ppb)						HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average (Guideline Limit 100 ppb)	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average (Guideline Limit 80 ppb)
RMD-250	31-Aug-2016	1	<1	<1	21	24		<0.5	9	<1	4	7.3	21	
RMD-250	19-Oct-2016	<1	<1	<1	24	26		<0.5	9	<1	5	12.7	27	
RMD-250	6-Mar-2017	<1	<1	<1	17	19		<0.5	7	<1	<2	9.7	18	
RMD-250	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	11.6	24	**22**
RMD-250	23-Aug-2017	<1	<1	<1	21	21	**22**	<0.5	9	<1	<2	6.5	17	**21**
RMD-250	29-Nov-2017	<1	<1	<1	24	25	**22**	<0.5	10	<1	<2	10.6	21	**20**
RMD-250	15-Feb-2018	<1	<1	<1	20	21	**22**	<0.5	8	<1	<2	8.7	18	**20**
RMD-251	31-Aug-2016	1	<1	<1	26	28		<0.5	9	<1	3	7	20	
RMD-251	19-Oct-2016	<1	<1	<1	23	25		<0.5	9	<1	6	10.9	26	
RMD-251	6-Mar-2017	<1	<1	<1	17	18		<0.5	7	<1	<2	10.7	20	
RMD-251	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	10.8	23	**22**
RMD-251	23-Aug-2017	<1	<1	<1	21	21	**21**	<0.5	10	<1	<2	5.9	16	**21**
RMD-251	29-Nov-2017	<1	<1	<1	25	26	**22**	<0.5	8	<1	<2	5.7	15	**18**
RMD-251	15-Feb-2018	<1	<1	<1	19	20	**22**	<0.5	8	<1	<2	8.3	19	**18**
RMD-258	31-Aug-2016	1	<1	<1	26	28		<0.5	10	<1	4	7.9	23	
RMD-258	19-Oct-2016	1	<1	<1	24	26		<0.5	11	<1	7	17	36	
RMD-258	6-Mar-2017	<1	<1	<1	18	20		<0.5	7	<1	<2	10.5	19	
RMD-258	15-May-2017	<1	<1	<1	17	18	**23**	<0.5	11	<1	<2	11.1	24	**25**
RMD-258	23-Aug-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	7.7	20	**25**
	29-Nov-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	9.7	22	**21**
RMD-258	15-Feb-2018	<1	<1	<1	22	23	**23**	<0.5	9	<1	<2	10.8	23	**22**
RMD-259	31-Aug-2016	2	<1	<1	29	32		<0.5	12	<1	5	10.1	28	
RMD-259	19-Oct-2016	1	<1	<1	27	29		<0.5	12	<1	7	17.2	36	
RMD-259	6-Mar-2017	<1	<1	<1	18	20		<0.5	8	<1	<2	10.5	20	
RMD-259	15-May-2017	<1	<1	<1	21	23	**26**	<0.5	11	<1	<2	10.7	24	**27**
RMD-259	23-Aug-2017	<1	<1	<1	26	26	**25**	<0.5	11	<1	<2	7.3	19	**25**
RMD-259	29-Nov-2017	<1	<1	<1	28	29	**25**	<0.5	11	<1	<2	13.8	27	**22**
RMD-259	15-Feb-2018	<1	<1	<1	22	23	**25**	<0.5	9	<1	<2	9.7	21	**23**
RMD-258	30-May-18	<1	<1	<1	22	22	24	<0.5	7	<1	<2	5.5	14.9	20
RMD-258	8-Aug-18	<1	<1	<1	22	22	23	<0.5	8	<1	<2	6.7	15.8	19
RMD-259	6-Mar-17	<1	<1	<1	18	20		<0.5	8	<1	<2	10.5	19.8	
RMD-259	15-May-17	<1	<1	<1	21	23		<0.5	11	<1	<2	10.7	23.8	
RMD-259	23-Aug-17	<1	<1	<1	26	26		<0.5	11	<1	<2	7.3	18.9	
RMD-259	29-Nov-17	<1	<1	<1	28	29	25	<0.5	11	<1	<2	13.8	26.7	22
RMD-259	15-Feb-18	<1	<1	<1	22	23	25	<0.5	9	<1	<2	9.7	20.6	23

Sample	Date Sampled	THM (ppb)						HAA (ppb)						
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Total THM Quarterly Average (Guideline Limit 100 ppb)	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	Total HAA Quarterly Average (Guideline Limit 80 ppb)
RMD-250	31-Aug-2016	1	<1	<1	21	24		<0.5	9	<1	4	7.3	21	
RMD-250	19-Oct-2016	<1	<1	<1	24	26		<0.5	9	<1	5	12.7	27	
RMD-250	6-Mar-2017	<1	<1	<1	17	19		<0.5	7	<1	<2	9.7	18	
RMD-250	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	11.6	24	**22**
RMD-250	23-Aug-2017	<1	<1	<1	21	21	**22**	<0.5	9	<1	<2	6.5	17	**21**
RMD-250	29-Nov-2017	<1	<1	<1	24	25	**22**	<0.5	10	<1	<2	10.6	21	**20**
RMD-250	15-Feb-2018	<1	<1	<1	20	21	**22**	<0.5	8	<1	<2	8.7	18	**20**
RMD-251	31-Aug-2016	1	<1	<1	26	28		<0.5	9	<1	3	7	20	
RMD-251	19-Oct-2016	<1	<1	<1	23	25		<0.5	9	<1	6	10.9	26	
RMD-251	6-Mar-2017	<1	<1	<1	17	18		<0.5	7	<1	<2	10.7	20	
RMD-251	15-May-2017	<1	<1	<1	19	21	**23**	<0.5	10	<1	<2	10.8	23	**22**
RMD-251	23-Aug-2017	<1	<1	<1	21	21	**21**	<0.5	10	<1	<2	5.9	16	**21**
RMD-251	29-Nov-2017	<1	<1	<1	25	26	**22**	<0.5	8	<1	<2	5.7	15	**18**
RMD-251	15-Feb-2018	<1	<1	<1	19	20	**22**	<0.5	8	<1	<2	8.3	19	**18**
RMD-258	31-Aug-2016	1	<1	<1	26	28		<0.5	10	<1	4	7.9	23	
RMD-258	19-Oct-2016	1	<1	<1	24	26		<0.5	11	<1	7	17	36	
RMD-258	6-Mar-2017	<1	<1	<1	18	20		<0.5	7	<1	<2	10.5	19	
RMD-258	15-May-2017	<1	<1	<1	17	18	**23**	<0.5	11	<1	<2	11.1	24	**25**
RMD-258	23-Aug-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	7.7	20	**25**
	29-Nov-2017	<1	<1	<1	25	25	**22**	<0.5	11	<1	<2	9.7	22	**21**
RMD-258	15-Feb-2018	<1	<1	<1	22	23	**23**	<0.5	9	<1	<2	10.8	23	**22**
RMD-259	31-Aug-2016	2	<1	<1	29	32		<0.5	12	<1	5	10.1	28	
RMD-259	19-Oct-2016	1	<1	**<1**	27	29		<0.5	12	<1	7	17.2	36	
RMD-259	6-Mar-2017	<1	<1	<1	18	20		<0.5	8	<1	<2	10.5	20	
RMD-259	15-May-2017	<1	<1	<1	21	23	**26**	<0.5	11	<1	<2	10.7	24	**27**
RMD-259	23-Aug-2017	<1	<1	<1	26	26	**25**	<0.5	11	<1	<2	7.3	19	**25**
RMD-259	29-Nov-2017	<1	<1	<1	28	29	**25**	<0.5	**11**	<1	<2	13.8	27	**22**
RMD-259	15-Feb-2018	**<1**	<1	<1	22	23	**25**	<0.5	9	<1	<2	9.7	21	**23**
RMD-259	30-May-18	<1	<1	<1	25	25	26	<0.5	8	<1	<2	7.4	18	21
RMD-259	8-Aug-18	<1	<1	<1	24	25	26	<0.5	9	<1	<2	7.7	19.2	21

Sample	Sample Reported Name	Date Sampled	THM (ppb)					HAA (ppb)						Extras
			Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Dibromoacetic Acid	Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid	pH units pH
RMD-250	6071 Azure Rd.	15-Feb-2018	<1	<1	<1	20	21	<0.5	8	<1	<2	8.7	18.4	
RMD-251	5951McCallan Rd.	15-Feb-2018	<1	<1	<1	19	20	<0.5	8	<1	<2	8.3	18.8	
RMD-258	7000 Blk. Dyke Rd.	15-Feb-2018	<1	<1	<1	22	23	<0.5	9	<1	<2	10.8	22.6	
RMD-259	10020 Amethyst Ave.	15-Feb-2018	<1	<1	<1	22	23	<0.5	9	<1	<2	9.7	20.6	7.3
RMD-250	6071 Azure Rd.	2018-05-30 16:00	<1	<1	<1	22	22	<0.5	7	<1	<2	5.6	14.3	
RMD-251	5951McCallan Rd.	2018-05-30 16:15	<1	<1	<1	22	22	<0.5	4	<1	<2	3.5	9.1	
RMD-258	7000 Blk. Dyke Rd.	2018-05-30 03:30	<1	<1	<1	22	22	<0.5	7	<1	<2	5.5	14.9	
RMD-259	10020 Amethyst Ave.	2018-05-30 14:40	<1	<1	<1	25	25	<0.5	8	<1	<2	7.4	18	7.5
RMD-250	6071 Azure Rd.	2018-08-08 16:00	<1	<1	<1	18	**18**	<0.5	6	<1	<2	5.2	**12.2**	
RMD-251	5951McCallan Rd.	2018-08-08 16:15	<1	<1	<1	16	**16**	<0.5	6	<1	<2	4.8	**11.7**	
RMD-258	7000 Blk. Dyke Rd.	2018-08-08 15:30	<1	<1	<1	22	**22**	<0.5	8	<1	<2	6.7	**15.8**	
RMD-259	10020 Amethyst Ave.	2018-08-08 14:40	<1	<1	<1	24	**25**	<0.5	9	<1	<2	7.7	**19.2**	7.5

APPENDIX 5: 2018 HEAVY METAL AND VINYL CHLORIDE TESTING RESULTS

Metal		RMD-250	RMD-257	RMD-263
	Sample Description	6071 Azure Rd.	6640 Blundell Rd.	12560 Cambie Rd.
	Sample Date	2018/06/13 15:40	2018/06/13 15:50	2018/06/13 12:30
	Sample Type	GRAB	GRAB	GRAB
Aluminum Total	µg/L	25	26	26
Antimony Total	µg/L	<0.5	<0.5	<0.5
Arsenic Total	µg/L	<0.5	<0.5	<0.5
Barium Total	µg/L	2.5	2.6	2.5
Boron Total	µg/L	<10	<10	<10
Cadmium Total	µg/L	<0.2	<0.2	<0.2
Calcium Total	µg/L	4570	4700	4670
Chromium Total	µg/L	<0.05	<0.05	<0.05
Cobalt Total	µg/L	<0.5	<0.5	<0.5
Copper Total	µg/L	2.8	4.4	1.3
Iron Total	µg/L	<5	<5	<5
Lead Total	µg/L	0.5	<0.5	<0.5
Magnesium Total	µg/L	147	150	150
Manganese Total	µg/L	1.8	2.0	2.1
Mercury Total	µg/L	<0.05	<0.05	<0.05
Molybdenum Total	µg/L	<0.5	<0.5	<0.5
Nickel Total	µg/L	<0.5	<0.5	<0.5
Potassium Total	µg/L	132	136	136
Selenium Total	µg/L	<0.5	<0.5	<0.5
Silver Total	µg/L	<0.5	<0.5	<0.5
Sodium Total	µg/L	1400	1470	1450
Zinc Total	µg/L	<3.0	3.3	<3.0

Vinyl Chloride Testing Results

Sample Site Number	Sample Reported Name	Sampled date	Vinyl Chloride (mg/L)
RMD-205	13851 Steveston Hwy.	21-Jun-18	<0.00040
RMD-206	4251 Moncton St.	21-Jun-18	<0.00040
RMD-253	11051 No 3 Rd.	21-Jun-18	<0.00040
RMD-256	1000 Blk. McDonald Rd.	21-Jun-18	<0.00040
RMD-263	12560 Cambie Rd.	21-Jun-18	<0.00040
RMD-205	13851 Steveston Hwy.	26-Nov-18	<0.00040
RMD-206	4251 Moncton St.	26-Nov-18	<0.00040
RMD-253	11051 No 3 Rd.	26-Nov-18	<0.00040
RMD-256	1000 Blk. McDonald Rd.	26-Nov-18	<0.00040
RMD-263	12560 Cambie Rd.	26-Nov-18	<0.00040

Metal Limits

Parameter	Canadian Guideline Limit	Reason Guideline Established
Aluminium Total (µg/L)	200	Aesthetic
Antimony Total (µg/L)	6	Health
Arsenic Total (µg/L)	10	Health
Barium Total (µg/L)	1000	Health
Boron Total (µg/L)	5000	Health
Cadmium Total (µg/L)	5	Health
Calcium Total (µg/L)	none	
Chromium Total (µg/L)	50	Health
Cobalt Total (µg/L)	none	
Copper Total (µg/L)	≤1000	Aesthetic
Iron Total (µg/L)	≤ 300	Aesthetic
Lead Total (µg/L)	10	Health
Magnesium Total (µg/L)	none	
Manganese Total (µg/L)	≤ 50	Aesthetic
Mercury Total (µg/L)	1.0	Health
Molybdenum Total (µg/L)	none	
Nickel Total (µg/L)	none	
Potassium Total (µg/L)	none	
Selenium Total (µg/L)	50	Health
Silver Total (µg/L)	none	
Sodium Total (µg/L)	≤ 200,000	Aesthetic
Zinc Total (µg/L)	≤ 5000	Aesthetic

*Checked January 2018

APPENDIX 6: SAMPLE DRINKING WATER QUALITY ADVISORY

CITY OF RICHMOND ANNUAL WATERMAIN FLUSHING NOTIFICATION

On Monday, February 20, the Water Services section will begin the annual watermain flushing program. To minimize disruptions, this work will be conducted from Monday to Thursday, 8:00 p.m. to 6:30 a.m. The program will continue for up to six weeks.

Flushing watermains is required to maintain water quality. Your water will not be turned off; however, during this time you may experience water pressure fluctuation or discolouration. This is not a health concern and should only last for a short time. It is recommended that you run the cold water until the discolouration clears.

If you have any questions, please contact 604-270-8721. For more information on Richmond's high-quality tap water and other water education programs, visit: **www.richmond.ca/water**.

APPENDIX 7: SPECIFIC EMERGENCY RESPONSE PLANS

Positive Response for Fecal or E. Coli

If a water sample tests positive for fecal coliform, the following response plan will occur:

- the municipality's water quality personnel and the Medical Health Officer will be notified by the Metro Vancouver laboratory;
- interim samples from the site will be examined. Interim samples are samples in the period between when the fecal positive sample was taken, and when it was determined to be fecal positive;
- arrangements will be made for the immediate collection of a repeat sample including, where possible, samples from upstream and downstream of the fecal positive sample;
- the chlorine residual for the sample noted on the sampler's Water Sample Data Sheet will be reviewed to determine if a localized loss of disinfectant occurred;
- all water utility personnel will be contacted to determine if there was any loss of pressure, or other unusual events, that may have led to contaminants entering the system;
- the need for a boil-water advisory will be evaluated by the City and the Medical Health Officer. If a boil-water advisory is deemed necessary, the municipality will carry out various means to inform the public. Metro Vancouver will be informed of this public advisory;
- the City, in consultation with the Medical Health Officer, will determine the need and extent for a boil-water advisory;
- the Metro Vancouver laboratory will initiate procedures to identify species of the fecal positive organism with standard biochemical tests;
- the Medical Health Officer will be contacted with the repeat sample results and the results of the species identification on the fecal positive sample when these tests are complete.

In the event of possible E. Coli or fecal coliform contamination, all steps to ensure public health and safety will be taken including banning water usage if necessary.

Chemical or Biological Contamination Response

In the event of chemical or biological contamination, in source waters or the City's distribution system, the following actions will be taken by both, the City of Richmond and Metro Vancouver:

- immediately notify Vancouver Coastal Health;
- identify the chemical and any public health risk factors associated with its presence in potable water;
- isolate the contaminated zone area and determine the level of contamination;
- issue a public advisory in consultation with the Medical Health Officer.

In the event of possible biological or chemical contamination, all steps to safety will be taken to ensure public health including banning water usage if necessary.

Turbidity Response

Turbidity (cloudy water) occurs during periods of heavy rain at and surrounding Metro Vancouver water sources. The City of Richmond, in conjunction with Vancouver Coastal Health, has developed a turbidity response plan, which considers the City's responsibility for due diligence without unreasonably constraining the water utility's ability to operate the system.

During turbidity events of >1 NTU the staff will:

- begin a rigorous sampling program for microbiological activity and residual chlorine;
- monitor the City's supervisory control and data acquisition (SCADA) system with updates sent to Vancouver Coastal Health on a predetermined schedule;
- issue a public communication in consultation with the regional Health Authority;
- if necessary, issue a boil-water advisory to residents receiving turbid water.

Response to Interruption of Primary and/or Secondary Disinfection

Upon notification by Metro Vancouver Operations that an interruption in disinfection has occurred:

- staff will monitor residual levels of chlorine at strategic locations in the Metro Vancouver supply area;
- the City's SCADA system will be monitored with updates sent to Vancouver Coastal Health on a predetermined schedule, as set by the health authority;
- in cases where chlorine residual is less than 0.2 ppm, City crews will flush the affected area until an acceptable level is achieved;
- these actions will continue until disinfection is resumed and adequate levels of residual chlorine have been reached in the distribution system.

Response to Loss of Pressure Due to High Demand

In the event of a pressure loss due to high demand:

- City staff will attempt to rectify the problem as soon as possible using various demands management techniques and by supplementing supply to problem areas;
- Metro Vancouver and the Medical Health Officer will be notified of any water quality issues;
- City staff will perform chlorine residual tests at various locations to determine if adequate disinfectant is present in the distribution;
- all water quality complaints from the public will be thoroughly investigated due to the potential for water contamination during low water pressure.

Response to Watermain Breaks with Suspected Contamination

All watermain breaks where chemical or microbiological contamination of the system is suspected will be immediately reported to the Medical Health Officer. The municipality will isolate the contaminated section from the rest of the distribution system. Once the watermain has been repaired, chlorine residual testing will be conducted at various locations affected by the main break. If low chlorine residuals are found, necessary actions to increase the levels of free chlorine will be carried out. If bacterial contamination is suspected, water samples will be analyzed and appropriate action taken.

City of Richmond
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City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	May 17, 2019
From:	Milton Chan, P.Eng. Acting Director, Engineering	**File:**	10-6060-04-01/2019-Vol 01
Re:	**Flood Protection Management Strategy 2019 – Final Report**		

Staff Recommendation

That the "Flood Protection Management Strategy 2019" attached to the staff report titled, "Flood Protection Management Strategy 2019 – Final Report", dated May 17, 2019 from the Acting Director, Engineering, be endorsed.

Milton Chan, P.Eng.
Acting Director, Engineering
(604-276-4377)

Att. 1

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Real Estate Services	☑	
Parks Services	☑	
Roads & Construction	☑	
Sewerage & Drainage	☑	
Development Applications	☑	
Policy Planning	☑	
Transportation	☑	
Emergency Programs	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** CJ	**APPROVED BY CAO**

Staff Report

Origin

The 2008 – 2031 Richmond Flood Protection Strategy (2008 Strategy) is the City's guiding framework for continual upgrades and improvement to the City's flood protection system. Since Council's endorsement of the 2008 Strategy, staff have implemented flood protection updates in policy, partnered with the Provincial and Federal government to secure funding, completed Dike Master Plans in anticipation of climate change-induced sea level rise, and constructed drainage and dike upgrades in priority locations.

Staff have developed the Flood Protection Management Strategy 2019 (Strategy) to update the 2008 Strategy with new information on flood hazard management in the City.

At the Regular Council Meeting on March 26, 2019, Council adopted the following motion:

> *"That the public and key stakeholders be engaged as identified in the staff report titled "Flood Protection Management Strategy 2019 – Public and Stakeholder Engagement" from the Director, Engineering, dated February 21, 2019."*

This report summarizes the results of the public and key stakeholder engagement.

Analysis

Richmond is recognized as a leading dike authority in British Columbia. A key component of the City's successful Flood Protection Program is the Flood Protection Management Strategy which provides high-level guidance for flood risk management in the City. As sea level rise science evolves and the population and economic investment in Richmond continue to increase, the City's priorities and management of flood risk need to be reviewed to incorporate best practices and current science.

The Strategy includes an Implementation Program that outlines short and long -term strategies for policy planning, infrastructure upgrades, and other areas related to flood risk mitigation. The recommended actions are summarized in Table 1 below:

Table 1. Summary of Implementation Program

Category	Action
Program Management – the overall management of the flood protection program	• Ensure that the flood protection program is supported with technical investigations, environmental monitoring, funding, and staffing • Recognize habitat impact and enhancement opportunities with nature-based solutions
Structural Flood Protection – area-specific upgrades to flood protection infrastructure	• Complete dike master planning, establish a world-class flood protection standard and continue to upgrade the perimeter dike • Adopt a seismic dike design standard that is suitable

	for Richmond and accepted by the Province • Research and implement secondary dikes where opportunistic • Review, rehabilitate, and upgrade the City's internal drainage system
Policy and Non-Structural Flood Protection – plans, legislation, and bylaws including the Official Community Plan 2041, *Local Government Act*, and Floodplain Designation and Protection Bylaw No. 8204	• Update policies with current strategies and flood protection science • Manage the dike corridor to prioritize long-term flood protection with area-specific strategies • Update the dike operations and maintenance manual with dike master plans and best practices
Emergency Preparedness – flood response planning and preparedness through the Emergency Management Office and interagency partnerships	• Continue with an integrated emergency management planning approach both internally and with partner agencies • Work with transportation authorities to upgrade post-disaster routes for emergency evacuation • Update plans for emergency flood response and recovery

A complete list of the recommended actions are located in the attached report under Part 2: The Implementation Program.

Public Engagement

In April 2019, the Strategy was presented to the public through two open houses, an information session at the Dyke Trail Dog Park, and the Capital Projects Open House. These public sessions engaged over 100 residents, and over 500 people visited the "LetsTalkRichmond.ca" web page.

Based on feedback, the public indicated:

- Strong support for raising the perimeter dike and accelerating work on flood protection system components such as drainage pump stations and stormwater canals;
- Strong support to continue funding relationships with senior government and other sources to advance flood protection;
- Support for increasing the diking and drainage utility funding to accelerate investment in flood protection;
- Support for further research into sustainable flood protection solutions;
- Support for advancing flood protection through superdike developments and land raising;
- Requests for more interactive maps, figures, and summaries related to flood protection for public access, visuals to highlight current and future levels of protection in the City, construction timelines, and cost;

- Requests for more public information related to flood protection including environmental impacts from land raising and soil fill placement, development contributions, and stormwater management;

- Requests to review funding levels and prioritization for flood protection; and

- Request for more public information related to City efforts to reduce climate change impacts, the City's resilience to rising temperatures, and seismic activity.

Where appropriate, comments and suggestions were incorporated into the Strategy to improve usability and provide clarifications. This feedback informs next steps for stakeholder communication and flood protection planning in the City.

Key External Stakeholder Engagement

The following key external stakeholders were engaged:

- Agricultural Advisory Committee (AAC)
- CN Rail
- Environment Canada
- Port of Vancouver
- Department of Fisheries and Oceans
- BC Inspector of Dikes
- Advisory Committee on the Environment (ACE)
- Urban Development Institute (UDI)
- Lafarge
- BC Ferries
- Ministry of Transportation and Infrastructure
- Ministry of Forests, Lands, Natural Resource Operations and Rural Development (MFLNRORD)
- City of New Westminster
- Crown Packaging
- Canadian Fishing Company
- Finn Slough Heritage & Wetland Society
- Mitchell Island Businesses
- Vancouver Airport Authority
- Milltown Marina
- TransLink
- City of Vancouver
- Sea Island Community Association

Stakeholders that returned comments were generally supportive of the findings and overall approach in the Strategy. Stakeholders indicated:

- Suggestions for a summary of the Dike Master Plans and Floodplain Designation and Protection Bylaw No. 8204 to be included in the Strategy;

- Suggestions for additional detail in the regional engagement and relationships section of the report; and
- Support and additional resources for consultation related to flood protection planning and projects.

Key stakeholder input was incorporated into the Strategy where appropriate and informs future interagency engagement.

Next Steps

Staff will have ongoing engagement with key stakeholders and the public on climate change, flood protection, and area-specific considerations through the use of social media, open houses, presentations, and other platforms. In addition, key actions from the Strategy's Implementation Program will be advanced to improve the City's overall resilience to flooding.

Financial Impact

None.

Project costs will be presented for Council consideration as individual initiatives and programs through the annual budgeting process.

Conclusion

The Flood Protection Management Strategy, which is the City's guiding framework for continual upgrades and improvement to the City's flood protection system, has been updated to reflect new information on sea level rise and flood hazard management in the City. Public and key stakeholder engagement has been completed and feedback has been incorporated into the Strategy where appropriate.

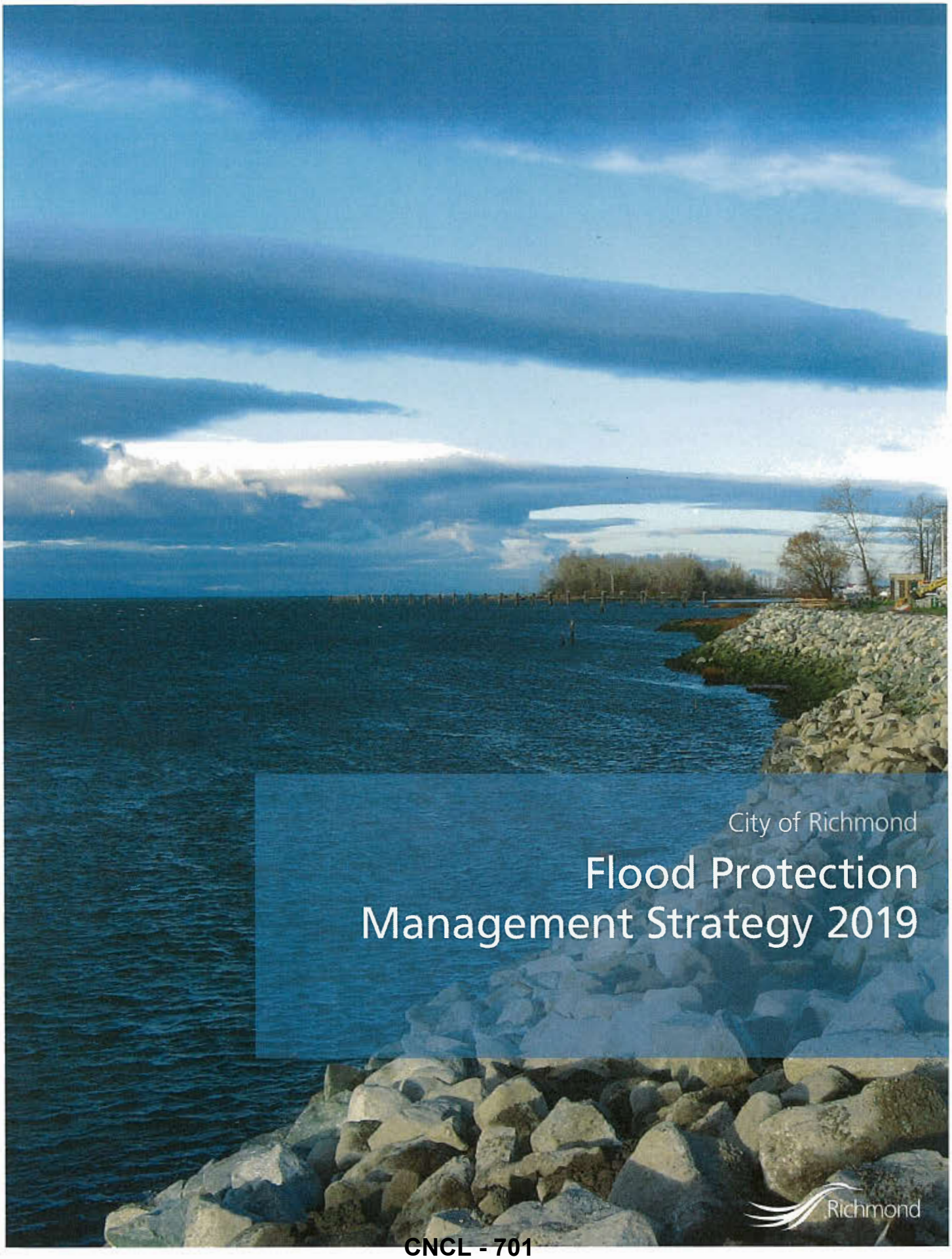
Staff recommend that the Flood Protection Management Strategy 2019 be used as the primary guidance document for flood protection management in the City, replacing the 2008 Strategy.

Jason Ho, P.Eng.
Manager, Engineering Planning
(604-244-1281)

Christopher Chan, EIT
Project Manager, Engineering Planning
(604-204-8516)

JH:cc

Att. 1: Flood Protection Management Strategy 2019



City of Richmond

Flood Protection Management Strategy 2019

Richmond

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Preface

The 2008–2031 Flood Protection Strategy (2008 Strategy) is a high-level guidance document for the management of flood risk in the City of Richmond. Since Council's endorsement of the 2008 Strategy, Staff have implemented flood protection updates in policy, partnered with the Provincial and Federal government to secure funding, completed Dike Master Plans, and constructed drainage and dike upgrades in priority locations.

The Flood Protection Management Strategy 2019 (Strategy) updates the 2008 Strategy with current science and provides the next steps to establish a world-class flood protection system for the City of Richmond.

The proposed Implementation Program objectives from the 2008 Strategy have been substantially achieved as shown below:

Table 1: 2008–2031 Flood Protection Strategy Implementation Program – Planning Actions

Actions	Results
Examine and pursue senior government cost sharing to implement the Flood Protection Strategy (Engineering; Public Works; Finance).	Successfully secured over $30 million in senior government grants for implementation of the Flood Protection Strategy. ***Completed***
Collaborate among City Engineering, Building Approvals, Policy Planning [PPD], Development Applications, Facilities Divisions to develop a phased plan for overall land grade increases (Engineering; Planning).	Adopted Bylaw No. 8204 to establish Flood Construction Levels (FCLs) for flood protection. Waterfront developments are encouraged to build superdikes. ***Completed***
Pursue and plan for appropriate grade changes in City area plans (e.g. City Centre Area Plan update) (PPD).	The City Centre plans are captured in the 2041 Official Community Plan (OCP). ***Completed***
Consult at timely intervals with experts (e.g., MoE, Canadian Hydrographic Service, FBC) and monitor the latest long-range ocean/ climate change forecasts and science for their implications (Engineering).	The most applicable and current references have been used to complete the Flood Protection Management Strategy 2019. ***Completed***
Improve the City's ability to obtain data and undertake direct measurements (e.g., monitoring local sea level changes through City operated gauging stations (Engineering; Public Works).	Staff use a combination of river level, internal drainage water level, and rain gauges to control and monitor flood risk in the City. ***Completed***
Establish a protocol for obtaining dike rights of way for Mitchell Island (Engineering).	Dike rights of way are negotiated through the rezoning and development application process. ***Completed***

The City of Richmond has pursued and been awarded over $30 million in grant funding from senior government to implement the 2008 Strategy. Using this funding the City has completed Dike Master Plans, rehabilitated pump stations, and increased the City's overall resilience to flooding.

City crews continually maintain and upgrade the City's diking infrastructure. The Dike Master Plans Phases 1 to 5, anticipated for completion in 2019, specify upgrade requirements for Richmond's dikes according to current climate change science.

Actions	Results
Work with Department of Fisheries and Oceans (DFO) on a plan for widening the perimeter dikes—inside and outside existing dikes, addressing related mitigation and compensation requirements (Engineering).	Staff work with the DFO on all diking projects that may impact habitat or are in close proximity to water; draft Dike Master Plans have been shared with the DFO with no further comments at this point. ***Completed***
Work with external agencies (such as the Agricultural Land Commission) to develop a protocol that will allow for these changes in use through rezoning, development permits, etc. (PPD).	Diking rights of way, land raising, and other diking requirements are currently established through the development and rezoning permit process that engages agencies. ***Completed***
Prepare plans and policies (e.g., OCP, area plans) to support increased density adjacent to dikes but require grade increases and contributions to dike improvements. Retain dike rights of ways and access (PPD, Real Estate).	The 2041 OCP, Bylaw No. 8204, and Dike Master Plans guide floodplain management and dike upgrades; contributions to dike improvements are established through the development or rezoning process. ***Completed***
Ensure that emergency facilities and refuge areas are located in areas not subject to flooding (Engineering; Emergency & Environmental Programs; PPD, Dev Apps).	Emergency facilities are strategically located and built to the required Flood Construction Levels per Richmond Bylaw No. 8204. ***Completed***
Review implementation plans for refuge areas, emergency routes, and create public awareness (Engineering; Emergency & Environmental Programs)	As most of Richmond is a designated flood plain, emergency routes generally lead to raised refuge areas such as Area A in Bylaw No. 8204. ***Completed***
Review this Strategy approximately every five (5) years to ensure that new information is reflected (All).	Review of the 2008–2031 Flood Protection Strategy has been completed. ***Completed***
Develop on-going public evacuation and communication programs (Engineering; Emergency & Environmental Programs).	Richmond BC Alert, an emergency notification system, launched in 2015 is an ongoing campaign for communication and public involvement. ***Completed***
Direct staff to update the City's Flood Response Plan as part of the overall Emergency Response Plan (updated on basis of new modeling and technical information) (Engineering; Emergency & Environmental Programs).	The Flood Management Plan was updated in 2010. The Emergency Management Plan is scheduled for review in 2019. ***Completed***
Remove and relocate or replace toe ditches adjacent to dikes (Engineering).	Plans are in place through Dike Master Plans to remove or relocate toe ditches; strategies will be project specific. ***Completed***

Actions	Results
Encourage the City of New Westminster to harmonize their flood protection levels with Richmond's strategy (Engineering).	Engineering departments are working together to unify flood protection objectives; established partnership agreement for Boundary Road pump station. ***Completed***
Work with VIAA (YVR) to clarify jurisdiction, maintenance standards and improvement programs for the Sea Island dikes (Engineering).	YVR is involved as a stakeholder for Dike Master Plan Phase 5 planning. ***Completed***

All bylaw-related actions have been completed and are shown in Table 2.

Table 2: 2008–2031 Flood Protection Strategy Implementation Program – Bylaws Actions

Actions	Results
Rescind Floodplain Management Implementation Strategy Policy 7000 (PPD).	Policy 7000 has been replaced by Bylaw No. 8204, as recommended by the City's 2006–2031 Flood Protection Management Strategy. ***Completed***
Prepare a Floodplain Bylaw including the new FCLs and the requirement for covenants/ indemnity (Estimated cost–$7,500 for legal input) (Engineering; PPD; Law).	Adopted Bylaw No. 8204 to establish building setback, FCLs and exemption areas. ***Completed***
Adopt other mechanisms and techniques (All).	Development to follow BC Dike Design Guidelines; Zoning Bylaw No. 8500 for developer and builder reference. ***Completed***
Ensure issues of flood protection, grade levels, as well as refuge areas are considered in the development of local area plans (planning; engineering; Emergency & Environmental Programs).	Staff have integrated processes that use software (Amanda) or document review (department concurrences) to provide input on development. ***Completed***

Flood Plain Designation and Protection Bylaw No. 8204 was adopted by Council in 2008 to guide development setback, Flood Construction Levels (FCL), and exemption areas.

All diking actions and their current status from the 2008–2031 Flood Protection Strategy are listed in Table 3.

Table 3: 2008–2031 Flood Protection Strategy Implementation Program – Diking Actions

Actions	Results
Establish protocol for obtaining dike rights of way for Mitchell Island (Engineering, Law).	Dike rights of way are established through the rezoning and development permit process. ***Completed***
Seek direction from Province on new acceptable probability criteria that will address sea level rise and climate related extremes for the next 100 years • (Current city standard is 1:200 for sea level event, and the 1894 discharge of the Fraser River plus freeboard as per provincial standards, versus 1:1250 conditionally recommended by UMA). • (Potential additional sea level/ subsidence study cost estimate—$5,000) (Engineering).	The City of Richmond is currently in the process of adopting revised BC Dike Design guidelines for 1:500 tidal and river flood events with 0.6m freeboard plus 1m sea level rise and 0.2m subsidence to the year 2100. ***Completed***
Review dike maintenance programs at ongoing 3 to 5 year intervals (Engineering; Public Works).	Staff review the dike maintenance program on an annual basis. ***Completed***
Support sustainable funding for a federal (VFPA) river dredging program to maintain river profile (Engineering).	The Port of Vancouver is responsible for continuing the dredging program for the South Arm of the Fraser River. ***Completed***
Establish in City budget annual amount for land for access rights to waterfront and dike areas (All).	The City is constantly looking for opportunities to establish waterfront access with funding from Capital budgets. ***Completed***
Establish and maintain inventory of rights of way and access agreements to diking system (Engineering).	Rights of way and agreements are tracked in Amanda and Engineering's GIS. ***Completed***
Update existing procedural policy of comprehensive dike maintenance (Engineering, Public Works).	The City has a comprehensive dike maintenance program. The program is continually updated with best practices and research. ***Completed***
Prepare and implement a comprehensive perimeter dike improvement program (researching, strengthening and widening dikes to reduce the level of risk) (Engineering).	Richmond's perimeter diking program is established through the Dike Master Plans; upgrades are ongoing. ***Ongoing 80% Complete***

Actions	Results
Establish a program for phasing/ prioritizing perimeter dike improvement (e.g., seismically weak areas first, the mid-island barrier, overall perimeter dike improvements) (Engineering).	Priorities are established through the Dike Master Plans (Phases 1–5) which are anticipated for completion in 2019. ***Ongoing 80% Complete***

The actions and current statuses for the Mid-Island Dike are shown in Table 4 below. The Mid-Island Dike concept was studied (Delcan, 2009) and determined to provide a lower cost-benefit ratio when compared to upgrading the perimeter dike to a 10,000-year return period flood protection level. With this understanding, the Mid-Island Dike concept will be addressed after the perimeter dike has been fully upgraded or as opportunities to cost-share become available.

Table 4: 2008–2031 Flood Protection Strategy Implementation Program – Proposed Mid-Island Dike Actions

Actions	Results
Work with the BC MoT and others on a program to study, plan and cost share in the building of the Highway 99/Knight Street mid-island barrier (may require a Multiple Account Evaluation of interior barrier options—study cost estimate—$100,000) (Engineering).	The completed 2009 Mid-Island Dike study (Delcan) showed that raising the perimeter dikes would result in higher overall benefit for the cost; the current focus is to raise all perimeter dikes to a minimum of 4.7m above mean sea level. ***Completed***
Once Mid-Island Barrier technical details are finalized: • established a phased implementation program; and • seek senior government cost sharing.	The Mid-Island Dike concept will be re-evaluated once the perimeter dike has been raised. ***Ongoing***
Pursue development of the mid-island barrier along the Highway 99/Knight Street Corridor (Construction cost estimate—$16 million) (Engineering).	The Mid-Island Dike concept will be re-evaluated once the perimeter dike has been raised. ***Ongoing***

Notable projects and milestones from the Flood Protection Program are presented in a timeline format in Appendix 2.

While the 2008–2031 Richmond Flood Protection Strategy continues to provide a sound basis for the City's flood risk management program, an update is warranted to fully encompass new learnings, analysis, and re-emphasize the City's commitment to achieving world-class flood protection. The review and update of the 2008 Strategy has resulted in the Flood Protection Management Strategy 2019.

Part 1: The Flood Protection Management Strategy 2019

1.1 Purpose of Strategy

The purpose of the Flood Protection Management Strategy 2019 (Strategy) is to guide the ongoing development of world-class flood protection for Richmond that will:

- keep Richmond a safe place to live, work, and play;
- complement the Corporate Strategic Vision of making Richmond the most appealing, liveable, and well-managed community in Canada; and
- establish an integrated, sustainable Strategy which better:
  - enhances the City's ability to reduce flood risk, prevent flooding, increase flood protection, minimize flood damage, improve flood-proofing and responses to floods;
  - co-ordinates and manages dike integrity, land use, infrastructure, emergency response and sustainability;
  - defines partnerships, roles, responsibilities and cost sharing; and
  - address climate change implications specific to Richmond.

This report provides an update to the 2008–2031 Flood Protection Strategy which recommends periodic review to address current climate change science and flood mitigation guidelines.

1.2 Extent of Application

This Strategy applies to those areas within Richmond's municipal boundaries where the City has the legislative mandate and primary responsibility to address flood protection.

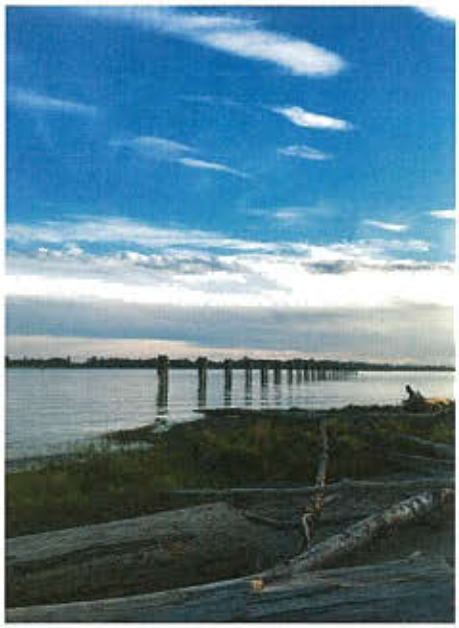
In locations where the City does not have the jurisdictional authority, such as the Port of Vancouver lands in Richmond, lands held or controlled by either the Federal or Provincial Governments (e.g., most of Sea Island), the City's Strategy encourages interagency cooperation to address mutual flood protection interests and benefits based on the Strategy principles and site circumstances.

Unless noted otherwise, all elevations in this report refer to the Canadian Geodetic Vertical Datum of 1928 (CGVD28). Should the newer CGVD2013 vertical datum be adopted, updating of the elevation references will be required at that time.

1.3 Principles

The Flood Protection Management Strategy 2019 is based on the following principles:

Principle	Emphasis
Safety	Richmond is an island city located between the Fraser River and the Strait of Georgia. The City's residents, businesses and infrastructure are to be safeguarded from flood hazards with a range of methods including an appropriate: • level of flood protection; • emergency response preparedness; and • flood recovery plans and programs.
Proactive Prevention	The City will proactively continue its efforts to: • research, plan, design, and implement a world-class flood protection program.
Risk Avoidance	The City will continue to minimize the risks and potential damage associated with flooding.
Sustainability	Flood prevention approaches are to be: • socially, economically, environmentally sustainable; and • able to achieve the City's long term planning, growth and development objectives.
Coordinated Partnerships	The City will coordinate its Strategy in partnership with senior governments, regional agencies, other municipalities, NGOs, emergency service agencies and the private sector.
Research	The City will continue its flood protection research with others to: • take advantage of the latest science, best practices, innovative solutions, and cost sharing; and • improve its understanding of flood risks and management.
Integrated Flood Planning	The City will prepare and update a range of flood protection documents including this Flood Protection Management Strategy 2019, Dike Master Plans, a Floodplain Bylaw, flood infrastructure plans, flood preparedness plans, emergency response plans, flood recovery plans, the Integrated Rainwater Resource Management Strategy (IRRMS), and other plans, as necessary.
Adaptation	The Strategy is the City's primary response to adapt to the projected impacts of Climate Change on flood risks. Mitigation of Climate Change is addressed through the City's Community Energy and Emissions Plan (CEEP) and other strategies.



Principle	Emphasis
Standards	The City will establish and follow a variety of flood protection standards including: *Provincial Standards:* • Updated guidelines recommend planning for 1m of sea level rise to year 2100 and for 2m of sea level rise by 2200. • Provincial Dike Design Standards. • The Climate Change Adaptation Guidelines for Sea Dikes and Coastal Flood Hazard Land Use (2011) and Provincial Flood Hazard Area Land Use Management Guidelines (amended 2018). • Other, as necessary. *City Standards:* • Flood Construction Levels (FCL) standards for buildings and structures. • Flood proofing standards. • Alternate requirements for authorized exemptions to basic standards. • Other, as necessary.
Flood Protection System	The City will provide an integrated physical flood protection system which includes: • a Perimeter Dike as the primary system of defence; • long-term raising of land levels above the floodplain, strategically and economically, through policy and by specifying FCLs for new construction; • infrastructure (e.g. drainage system and pump stations), • floodproofing buildings and structures; • maintenance programs—cleaning of infrastructure and upkeep of dikes; • stormwater retention/detention—best practices and implementation; • dredging (a Port of Vancouver responsibility); and • other, as necessary.
Incremental Solutions	The City will implement the Strategy incrementally, as cost effective solutions are identified.
Cost Effectiveness	The City: • will implement the Strategy in a cost effective manner, appropriate to existing and planned growth and development; and • recognizes that such costs are part of growth and development.
Cost Sharing	The City will actively solicit partnerships with other levels of government, NGOs and the private sector, to share the benefits and costs of implementing the Strategy. Senior government funding is the historic primary source of funding for flood protection in the Province and is critical for successful implementation going forward.

1.4 Legislative Framework, Roles and Responsibilities

City of Richmond's Role

The City is the primary actor and service provider for flood protection.

1. The City is responsible for local flood protection and management including the ongoing operation and maintenance of the dike infrastructure;

- Planning for perimeter dike upgrades is nearing completion with Dike Master Plans Phases 3, 4, and 5 which are expected to be finalized in 2019.
- The Dike Master Plans guide City designs for perimeter dike upgrades to the year 2100 with considerations for climate change induced sea level rise, land subsidence, and area plans.
- City of Richmond Engineering & Public Works staff monitor and maintain the City's dikes on a continual basis. Upgrades to the City's dikes are completed as Capital projects which are approved by Council in an annual process.

2. The City has a legislated duty, through the *Emergency Program Act*, to respond first to emergency situations within its jurisdiction and to have an emergency plan in place;

- The City's Emergency Management Office (EMO) works together with senior governments and regional authorities to establish emergency management and recovery plans.
- The City's Engineering & Public Works Division, in coordination with the EMO, have prepared the 2010 Flood Response Plan.
- Threat specific plans are integrated by EMO into an overall management strategy.
- The Emergency Management Plan is scheduled for review in 2019.

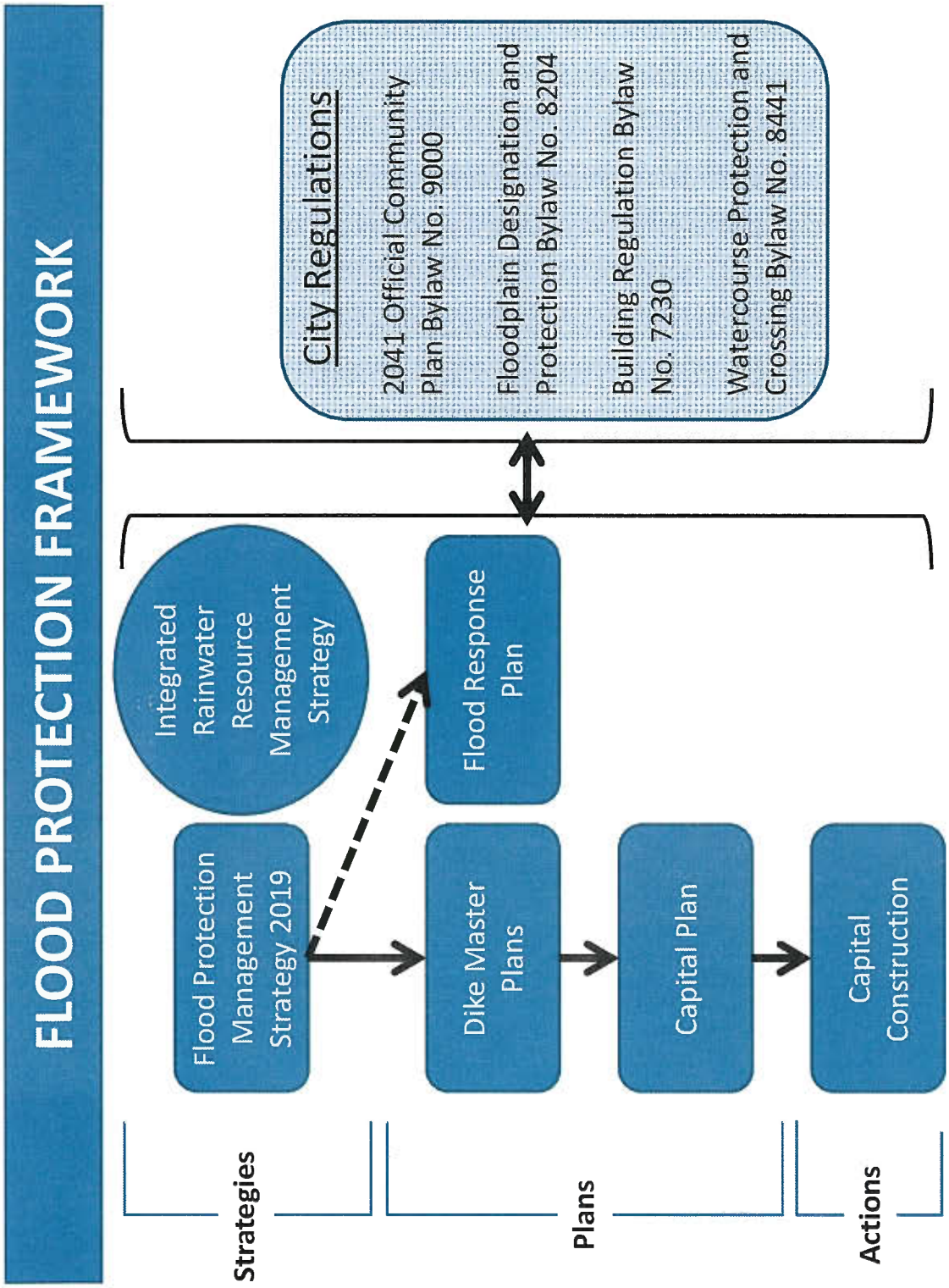
3. The City has the authority, through the *Local Government Act*, to designate a floodplain and to set construction requirements for development, subject to Provincial policies and standards (e.g., the Provincial Flood Hazard Area Land Use Management Guidelines);

- Floodplain Designation and Protection Bylaw No. 8204 was adopted in 2008 and guides building setback, Flood Constructions Levels, exemption areas and alternative conditions.

4. The City reviews Development Applications (i.e., Rezonings, Development Permits). Council has the authority to set conditions and to require the registration of restrictive covenants for development on land which may be subject to flooding for all discretionary development applications; and

5. The City reviews Non-Discretionary Applications (e.g., building permit approvals). The City has the authority, through the *Local Government Act*, to set conditions and to require registration of restrictive covenants for non-discretionary applications, when exemptions to the provisions of the floodplain bylaw are given.

Figure 1 – Flood Protection Framework



Provincial Role

In 2004, the provincial role with regard to flood protection and management was significantly altered with legislative changes made to a number of statutes—notably to the *Land Title Act*, *Local Government Act*, the *Flood Hazard Statutes Amendment Act, 2003* and the *Miscellaneous Statutes Amendment Act (No. 2), 2004*.

1. Under the *Dike Maintenance Act*, responsibility and general supervision relative to construction and maintenance of dikes lies with the office of the Inspector of Dikes.

- The Provincial Inspector of Dikes can require reports, inspect records, audit diking authorities, make regulations and prescribe trusts.
- Approval from the Provincial Inspector of Dikes is required for:
  - the construction of new dikes and flood barriers (*Dike Maintenance Act* Approvals: MoE 2007);
  - changes or alterations to the cross section or crest elevation of a dike;
  - the installation of culverts, pipes, flood-boxes, utility lines, pump stations, or any structure through, on or over a dike;
  - the construction of any works on or over a dike right of way, including structures, excavations and placement of fill or other materials;
  - the alteration of the foreshore or stream channel where the works could increase flood levels or impact the integrity of a dike such as dredging; and
  - construction of erosion protection works, bridges and other in-stream works.

2. BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development (MFLNRORD)

- MFLNRORD, through the Office of the Inspector of Dikes, provides guidelines for development in flood hazard areas, guidance and technical information

3. Subdivision Approval

- Provincial approval for subdivision is not required, unless the lots are in proximity to a Provincial highway.
- In those cases, the BC Ministry of Transportation and Infrastructure (MoTI) Approving Officers can now consider flooding and erosion potential.

4. Approval of Municipal Floodplain Bylaws

- Provincial approval of municipal floodplain bylaws is no longer required.

5. MFLNRORD Establishing Flood Protection Standards

- The Office of the Inspector of Dikes establishes standards for municipal dike design, construction, operation and maintenance plans.
- The Office of the Inspector of Dikes reviews and approves these.

- The Province has adopted a new flood profile standard for the Fraser River which is defined by the 2008 study profile completed by Northwest Hydraulic Consultants. The Fraser River flood profile exceeds the coastal flood level for areas of Richmond east (upstream) of Nelson Road.
  - This new standard establishes flood design standards, for freshet, summer, winter and tidal flood threats, to safely convey the largest historical flood of record which occurred in 1894.
  - For Richmond, the new profile varies from approximately 2.8m GSC near Steveston to 3.3m GSC near Queensborough. This does not consider sea level rise or wave effects.
- Sea Level Rise Threats
  - The most recent study completed by the Province suggests a median projection of 1m of sea level rise by year 2100 and 2m of sea level rise by year 2200.
  - The Intergovernmental Panel on Climate Change (IPCC) reports on climate change (IPCC, 2018) estimate a lower increase in global mean sea level rise when compared to Provincial studies.
  - Additional research is needed to refine these values given the variability in current climate change science. As sea level rise is realized and more data is available the projections can be adjusted.
- For Subsidence Flood Threats
  - The most recent studies indicate that subsidence in Richmond is approximately 2mm/year.
  - These values will continue to be monitored and will inform flood protection planning.

6. Research

- The Province conducts research with others (e.g., contributions to the Fraser River Hydraulic Modelling study, assessment of current seismic guidelines).
- Ongoing Provincial research is encouraged.

7. Funding

- The Province was the primary source of funding for flood protection prior to the transition of diking authority to municipalities.
- In October 2007, the Province announced new flood protection funding for BC of $10 million per year for 10 years.
- In 2010, the City was awarded $3.9 million for pump station upgrades.
- In 2016, the City was awarded $16.6 million for pump station and dike upgrades.
- In 2017, the City was awarded $440,000 for flood protection planning.
- Ongoing Provincial funding is encouraged.

8. Emergency Management BC (EMBC) Emergency Preparedness and Recovery

- The Province operates EMBC which coordinates aspects such as:
  - emergency preparedness training and funding;
  - disaster response coordination; and
  - recovery funding and assistance.
- EMBC will respond to emergency calls from local governments and emergency personnel. Ongoing EMBC assistance is encouraged.

9. Provincial (MFLNRORD) Approval of the City's Strategy

- Provincial Jurisdiction: The Province has jurisdiction to approve those items that are directly related to the dike system (i.e., any proposed modifications or additions).
- No Provincial Jurisdiction: For the City's Strategy, the Province is likely to provide only comments or advice.

10. Foreshore & Water

- Existing off-shore structures (navigation jetties) are controlled by senior governments. Contemplated offshore structures and nature-based concepts for wave attenuation (e.g. Sturgeon Banks) will also require land tenure and approvals from senior government.

11. Summary

- The City is committed to co-operating with the Provincial government.

Federal Government

The federal role has primarily been related to issues of national significance or to situations where the capacity or authority of a provincial government to deal with the situation is exceeded. Federal legislation such as the Emergencies Act enables the Federal Government to act in such situations. Much of the responsibility for flood protection has been turned over to the provinces and subsequently the municipality, with the Federal Government providing assistance through enabling funding and research.

1. The focus of Public Safety Canada (PSC) includes:

- Critical Infrastructure Protection;
- Emergency Preparedness; and
- Disaster Mitigation.

Programs under these topics are still evolving particularly with regard to critical infrastructure protection.

2. Establishing Flood Protection Standards

- The Federal Government does not currently establish flood standards; however, CMHC funding for urban development, or post disaster recovery funding may be limited in designated floodplain areas, unless adequate floodproofing measures have been taken.

- The City intends to establish adequate flood protection measure through this Strategy and a range of implementation measures.

3. Research

- The Federal Government provides research assistance (e.g., climate change).
- Ongoing Federal research is encouraged.

4. Funding

- The Federal Government may assist in funding studies, capital dike improvements, preparedness and recovery programs. Periodically, the Federal Government co-funds with the Provincial Government programs for flood protection, for example:
  - the Federal Government provided funds toward the 2006 Lower Fraser Hydraulic Modeling study which was completed by the Fraser Basin Council (FBC);
  - in 2007, $33 million for flood mitigation initiatives to address concerns related to anticipated spring freshet water levels;
  - in 2009 and 2010, $8.6 million was awarded to Richmond through the Federal and Provincially funded Flood Protection Program;
  - in 2014, $2 million was awarded to Richmond through the Federal and Provincially funded BC Building Canada Fund;
  - in 2017, the City of Richmond was awarded $1.1 million for flood protection planning through the National Disaster Mitigation Program;
  - in 2019, the City of Richmond was awarded $13.8 million for flood protection infrastructure upgrades through the Disaster Mitigation and Adaptation Fund; and
  - in 2019, the City of Richmond participated in the national Smart Cities Challenge for the opportunity to win $10 million.
- Ongoing Federal funding is encouraged.

5. Dredging & Foreshore

- The Port of Vancouver completes annual dredging of the South Arm of the Fraser River.
- There is considerable federal land along the perimeter dikes on Lulu Island and Sea Island. The City works together with the Fisheries and Oceans Canada, as well as other Federal stakeholders, on a project-specific basis to identify any concerns or opportunities while completing flood protection upgrades.

6. Summary

- The City is committed to co-operating with the Federal Government and encourages ongoing Federal flood protection programs and funding assistance.

Regional Role

There is no direct role for Metro Vancouver or other Lower Mainland jurisdictions with regard to the City's development and implementation of the Flood Protection Management Strategy, with the exception of coordination with New Westminster on infrastructure in the Hamilton-Queensborough area.

Fraser Basin Council (FBC)

Although it lacks a mandate or authority to oversee flood protection works or emergency services, the Fraser Basin Council has been working with federal, provincial, local government agencies and organizations to highlight flood risks through the Joint Program Committee (JPC) for Integrated Flood Hazard Management. This program has coordinated recent flood plain mapping exercises in the Lower Fraser and lead the recent study to update the Fraser Flood Profile.

In 2014, FBC initiated the Lower Mainland Flood Management Strategy to promote collaborative, regional flood management on the lower Fraser River and the coast between partners spanning all levels of government, including the City, other local governments, and non-governmental organizations.

FBC is the facilitator and administrator working on behalf of the partners to develop the strategy through three phases:

- Phase 1 "Building a better understanding";
- Phase 2 "Developing a regional action plan"; and
- Phase 3 "Implementation".

Phase 1, completed in 2016, focused on flood hazards, vulnerabilities, and existing structural and non-structural flood protection measures. Phase 1 produced the following components:

- analysis of future flood scenarios;
- regional assessment of flood vulnerabilities;
- Lower Mainland dike assessment; and
- review of flood management policies and practices.

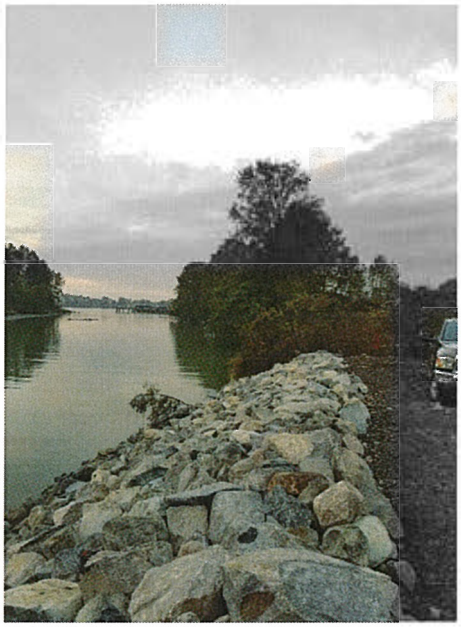
Phase 2, initiated in 2017, is expected to include the following components:

- assessment of regional flood mitigation options; and
- assessment of decision-making models and cost sharing options.

The final strategy, anticipated in 2019, is expected to include specific commitments for partners and a cost-sharing approach to support implementation.

The City has been an active participant and funding partner in the Fraser Basin Council's JPC and is committed to the management of growth both within an overall regional context and in terms of its Official Community Plan (OCP).

Richmond intends to continue participating in the Fraser Basin Council and with other stakeholders to better address flood prevention and protection.



1.5 Strategic Framework

As a community within the floodplain, the City acknowledges that an element of flood risk will always exist for those areas that are not raised above the floodplain.

This Strategy provides an integrated flood protection framework which emphasizes:

- preventing flooding, and
- minimizing the impacts of a flood event, should such an event occur.

The integrated Flood Protection Management Strategy elements identified below addresses dike safety, land use management and emergency management.

1. Sustainable Approaches

- As the City of Richmond is committed to improving sustainability, where practical and cost effective, sustainable approaches will be undertaken when implementing the Flood Protection Management Strategy 2019. Flood prevention approaches are to be socially, economically, environmentally sound and sustainable, and able to achieve Richmond City Council's long term planning, growth and development objectives.

2. Flood Protection System

- The City's integrated flood protection system includes:
  - a Perimeter Dike;
  - raising land levels strategically and economically;
  - requiring Flood Construction Levels (FCLs) for new construction;
  - floodproofing buildings and structures;
  - infrastructure (drainage system and pump stations);
  - maintenance programs—cleaning of infrastructure; and
  - other, as necessary.

3. Dike Integrity and Management

- Richmond's Flood Protection Management Strategy 2019 recognizes both storm surge and river flood threats.
- Richmond's perimeter dike is the primary flood protection system.

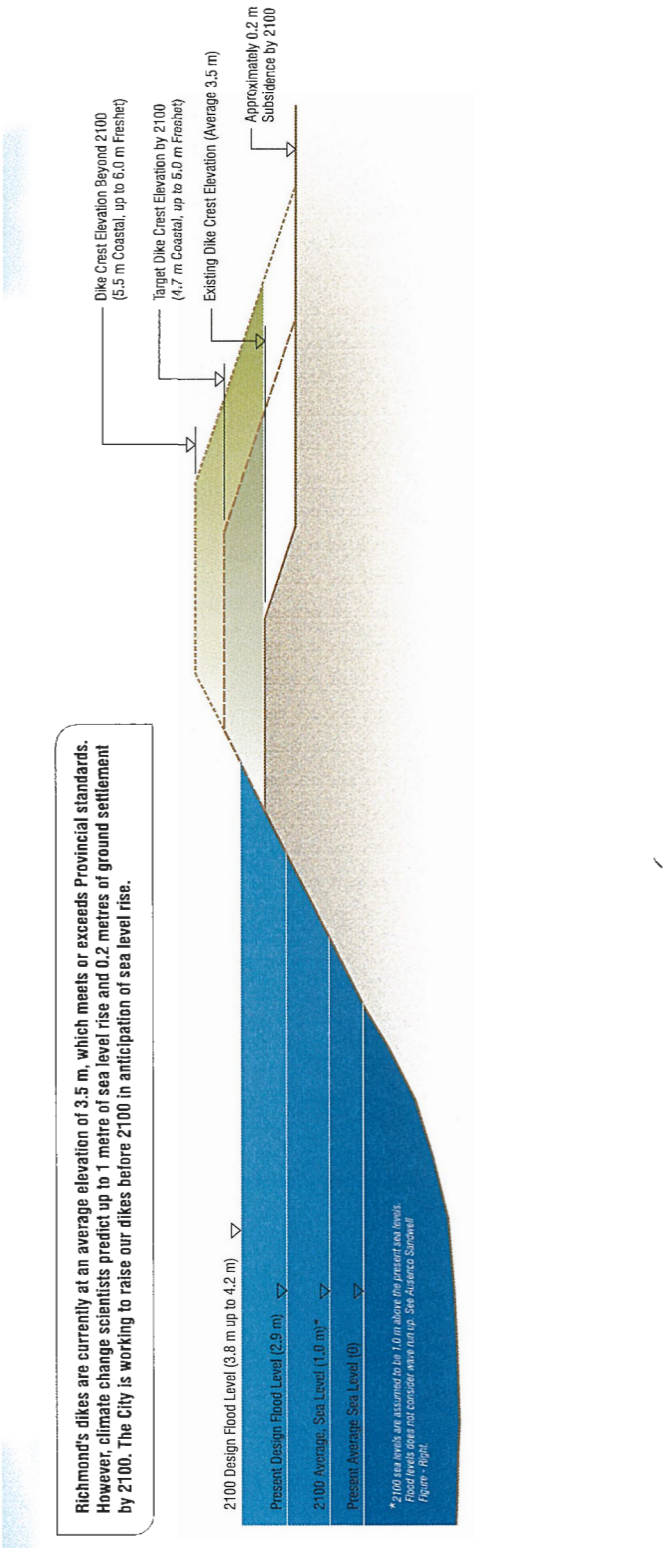
New Dike Crest Elevation Standard

The City is committed to meeting or exceeding the Province's coastal still-water flood level of 2.9m. In combination with 1m of sea level rise, a 0.2m land subsidence allowance, and 0.6m freeboard, this yields a design dike crest elevation of 4.7m.

This standard is designed to accommodate the largest historical flood of record which occurred in 1894, sea level rise, and land subsidence to the year 2100.

The City will continue to work with the Provincial, Federal and regional agencies to secure funding for research and construction to meet or exceed the provincial dike standards.

Figure 2 – Design Flood Levels and Dike Crest Elevations



Perimeter Dike Improvement Program

In conjunction with Provincial Diking Authorities, the City is currently upgrading priority sections of the perimeter dike. Completion of the Dike Master Plans will further guide efforts to upgrade the City's primary system of defence against flood hazards.

4. Managing Sea Level Rise Risks

- Sea level rise is monitored and the City will adjust flood protection strategies and implementation timelines to address climate change induced flood hazards as defined by the IPCC and subsequent regional analysis. Currently the City's design for perimeter dike upgrades includes an allowance for 1m of sea level rise to the 2100 and 2m of sea level rise to the year 2200 (baseline at year 2000).
- The City will participate in research studies, in partnership with others, to ensure that climate change induced sea level rise is monitored and proactive adjustments are made to the Strategy.

5. Monitoring Subsidence

- While geological subsidence is very slow and minor relative to sea level rise, it should be monitored and addressed.
- Current levels of subsidence are monitored and the City has made allowances to accommodate additional flood risks due to subsidence.
- The City will participate in research studies, in partnership with others, to ensure that there is proactive planning for land subsidence.

6. Flood Construction Levels (FCL):

- Floodplain Designation and Protection Bylaw No. 8204 establishes the floodplain boundaries, construction setback requirements, Flood Construction Levels, and exemption areas for the City of Richmond.
- Bylaw No. 8204, in consideration of Provincial guidelines, defines certain classes of use and geographic areas within which construction elevations will not be required to meet the established flood levels.
- Examples of exemptions (e.g., to raising the land, to building to FCLs, may include:
  - agricultural buildings and structures (except residential dwellings and accessory buildings); and
  - the Steveston Village Heritage Area where the introduction of grade changes for new construction would detrimentally affect the important heritage character of the area.

7. Raising Land Levels

- As an overall long term objective, the City will seek to raise the average grade of land within all areas of the City.
- To achieve this, the City at its discretion, will strategically and incrementally encourage or require ground levels to be raised, for example where:
  - development opportunities exist (e.g., through rezoning and property redevelopment);

- site size is sufficiently large to enable it to be achieved effectively;
- negative impacts can be reasonably mitigated; and
- land raising is being proposed to meet other objectives such as agricultural viability.

West Cambie example: This approach was taken for the West Cambie area, where the whole Alexandria quarter section was raised during redevelopment.

8. Interface Areas

Between areas of different required raised land height and FCL construction level requirements, the City may establish land and FCL transition requirements and techniques to manage grade changes with minimal problems.

In these situations, the City will determine specific raised land and FCL requirements, on a site by site basis.

9. Ongoing Analysis

The City will monitor the latest flood protection and climate change science (e.g. sea level rise, subsidence, river, ocean conditions), best practices, the effectiveness of its flood protection system and the Strategy. Improvements will be made as necessary.

10. Annual Flood Protection System Improvements

Each year the City will improve its Flood Protection System. This will be achieved by preparing an Implementation Program for Council's consideration as a part of this Strategy. Funding will be through the designated diking utility and grant opportunities.

Individual projects will be submitted through the annual Capital Program for Council's consideration.

11. Emergency Management

- City Emergency Management Office (EMO): The City has established an Emergency Management Office which works with Richmond's protective service agencies and City departments to prepare response plans and programs that establish and implement mitigation, preparedness, response and recovery measures for emergency events.
- City Emergency Management Plan: Under the EMO's guidance, the City has established an Emergency Management Plan that provides overall direction to guide the City's actions to prepare for, respond to and recover from major disasters. This Plan identifies the key hazards, such as flooding, which threaten the community, priority actions to be taken by threat, roles and responsibilities of staff and key response agencies responsible for managing the City's response and recovery from disasters.
- Flood Response Operational Plan: The City Flood Response Operational Plan outlines the City's strategies for preparedness, response, and recovery surrounding the seasonal spring freshet and any flood events that may result from this annual event.

- City Flood Response Plan: Through the direction of the EMO, a series of threat specific plans have been, or are in the process of being prepared. With direct reference to flood protection management, a City Flood Response Plan has been prepared and operationalized through the City's Public Works Roads and Construction Department.
- Key Emergency Management Elements: Some of the key emergency management elements imbedded within the Implementation Program include:
  - the co-ordination of community planning and emergency facilities to ensure that City refuge/public gathering areas during disasters are located in areas which do not flood;
  - the preparation and on-going updating of City public evacuation and communication programs;
  - reviewing and implementing plans for refuge areas, emergency routes, and creating public awareness;
  - establishing a protocol for dike restoration (e.g., City procedural response plan); and
  - updating the City's existing procedural policy of comprehensive dike maintenance.

12. Funding

- Each year, to implement this Strategy, the City intends to:
  - budget to implement this Strategy, subject to corporate priorities and funding,
  - seek senior government funding.

13. Senior Government and Partner Funding

- The success of the Strategy requires senior government and partner funding.
- The City will seek senior government and partner funding for a wide range of flood prevention and protection research, monitoring, studies, planning and improvements.

14. City Diking and Drainage Utility

- In 2006, the City established a City Diking and Drainage utility for the purpose of funding dike and drainage improvements. The City intends to continue and grow this utility.

15. Annual City Dike Improvement Capital Funding

- The City establishes an annual City capital budget to ensure that each year funds are available to undertake flood protection studies and work. The City intends to continue this funding mechanism.

16. Implementation (see Part 2)

- The City will implement the Strategy by establishing an Implementation Program.
- The Strategy will guide all City Flood Protection actions and is to be referenced in all relevant City proposals and senior government funding requests.

Part 2: The Implementation Program

The 2008–2031 Flood Protection Strategy was intended to be a living document—one which evolved over time as new science, information, concepts, techniques, programs and cost sharing opportunities arose. The updated Flood Protection Management Strategy 2019 provides this information and recommendations for future work related to flood protection.

The City also recognizes that the Strategy requires:

- jurisdictional, economic and cost sharing partnerships;
- the involvement and direction, of senior governments, specifically regarding dike standards; and
- on-going actions to enhance the City's knowledge and ability to prevent flooding.

The Flood Protection Management Strategy 2019 will be reviewed and updated, as required.

The Flood Protection Management Strategy 2019 will be implemented through an Implementation Program.

The Implementation Program Chart below identifies:

- next steps related to flood protection; and
- continuing strategies for the City.

Implementation will occur, subject to City corporate priorities and funding.

Detailed implementation will be determined by Council annually.

The City's Engineering and Public Works Division will lead the Strategy and Implementation Program in a proactive and collaborative manner with other City division sections including Policy Planning, Finance, Building Approvals, Development Applications and the Emergency Management Office.

Implementation Program – Next Steps

Category	Action
Program Management	Ensure that the flood risk reduction program is supported by leading edge technical investigations. Short-term priorities should include a wave runup analysis, and definition of the potential flowslide zone around the island perimeter.
	Investigate nature-based, sustainable solutions for flood risk mitigation through participation in regional research initiatives and identification of innovative technology.
Lulu Island Perimeter Dike	Finalize Phases 3, 4, and 5 of the Dike Master Plans to complete the conceptual framework for upgrading the City's perimeter dike.
	Review the Dike Master Plan Phase 1 to determine whether the proposed Steveston Island offshore dike / sea gate continues to be cost effective in view of the seismic design standard, and to update/ complete the construction cost estimate.
	Update the Phase 2 Dike Master Plan to include construction cost estimates.
	Establish a target timeframe for completion of dike upgrading as per the current Dike Master Plans, along with a system to report progress on this important objective.
	Adopt a world class standard for the next round of Lulu Island Dike Master Plans (10,000-year return period flood, current sea level rise projection for 100-year horizon, consideration of sea level rise for 200-year horizon, conservative wave runup allowance). Support such determination with a risk-based approach.
	Develop and adopt a seismic dike design standard that considers the specific situation in Richmond, and is also acceptable to the Province.
Floodplain Designation and Protection Bylaw	Update the flood construction levels of the bylaw to reflect the most recent Fraser River flood profile and current coastal flood level (including sea level rise) while considering implications on urban design and accessibility. This would ideally involve updated dike breach inundation modeling.
	Update the other provisions of the bylaw as noted in this report. Endeavour to reduce the number of situations in which exemptions and relaxations are provided.

Category	Action
Secondary Dikes on Lulu Island	Consider potential effective secondary dikes on Lulu Island that would reduce the extent of flooding from a dike breach and/or help to achieve the desired level of seismic performance.
	Evaluate the Boundary Road secondary dike concept as per the Phase 3 and Phase 4 Dike Master Plans, with the intent to provide redundancy in flood protection, and also fulfil seismic performance objectives.
	Proceed with the mid island secondary dike on an opportunistic basis, either in conjunction with Highway 99 upgrading, or with large-scale land raising.
Internal Drainage on Lulu Island	Review and update design criteria for drainage pump stations and floodboxes (key issues include increasing flood level, increased duration of pumping, increasing internal runoff, and fish passage). Also consider whether some or all stations should be able to provide post-disaster service (key issues include seismic performance, standby power, and emergency access).
	Update the master drainage plan to accommodate the soon to be completed Dike Master Plans (in particular, moving drainage channels away from the perimeter dike) and Local Area Plans and Sub-Area Plans (with respect to land raising).
Dike Operation and Maintenance	Establish a consolidated dike operation and maintenance manual, organized by dike master planning reach (including Sea Island, Mitchell Island and Richmond Island) to provide a thorough record of dike design drawings, inspection reports, maintenance work, and miscellaneous activity along the dike.
Management of Lulu Island Perimeter Dike Corridor	Designate area-specific strategies along the dike corridor that may include Development Permit Areas which would be coordinated with Richmond's 2041 Official Community Plan, the Waterfront Strategy, and the Ecological Network Management Strategy. The purpose would be to ensure that all activity in these areas give priority to long-term flood protection objectives.
Sea Island	In the Burkeville residential area, consider flood protection concepts as noted above for Lulu Island (land raising, updated flood construction levels, and internal drainage are particularly applicable).

Category	Action
Mitchell Island	Proceed with a program of road raising, with future development areas raised to the flood construction level (as is recommended in the Phase 5 Dike Master Plan).
Habitat Compensation	Recognizing that dike upgrading will impact the fisheries resource, and that on-site mitigation of impacts is not always effective and/or practical, develop a broad-scale habitat compensation program to address the cumulative impacts of dike upgrading in all areas of the City (possibly as a dike master plan phase).

Implementation Program – Continuing Strategies

Category	Action
Program Management	Continue to have a senior staff position designated as the leader of the City's flood risk management program.
	Enhance monitoring of river/sea level, wind and wave effects, dike fill, internal water level and dike crest elevation.
	Review the level of funding for the Drainage and Diking Utility to ensure sufficient budgeting for the construction of structural flood protection works.
River Engineering Considerations	Work with the Port of Vancouver, and possibly other local governments in the Fraser River estuary, to ensure that key river monitoring activities are undertaken. This includes bathymetric survey, dredging management, and river engineering assessment.
Lulu Island Perimeter Dike	Continue to upgrade the Lulu Island perimeter dike as the top flood protection priority.
	Promote and enable widespread land raising on Lulu Island through land use changes and development.
	Investigate regional soil disposal and dredging material as cost-effective sources of fill.
	Ensure that major underground utilities that cross Lulu Island are designed to accommodate significant future landfill that would be associated with widespread land raising.
	Encourage the City of New Westminster to adopt a similar standard and approach for upgrading of its portion of the Lulu Island perimeter dike.
Internal Drainage on Lulu Island	As pump stations are upgraded, ensure that locations are consistent with the long-term dike alignment.
	Pursue an effective approach to rehabilitation of box culverts within the internal drainage system.

Category	Action
Sea Island	Continue to cooperate with the Vancouver Airport Authority to upgrade the Sea Island perimeter dike, and on other flood protection issues.
Richmond Island	Continue with flood protection as a responsibility of the single land owner on the island (as recommended in Dike Master Plan Phase 5).
Emergency Management	Continue with an integrated emergency management planning approach both internally and with other agencies the City will rely on during emergency events.
	Continue to work with transportation authorities with the objective of optimizing major transportation routes as post-disaster structures as key components of an emergency evacuation plan.
	Continue to enhance capabilities for emergency planning, flood response and flood recovery.
Periodic Program Review	Continue to review the Flood Protection Management Strategy annually and consider formal updates on a 5-year cycle.

Appendix 1: Analysis

Introduction

This section was prepared by the City of Richmond with assistance from Kerr Wood Leidal Associates Ltd. and sub-consultants who provided expert advice on environmental, geotechnical, and other fields related to flood protection.

Purpose

The purpose of the Flood Protection Management Strategy 2019 is to enhance the City's ability to prevent flooding and minimize the risk and effects of flood damage by monitoring climate change, implementing proactive policies and partnerships, and upgrading critical flood protection infrastructure.

Context

The City of Richmond is composed of 17 islands and is located in the floodplain of the Fraser River.

The three most developed islands are:

- Lulu Island on which lies the developing urban portion (60%) of the City (West Richmond) and a considerable amount of valuable agricultural land (40%) in the provincial Agricultural Land Reserve;
- Sea Island on which lies the Vancouver International Airport (YVR) and the community of Burkeville; and
- Mitchell Island which consists of industrial related activities.

Richmond is bounded by the Fraser River and the Strait of Georgia, and is subject to flood risks from the Fraser River and the sea. The City is also subject to other flood-related hazards, including dike breach, seismic effects, intense rainfall, and river instability. The City recognizes that with the human investment in both urban development and agriculture, the need for the protection of residents, farming and infrastructure is paramount.

Until 2004, when the Province terminated its floodplain management program, flood protection requirements and construction levels were regulated by the Province. These have now become largely the responsibility of the City as the local Diking Authority.

The principal method of protecting life and property on Lulu Island from flooding has been a structural one, primarily diking.

Richmond and New Westminster rely on each other for flood protection on Lulu Island as they share responsibility for the Lulu Island perimeter dike. The Lulu Island perimeter dike is approximately 56km in total length, of which approximately 49km (88%) is under the City's jurisdiction. Richmond relies on New Westminster for flood protection at the critical

upstream end of Lulu Island (Queensborough). New Westminster relies on Richmond for flood protection in a broader sense, given that the greater proportion of the perimeter dike is within Richmond.

Richmond and the Vancouver Airport Authority rely on each other for flood protection on Sea Island as they also share responsibility for the perimeter dike. The Sea Island perimeter dike is approximately 15km in length, of which approximately 1.1km (7%) is under the City's jurisdiction.

2008–2031 Flood Protection Strategy

At a high level, the 2008–2031 Flood Protection Strategy:

- documented climate change and sea level rise as emerging issues that the City would need to address;
- recognized the Lulu Island perimeter dike as the cornerstone of the City's flood defences;
- initiated a dike master planning process for dike upgrading;
- identified the need for further consideration of seismic risk;
- identified the need for an updated floodplain bylaw to regulate development;
- provided for widespread land raising to be considered in the planning process; and
- recommended the review secondary inland dikes.

Integrated Rainwater Resource Management Strategy

In 2016, Richmond's City Council endorsed the Integrated Rainwater Resource Management Strategy (IRRMS) which provides high-level strategies to address Richmond's unique water management needs. The purpose of the IRRMS is to protect and enhance the City's stormwater conveyance infrastructure and ecological assets under higher intensity rainfall events, and considers rainwater as a resource to be utilized.

The Flood Protection Management Strategy 2019 and the Integrated Rainwater Resource Management Strategy considers future development, water management, and sustainable solutions as key components for achieving the City's goals for a safe and well-managed community. The strategies are compatible and can be used together to encourage management of water resources that are conducive to the ecological network, stormwater storage, and flood protection.

Key Factors Influencing the Strategy

Climate Change

Climate change induced sea level rise, higher intensity storms, and increase in freshet flows are primary considerations in the Flood Protection Management Strategy 2019 due to their significance in increasing flood risk. Models that project future climate suggest that the rate of sea level rise will accelerate as the climate warms. The effects of long-term subsidence also need to be considered due to its impact on relative sea level rise. Review of these projected conditions will guide infrastructure upgrades and land use considerations.

Provincial Guidelines & Regional Considerations

The Province has significantly updated their sea level rise and dike design guidelines (e.g., Flood Hazard Area Land Use Management Guidelines) since the 2008–2031 Flood Protection Strategy was endorsed. These changes, including regional initiatives and guidance documents, such as those presented by the Fraser Basin Council, contribute to Richmond's updated design standards for flood protection.

New Information

The availability of improved information on climate change, variation in land use over the years, and the need to examine both structural and non-structural issues related to floodplain management, further demonstrates the need to review the 2008 Strategy.

Project Context

Flood Risks

Flood Hazards – Summary

The City faces the following primary flood hazards:

- A dike breach that may occur as a result of water overtopping the dikes;
- The liquefaction of soils under the dikes as a consequence of an earthquake or dike breach;
- Piping through a dike caused by water under pressure, eroding soil particles to cause a tunnel through the dike; and
- Human damage to a dike.

The Strategy addresses these flood hazards in a comprehensive manner, in particular, those that:

- originate from high tidal ocean levels; and
- are caused by high freshet discharges in the Fraser River.

It is unlikely that both extreme high ocean levels and extreme high river discharges will occur at the same time.

Most of the land surface of Lulu Island that has not been raised by fill placement lie between an elevation of 0.5m to 2.5m geodetic, with the average land level in Richmond between elevation 1.0m and 1.5m.

Contributing Factors

For floodwater to enter the interior of Lulu Island from the river or the sea, it must either overflow the perimeter dikes, or these dikes must be breached in some manner. Given the current design and generally good condition of the existing dikes, an overflow would likely only result from:

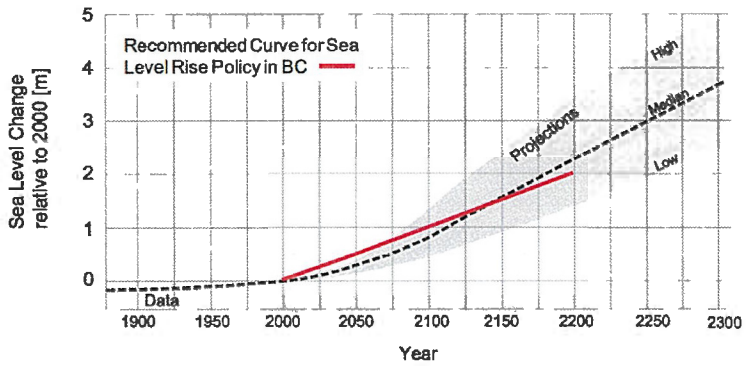
- an extreme high water condition in the river or tidal sea;
- a lowering of the dike crest; or
- an increase in the level of the Fraser River exceeding the dike crest, by extreme freshet discharges in the Fraser River.

When water overflows an earth dike, it may erode the embankment and breach the dike. The possibility of a breach developing from an overflow depends on the magnitude, nature and duration of the flow and the design and surface materials of the dike.

Climate Change – Sea Level Rise

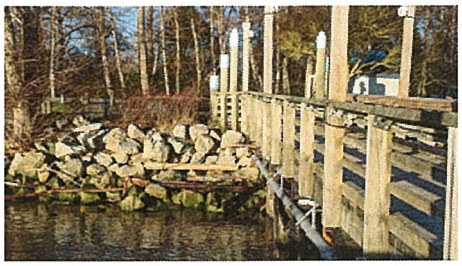
Sea level rise projections currently referenced by the Province is shown on Figure 3 and flood levels including projected sea level rise on Figure 4. The recommended linear projection will allow municipalities to overbuild their dikes in advance of the median projection. The City of Richmond has adopted 1m of sea level rise by 2100 and 2m of sea level rise by the year 2200 (relative to the year 2000) in current perimeter dike designs.

Figure 3: Sea Level Rise Projections (BC, Delcan, 2009)



Climate Change – Temperatures and Snow Melt

Climate change will increase average temperatures across BC. While precipitation will increase slightly, the fraction falling as snow will decrease. By mid-century, models suggest this will result in substantial declines in snow accumulation at lower and mid elevations across the watershed (Islam et al., 2017).



While average snowpacks and high-flow conditions are expected to decrease, climate change will also increase variability. Given the extensive uncertainties associated with climate change, a precautionary approach is appropriate.

Sedimentation, Dredging and Erosion

The Fraser River transports about 20 million metric tonnes of sand and silt to the sea each year, with about 80% of the annual delivery occurring during the spring freshet (Williams and Roberts, 1989). The material is transported as both bedload (along the river bottom) and suspended load (within the water column).

For the period between April 2006 and March 2007, the Fraser River Estuary Management Program (FREMP) reported the removal of 3.18 Mm3 for the navigation channel (FREMP, 2007). The need for removal of sediment by dredging needs to consider environmental impacts and ensure that river erosion is not increased in other areas.

As a result of dredging and flood protection projects by various authorities on the lower Fraser River, the river has been relatively stable in the past century. Trifurcation works are maintained at New Westminster to control the flow split between the North Arm, South Arm and Annacis Channel. The potential remains for the river alignment to abruptly change in the future, most likely during a large flood. This could result in increased bank erosion where the redirected flow hits a vulnerable river bank. Such potential is greatest on the South Arm due to a higher percentage of flow that is directed into it.

Wind Setup

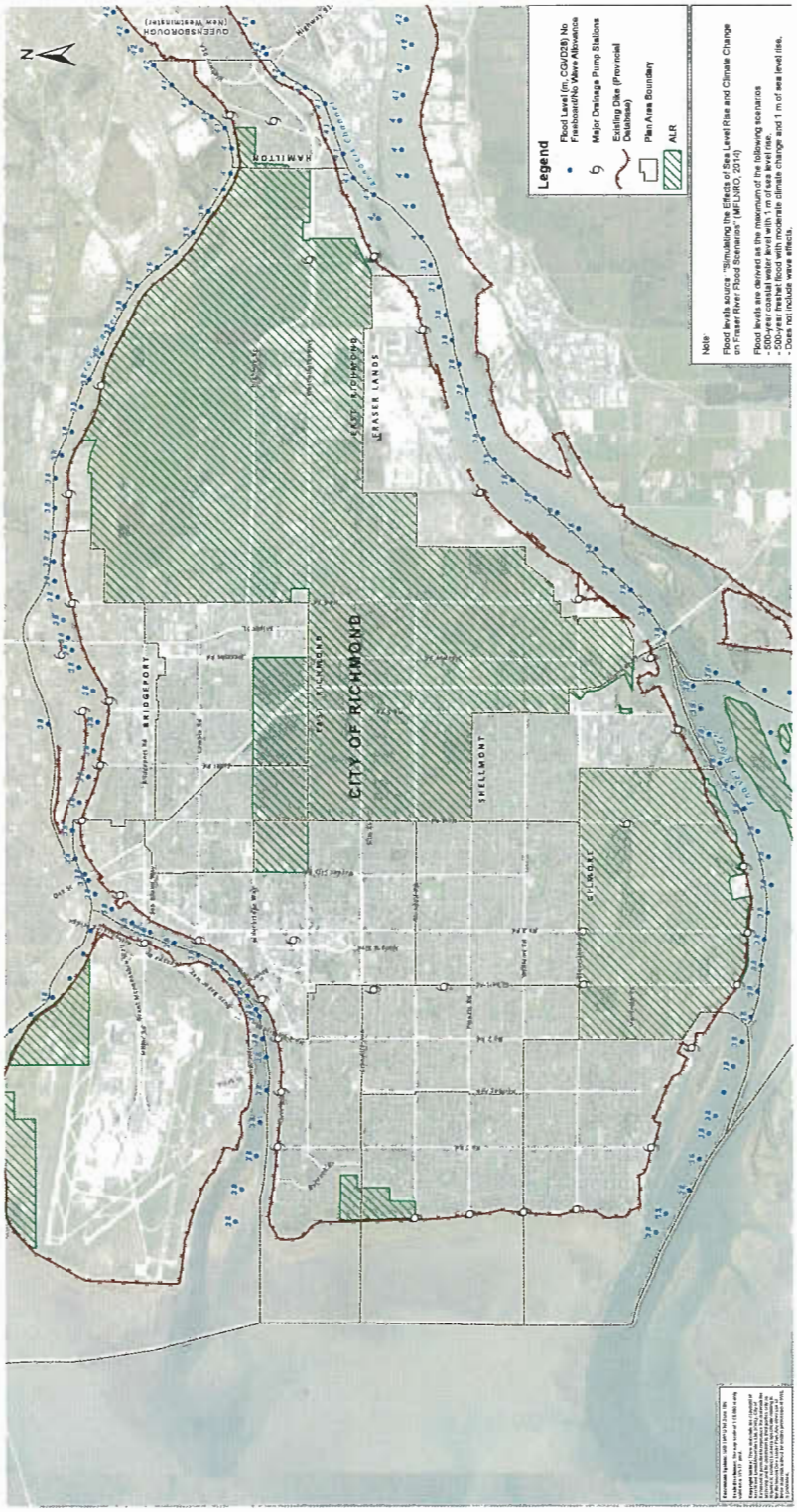
Wind setup is a local increase in water depth near the shoreline caused by the shear force of wind blowing over the water surface towards the land. The magnitude of wind setup depends on the available wind fetch and water depth, and will be greatest where there are extensive areas of shallower water. Sturgeon Bank is an example of an area that could contribute to wind setup along the western shoreline of the city.

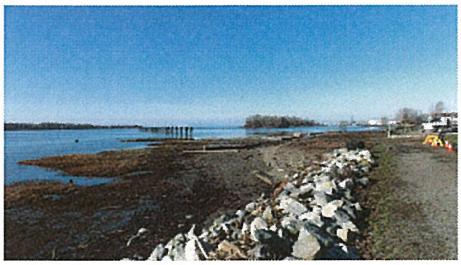
Because of its local nature, a "typical" value for wind setup cannot be defined for Richmond. Where applicable, site-specific values must be determined and added to the still-water coastal flood level. A case study of the West Dike in the 2011 Sea Dike Guidelines (Ausenco Sandwell, 2011a) includes a local wind setup allowance of 0.3m to 0.4m.

Wave Effects

Wave effects can greatly exacerbate coastal flood hazards in unprotected areas. Historically, the western shorelines of Lulu Island and Sea Island have benefitted from the protection provided by Sturgeon Bank. This extensive complex of sand banks, mud flats and intertidal marshes follows the west side of the two islands from the Fraser River North Arm to the main South Arm. The shallow features help to dissipate wave energy during storms, causing the largest waves to break before reaching the foreshore.

Figure 4 – Fraser River Flood Elevations





Tsunamis

Tsunamis generated by major earthquakes at remote locations around the Pacific Rim are not a major hazard to Richmond. The City is protected by Vancouver Island, and a tsunami generated at a distant location would lose considerable energy passing through the Juan de Fuca Strait and Strait of Georgia.

Earthquakes

Potential impacts of an earthquake on the dike system include:

- settlement of the dike crest, which increases the likelihood of overtopping;
- deformation of the dike cross-section, which decreases geotechnical stability while increasing seepage and the potential for internal erosion; and/or
- liquefaction of the dike fill and/or underlying river bank, triggering in a "flowslide" where some or all of the liquefied material flows into the river or foreshore.

Liquefaction is considered the most severe of the above impacts, since a major flowslide could conceivably result in the complete loss of a dike section, resulting in flooding at the next high tide.

Regional Opportunities and Challenges

Federal

Federal jurisdiction relates to dredging of the Fraser River. Prior to 1998, the Coast Guard reported to Transport Canada and were responsible for dredging. In 1998 the Coast Guard began reporting to DFO, and through this, were given a revised mandate that does not include dredging (largely due to costs). As a result, dredging has become the responsibility of the Port Authorities.

According to a 2014 report on Fraser River dredging (City of Richmond, 2014), bigger vessels have resulted in a need to increase the navigable river depth from 8.7m in the 1960s to the current depth of 11.5m.

Provincial

In 2014 the Province established new guidelines for dike seismic design, replacing the standards from 1998. The current BC Seismic Design Guidelines for Dikes outline an approach that is considered difficult to meet without costly and impractical ground improvement works. Additionally, the guidelines are considered very conservative in some situations because they require performance under extremely rare scenarios. For example, the guidelines require dikes to maintain 0.3m freeboard in the event of a 10-year return period flood occurring following a 2,475-year return period earthquake which has a probability of 0.004% in a 1-year period. This is significantly rarer than the design event for the dike crest elevation (500-year return period event has a 0.2% annual exceedance probability). It is understood that the Province

is currently reviewing the guidelines, and an updated version may be forthcoming by 2021. This is considered to be an emerging area of regulation where the end result is uncertain.

City of Richmond

Raising Land

City of Richmond Council adopted a Floodplain Management Implementation Policy 7000 on September 11, 1989. The strategy established:

- flood construction levels;
- procedures for development occurring within an exempt area (the principal urban portions of Richmond); and
- priority dike construction and improvements.

Bylaw No. 8204, recommended by the 2006–2031 Flood Protection Management Strategy and adopted in September 2008, has since replaced the Floodplain Management Implementation Policy 7000 and provides guidance on development setback, Flood Construction Levels, and exemption conditions.

The general exemption for Area A is notable in that it covers a high population, urban area of the City, as shown on Figure 5. Structures within Area A are generally exempted from the above-noted FCL requirements, and are instead required to have the lowest level (underside of a floor system, pad, etc.) set at minimum 0.3m above the highest elevation of the crown of any road adjacent to the parcel. The Richmond existing ground elevation map (Figure 6) shows that the majority of land within Area A lies at or below elevation 1m. Therefore, it is interpreted that the Area A exemption would result in building lowest level elevations of 1.3m or less. This would be more than 1.5m lower than the 2.9m FCL prescribed for the area without the exemption.

Review of the current large area exemptions could allow for more opportunities to raise land with development.

Figure 5: Bylaw No. 8204 Schedule B – Flood Construction Levels

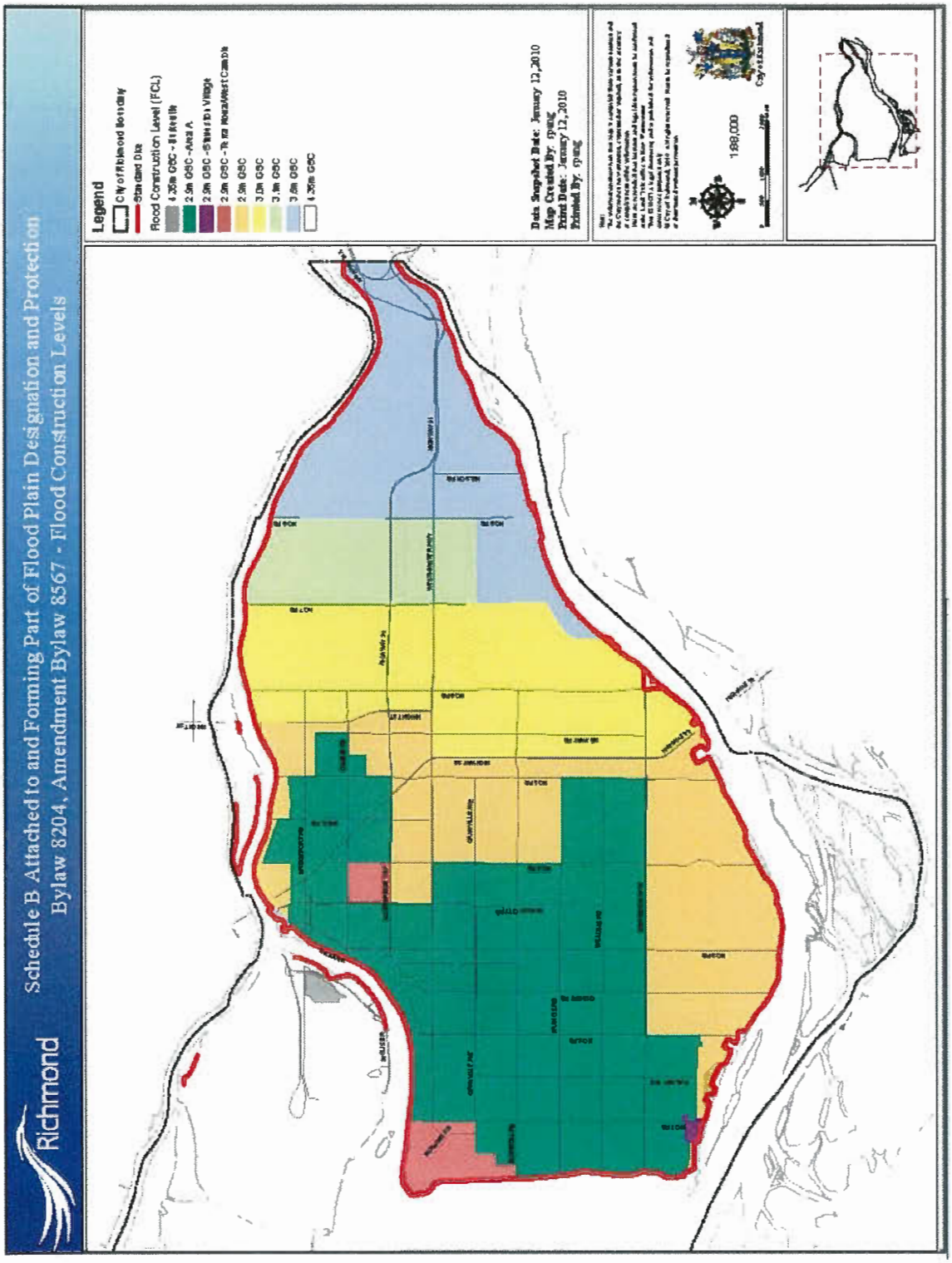
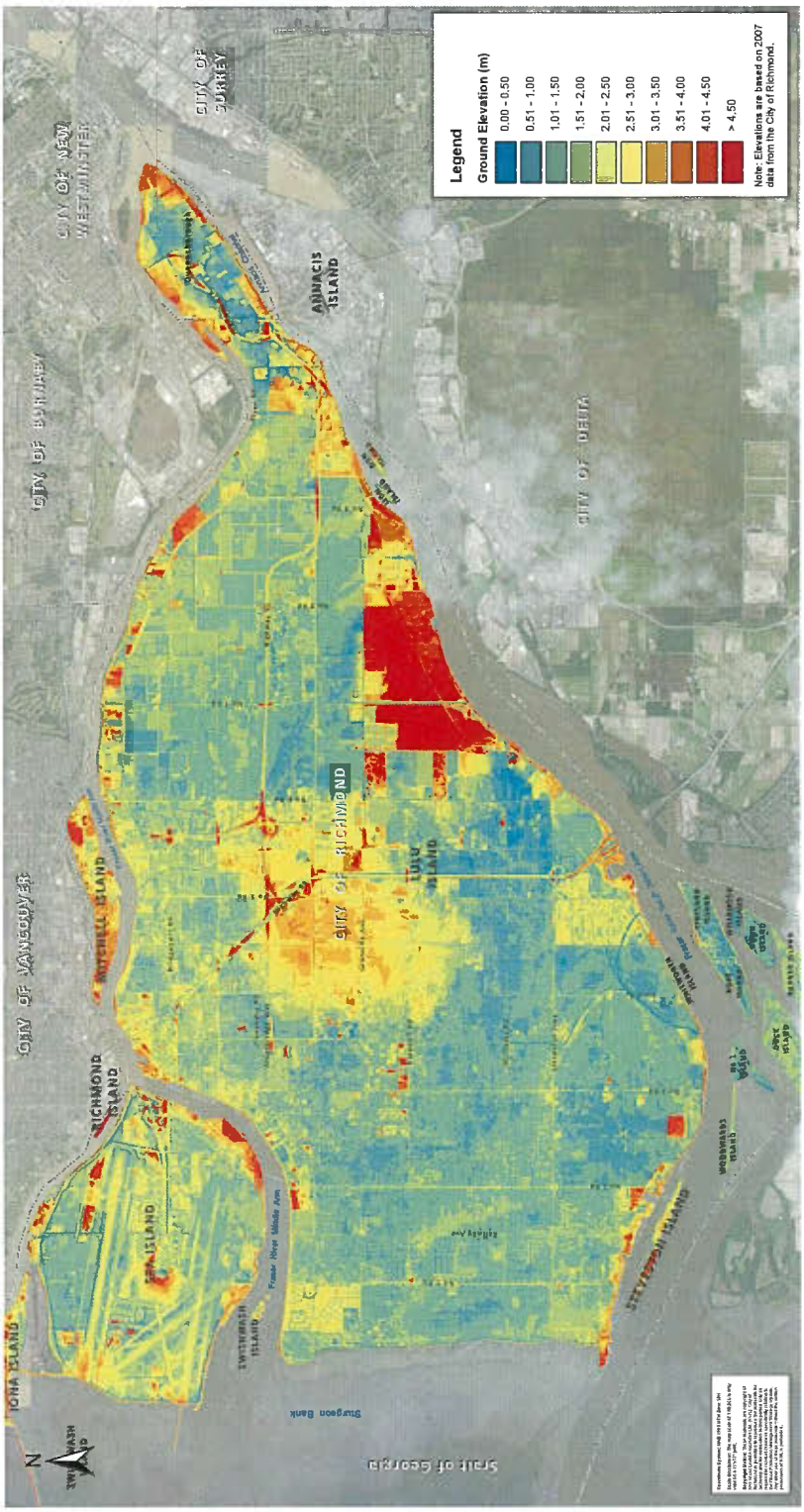
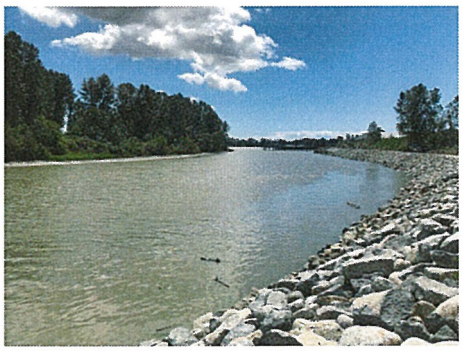


Figure 6: City of Richmond Elevation Map (2016)





Hazard-Based vs Risk-Based Level of Performance

A literature review was conducted to learn how other jurisdictions determine level of performance standards for structural and non-structural flood risk reduction measures.

Two major high-level approaches were identified:

1. Hazard-based level of performance

A legal/political decision is made to set the performance of measures to a specific flood hazard intensity (e.g. 200-year return period/0.5% annual exceedance probability). Often, the specific level is based on a historic event. This is the current system in British Columbia (200-year return period/1894 Fraser River flood). This approach often does not take into account the consequences and overall risk associated with failure of the flood risk reduction measures.

2. Risk-based level of performance

A technical analysis of flood risk (a product of flood probability and flood consequences) is used in conjunction with a legal/political decision on societally tolerable risk to determine the suite of structural and non-structural measures needed to reduce the flood risk to an acceptable level.

Two local jurisdictions are currently using the risk-based approach, these being the District of Squamish and the District of North Vancouver.

Legal Considerations

To take full advantage of the regulatory authority provided under the *Local Government Act*, Richmond has adopted Bylaw No. 8204 to guide developments in the City. In addition to allowing the municipality to regulate setbacks, flood construction levels and provisions for use, the Act provides the ability to require a statutory covenant and establish indemnity to the City and the Province for new construction in areas where flooding could occur.

Under the Community Charter where the Building Inspector thinks that a flood hazard exists, a geotechnical report can be required, but once requested the Building Inspector must abide by the report without deviation and the building permits can only be issued with a covenant. While a Section 910 bylaw is seen as the preferred and more flexible option for regulating flood protection measures, uncertainty exists as to how the following section of the Compensation and Disaster Financial Assistance regulation of the Emergency Program Act will be interpreted in the aftermath of a significant flood event:

"If an area is designated under the Municipal Act as a floodplain and a public facility is built or installed in that area after the area has been so designated, no assistance will be provided to repair, rebuild or replace the public facility if it is damaged in a flood unless the structure was determined by the Minister of Environment, Lands and Parks or by Canada Mortgage and Housing Corporation to have been properly flood protected."

The regulation also places similar constraints upon new public facilities.

Financial Considerations

As part of any new strategic initiatives, dike improvements, maintenance, as well as construction, requires substantial capital investments. Richmond has an established dike utility which is used to address seismic/stability improvements to some of the weaker portions of the perimeter dike system. However the City will not have the resources to undertake such capital improvements on its own. Thus, there is a need to pursue partnerships, senior government assistance as well as to broaden the use of City Development Cost Charges (DCCs) to include dike improvements and other initiatives.

At a current level of utility funding of nearly $12M per year, and assuming that 75% (allocation varies annually with Program priorities) of the funding is applied to dike upgrading, at least 60 years of dike upgrading work will be required to meet the performance level reflected in the current Dike Master Plans. Further work would be needed to implement any higher dike standard that may be desired.

Changes to sea level rise and other flood hazards may require review of the current funding allocations. If flood risks increase at a faster rate than currently projected, the City may need to adjust funding priorities to mitigate the additional risk.

Flood Risk Mitigation Analysis

Flood Event Return Period

For the lower Fraser River, the river flood design profile has been derived based on the largest contemporary flood peak which occurred in 1894. This flood design profile and the extreme sea level recorded at Point Atkinson has been commonly used as the provincial standard for deriving design dike profiles for the Lower Fraser River and flood construction levels in the adjacent floodplains. The peak discharge at Hope for the 1894 event has been estimated at 17,000m3/s.

Historically, the design flood level has been the site-specific maximum of the 200-year return period coastal flood (0.5% annual exceedance probability) and the 1894 Fraser River freshet flood of record.

During the development of this Strategy, a decision was made to provide a higher standard of flood protection in Richmond by considering the 500-year return period flood event with sea level rise allowance, land subsidence and seismic events. This was based on the following:

- a flood event greater than the current design event could occur;
- to ensure that the substantial increases in Richmond's population, development, and investment, are best protected;
- to maximize "Safety" and "Prevention", which are major City priorities;
- to increase the confidence in the City's flood protection assumptions and planning; and
- to consider the combined effect of a significant seismic and flood event occurring within the same year.

For deriving the design sea level, the City has adopted the Province's coastal still-water flood level of 2.9m defined by the 2008 study completed by Northwest Hydraulic Consultants. In combination with the largest historical flood of record which occurred in 1894, 1m of sea level rise, a 0.2m land subsidence allowance, and 0.6m freeboard, this yields a design dike crest elevation of 4.7m for most of Richmond's perimeter dike.

The Fraser Basin Council is completing other studies which will increase our knowledge of flood event levels and regional flood protection management. The City will consider this information in its on-going monitoring.

Uncertainties

While the type of hazards can be defined, including the probability of certain water levels being realized, current knowledge is insufficient to determine the actual risk or probability of a dike breach or failure. Dikes are now designed to be higher than a certain water level, and it is assumed that the defense system will not fail until at least that level is reached.

Accurately assessing the probability of a dike breach is technically complex and requires a variety of detailed data.

Information is required about:

- load characteristics (e.g., flood levels, wave effects, earthquake models, climate change assumptions, etc.);
- potential failure modes (overtopping, piping, erosion, earthquake, etc.); and
- performance characteristics of the dike structure (e.g. foundation conditions, crest elevation, geometry, fill materials, compaction, site-specific seismic response soil data, etc.).

Data on dike performance characteristics are much more limited for many of the dikes in BC's Lower Mainland. Most of the local dikes were originally built (or re-built) around the turn of the century without comprehensive engineering design standards or records. A significant data collection and monitoring program would be required to support on-going analysis of the likelihood of dike breaches. Some of this information (e.g., accurate and detailed crest profile drawings) is considered critical for the effective operation of any high-consequence dike system; obtaining this information is a priority for the City. The City of Richmond continues to collect and analyze dike performance data in coordination with regional diking authorities.

The City has completed assessments of hydraulic (flood) loads and is currently looking into wave effects, seismic events, and performance characteristics of the City's dikes.

Combined Frequency Analysis

Earthquakes and floods can individually result in dike breaches through flowslide failures associated with earthquakes and overtopping, piping and other processes associated with floods.

Earthquake and flood hazards can also interact to intensify dike breach hazards.

While the potential for damage to the dike would be high, the likelihood of a major earthquake and a minor to major flood occurring at the exact same time is effectively zero. Consideration should therefore be placed in the scenario where seismic events damage the dikes and Richmond is exposed to an elevated flood risk until repairs are completed.

Table 5 presents the probability that a flood occurs within 1 year of a major earthquake for a range of earthquake and flood intensities. This effectively represents the situation where an earthquake occurs and it takes 1 year to complete repairs to the dike system. For example, for any given year there would be a 1 in 24,750 chance or 0.004% probability of a 2,475-year return period earthquake and 10-year return period flood occurring within the same year.

Table 5: Combined Probability of Earthquake and Flood Occurring in the Same Year

Earthquake Return Period (Years)	Flood Return Period (Years)		
	≥ 10	≥ 200	≥ 500
≥ 100	1:1,000	1:20,000	1:50,000
≥ 475	1:4,750	1:95,000	1:237,500
≥ 2,475	1:24,750	1:495,000	1:1,237,500

Site-specific geotechnical seismic performance analysis and water level frequency analysis is required to assess this hazard. In general, the probability of this combination of events for various earthquake and flood event combinations can be determined using the following steps:

1. Residual Crest Elevation
Estimate the post-earthquake crest elevation of the dike (for a non-flowslide event).

2. Minimum Overtopping Event
Estimate the minimum return period water level event that would cause reduced freeboard such that overtopping is likely (e.g., 0.3m or less).

3. Exposure Period
Estimate a reasonable duration of time that would be required following the earthquake to repair the dike, including raising the crest to the pre-earthquake/design level.

4. Probability
Calculate the probability that the minimum return period overtopping water level occurs within the exposure period.

Contemplated Approach in Richmond

Recognizing the unique situation in Richmond, an alternative approach and criteria have been developed as part of the strategy and current dike master planning activities. This represents some variance with the current BC Seismic Design Guidelines for Dikes.

The purpose of this alternative approach is to harmonize the level of performance between seismic and non-seismic (i.e., overtopping, piping, etc.) dike failure modes. This will allow the City to more efficiently identify, prioritize, and address the areas of highest risk regardless of the governing failure process.

The approach is conceptually simple, but requires confirmation of multiple scenarios. Should flowslide failure be anticipated under the 475-year return period earthquake, additional mitigation measures should be implemented. The alternative approach calculates the post-earthquake dike elevation for the specified area and identifies the flood return period which would result in unacceptable wave overtopping. Assuming a 1-year exposure period for dike repair (this value can be modified) the method then calculates the total overtopping risk by combining the probabilities for the earthquake and flood scenarios. This calculated probability is then compared with the performance criterion (e.g., the adopted flood risk return period) to determine if seismic performance is acceptable.

The most important aspect of seismic dike protection in the City is to identify potential flowslide areas, and to implement appropriate counter measures. As improvements in and around the dike are not likely to be effective in most flowslide situations, further investigation into large area land raising to mitigate flowslide failure may be warranted.

Options for Minimizing the Potential for Flooding

In addition to diking, there are a number of other approaches available to prevent and mitigate flooding. These include the following:

Raise Land Levels

The rationale for raising the level of the land is similar to that which led to the establishment of flood construction levels. It is an attempt to retroactively institute consistent flood construction levels related to design flood levels for all parts of Lulu Island, even those which are currently in the Floodplain Exemption Area.

Flood Construction Levels

It is appropriate to periodically update the FCL's that are specified in the bylaw. This may be based on four considerations:

- updated dike breach modelling in consideration of current sea level rise projections and estimated Fraser River flood level;
- the extent to which land raising may be practically performed in various parts of the City in accordance with existing grade constraints;
- the degree to which it is appropriate to require structural elevation of buildings (as opposed to landfill); and
- specific direction for portions of buildings that may be below the FCL.

Further to the last bullet, further restriction of building use and/or configuration below the FCL could be required where achieving the FCL by structural means is permitted. The need for further structural, waterproofing and flood protection measures for building areas below the FCL (underground parking areas and basements) could also be considered.

Flood Proofing

Flood proofing is achieved by raising habitable space on fill, or on a crawlspace or carport or garage that can survive flooding.

An alternative called wet "flood proofing" allows habitable space below the FCL, but relies on the use of flood resistant building materials and construction methods to mitigate the flood impact.

Management of Dike Corridor

Under the *Local Government Act*, a municipality may designate Development Permit Areas in its Official Community Plan for one or more of the following purposes: protection of the natural environment; protection of development from hazardous conditions; protection of farming; revitalization of an area in which a commercial use is permitted; and establishment of objectives for the form and character of intensive residential, commercial, industrial and multi-family development.

There may be merit in the City expanding the designation of development permit areas along the dike corridor, and developing additional guidelines to encourage land development to achieve the above-noted ideal scenario for the perimeter dike.

Potential benefits may include:

- bring the perimeter dike issue more broadly to the attention of the public and the development community;
- giving the City additional tools to appropriately oversee/regulate all activities along the dike that may impact the dike;
- consider options for raising land inside the dike in conjunction with land development (i.e. establish a superdike); and
- promote the concept of widespread land raising inside the dike.

Land Use and Environmental Considerations

Growth

Most of the residential, commercial and administrative nodes of the city are situated within the 'floodplain exemption area' in West Richmond. Residential growth, as well as commercial expansion, has continued, but is confined largely to the western portions of the city (with the Hamilton area on the New Westminster boundary and Burkeville on Sea Island being notable exceptions). This additional development further emphasizes the need for continued monitoring and flood mitigation planning, since the added population and investment in the area has significantly increased the potential for damage from a flood event. Agriculture predominates in the eastern portions of Lulu Island, with

extensive cranberry fields towards No. 8 Road and Nelson Road. This has been a growing sector over the past few years, and now over 850 hectares of the agricultural crop land is devoted to cranberry production (the next largest crop is hay with about 430 hectares). Special drainage canals, ditches and dikes are required for the seasonal harvesting of cranberries.

Land Use Changes

Land use change has been dramatic since the initial adoption of the 1989 flood management strategy. Notable is the expansion of the residential development in the City Centre and industrial and business park base. Major new activities include the development of the Port of Vancouver lands which extend along the south arm of the Fraser River at the southern ends of No. 7 Road, No. 8 Road and Nelson Road. Large warehousing and distribution centres characterize this area. The area has been developed on an extensive volume of fill sand taken from the dredging operations conducted by the Port of Vancouver. This fill creates a substantial area of high elevation topography in Richmond with a land surface situated above even the worst case extreme flood levels. The Port of Vancouver (Richmond lands) will ultimately provide for about 1,000 hectares of industrial use in this location, and the elevation of the land here functions as a significant flood barrier.

Environment

The City considers the environment to be of significant importance and has successfully protected several natural areas such as foreshore areas, the Richmond Nature Park, the Northeast Bog Forest and the Terra Nova Natural Area. In 1991, the City amended its Official Community Plan to include an inventory of environmentally sensitive areas such as bogs, estuaries, and sloughs as valuable natural habitats. In 2005, parks and protected areas accounted for 9.7% (1248ha) of the municipality's land base.

The City's Integrated Rainwater Resource Management Strategy (2018), 2022 Parks and Open Space Strategy (2013), Ecological Network Management Strategy (2015), Waterfront Strategy (2009), and Trail Strategy (2010) are all considered as a part of Richmond's Flood Protection Management Strategy.

Appendix 2: Flood Protection Program Timeline

CITY OF RICHMOND **FLOOD PROTECTION MANAGEMENT STRATEGY**

Flood Protection Bylaw Amendments | Flood Protection Master Planning | Municipal Flood Protection Construction | Development Dike Construction

2000
Council approve the concept of establishing a Drainage and Dikin[illegible]ity and adopt[illegible] Drainage Improvement Research and

2000
Peace Arch Drainage Pump Station rebuild is completed

2002
A multi year project begins to hydraulically model West Richmond's drainage system and prioritise system improvements

2002
A drainage utility is established to provide a dedicated funding source for drainage improvements

2002
Gilbert Road North Drainage Pump Station rehab is completed

November 2003
The Drainage Pump Station Condition Assessment is completed

2002
Tipping Road South Drainage Pump Station rebuild is completed

2003
No 1 Road South Drainage Pump Station rebuild is completed

October 2005
The Tsunami Hazard at the Fraser River Delta Study is completed. No tsunami was found to impact Richmond in the last 4000 years (since geological records began)

2006
A dike utility is implemented to provide a dedicated funding source for dike improvements

June 2006
Council adopt East Richmond Agricultural Water Supply Study 2006

July 2006
Council adopt the 2006-2031 Flood Protection Management Strategy

2006
Duck Island Drainage Pump Station rehab is complete

2007
Francis Road West Drainage Pump Station is complete

June 2008
The 2008-2031 Flood Protection Management Stategy replaces the 2006 Strategy

2008
The Flood Plain Designation and Protection Bylaw No. 8204 is enacted which outlines building, landfill and set back strategies for flood protection

2008
Richmond Olympic Oval superdike construction

2008
Comstock Road Drainage Pump Station rehab is complete

April 2009
The Mid Island Dike Study concludes that it is more cost effective to upgrade Lulu Island's perimeter dike than to build a mid island dike

2010
Gilbert Road South Drainage Pump Station rehab is complete

2010
Cambie Road West Drainage Pump Station rebuild is complete

2010
City receives $3.9 million grant from senior government for pump station upgrades

2011
Drainage Modelling is updated to support Bylaw 9000, The 2041 Official Community Plan

2011
No 4 Road North Drainage Pump Station rebuild is complete

2013
Oris "Parc Riviera Phase 1" superdike construction

April 2013
Council adopt Dike Master Plan - Phase 1 Report that includes endorsement of Steveston Island as the preferred long term dike solution in Steveston

2013
Williams Road Drainage Pump Station rebuild is complete

2013
Onni (Steveston) "Imperial Landing" superdike construction

October 2013
Council adopt Ageing Infrastructure Planning- 2013 Update Report

2014
Council adopt East Richmond Agricultural Water Supply Study Update 2013

2014
No. 1 Road North Drainage Pump Station rebuild complete

2014
City receives $2.04 million grant from Emergency Management BC towards Bath Slough Drainage Pump Station Upgrade

July 2015
Council adopt Ageing Infrastructure Planning- 2015 Update Report

2015
Bath Slough Drainage Pump Station rebuild is complete

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Richmond

CITY OF RICHMOND **FLOOD PROTECTION MANAGEMENT STRATEGY**

Flood Protection Bylaw Amendments | Flood Protection Master Planning | Municipal Flood Protection Construction | Development Dike Construction

2016
City receives $16.6 million grant from the Province of British Columbia towards $28 million pumpstation and dike upgrades

2017
City receives NDMP grant funding to complete Flood Mitigation Strategy Update in the amount of $500,000 ($250,000 Federal, $250,000 Provincial) which includes Dike Master Plan Phase 3, Flood Protection Management Strategy Update and the Pump Station Condition Assessment

2017
City receives UBCM grant funding to complete Dike Master Plan Phase 5 in the amount of $150,000

April 2018
Council adopt Dike Master Plan Phase 2

2018
Aspac "River Green" (east of Oval) superdike construction

2018
No. 2 Road North Drainage Pump Station rebuild is complete

April 2019
City receives $1.0 million grant from Emergency Management BC towards Steveston Highway – No. 3 Road Drainage Pump Station Upgrade

2016
Aspac (west of Oval) superdike construction

2017
Oris "Kawaki" superdike construction

July 2017
Council adopt Ageing Utility and Road Infrastructure Planning – 2017 Update report

2017
City receives NDMP grant funding to complete Steveston Island Flood Mitigation Planning in the amount of $1,215,000 (Federal $810,000, Provincial $405,000, City of Richmond $405,000)

2017
Mitchell Island development superdike construction

2018
Britannia Flood Protection Improvements is complete

April 2018
Council adopt the Integrated Rainwater Resource Management Strategy

2018
Oris "Parc Riviera Phase 2" superdike construction

March 2019
Council adopt Dike Master Plan Phases 3 & 5

March 2019
Drainage Pump Station Condition Assessment is completed

April 2019
City receives $13.8 million grant from the Disaster Mitigation and Adaptation Fund for flood protection and infrastructure upgrades

(timeline cont'd)

FUTURE PROJECTS

2019
Flood Protection Management Strategy 2019

2019
Steveston Highway – No. 3 Road Drainage Pump Station Upgrade

Winter 2019
Horseshoe Slough Drainage Pump Station

Winter 2020
Shell Road North Drainage Pump Station

Winter 2020
No. 3 Road to Finn Slough Dike Upgrade

Spring 2021
No. 2 Road South Drainage Pump Station

2019
Dike Master Plan Phase 4

Winter 2019
Gilbert to No.3 Road Dike Upgrade

Winter 2019
Burkeville Drainage Upgrades Phase 1

Winter 2020
No. 7 Road South Drainage Pump Station

Winter 2020
No. 9 Road South Dike Upgrade

Richmond

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City of Richmond

Memorandum

Finance and Corporate Services Division
City Clerk's Office

To:	Mayor and Councillors	**Date:**	June 6, 2019
From:	Claudia Jesson Manager, Legislative Services	**File:**	08-4057-20-020/Vol 01
Re:	Proposed UBCM Resolutions from Cllr. Greene		

The purpose of this memorandum is to provide comments regarding the three draft resolutions (refer to Attachment) proposed to be forwarded to the UBCM for consideration at the 2019 Conference.

Statement of Disclosure Updates:

The *Local Election Campaign Financing Act* governs the requirement for candidates to file disclosure statements. A candidate for office must record and report campaign contributions and expenses accordingly, and a candidate must file their disclosure within 90 days after general voting day. Elections BC oversees all matters of campaign financing and candidates file directly with Elections BC, a non-partisan Office of the Legislature. City staff are not involved in the receipt of campaign financial disclosure statements. The only role that city staff play is sending out the necessary reminders to all candidates to ensure the deadlines are met, as quite often some candidates in the past have been late in meeting the required deadlines. There are serious consequences to not filing a disclosure statement or supplementary report within the applicable time, namely candidates can be disqualified from seeking office until after the subsequent election. To require that a candidate's disclosure statement also include information pertaining to a number of family members will make it difficult for a candidate to complete their statements and file on time. There could be serious consequences if family members refuse to have their information to be included as part of a candidate's disclosure, in that disclosures would be deemed incomplete. Elections BC receives, files and posts online all candidate disclosure statements for every municipality; and the records are available for public inspection. The suggestion for the filing of a confidential version of a financial disclosure could raise concerns, as Election related processes are based on principles of openness and transparency.

Conflict of Interest Complaint Mechanism:

The *Community Charter* outlines the conflict of interest provisions that all elected officials must adhere to. When members of Council declare a conflict of interest during a Council Committee and/or Council meeting, the minutes must record that a conflict has been declared and that the member has removed themselves from the meeting for discussion of that respective matter. There is recognition that Council members may encounter conflict of interest situations and as such there are high standards for elected officials to adhere to relative to disclosure and not

participating in discussions. As part of the requirement to be open, the BC *Financial Disclosure Act* requires that elected officials must file on annual basis their financial disclosure of their financial assets and sources of income. Such disclosures are received by the City Clerk's Office and must be available to the public for inspection during normal business hours.

Conflict of Interest During Election Period:

During the year of an election, it should be noted that the "Election Period" is the start of the calendar year in which the election is held and the "Campaign Period" begins on the 28th day before general voting day for the election. The term of office of Council members is stipulated in the *Community Charter*. In the case of elected representative(s) who may not be re-elected, it is established practice that these members continue to serve post-election day until the new elected officials are sworn in. This provides the necessary continuity, especially in regards to quorum, that is required until the Inaugural Meeting of a new Council takes place. In addition, the last Council meeting of an outgoing Council that follows an election provides a closure opportunity for any non-returning elected officials to both say good bye to the citizens and to receive formal acknowledgement for their service.

During the "Campaign Period" consideration has always been given to ensure that matters of a substantive nature are not brought forward to Council due to a pending election. It has been a longstanding Richmond practice for Committee and Council agendas to be kept light for the meetings leading up to the election; as an example the budget process was deliberately delayed last fall in order to ensure the budget would be addressed and approved by the newly elected Council. If meetings were to be suspended during the "Campaign Period", staff would not be in a position, nor would they likely accept responsibility to exercise the powers of Council, as Council is the decision-making body and staff would potentially be in a position of conflict. Council is the governing body and can only exercise its powers either by bylaw or resolution passed at a regular or special meeting when quorum is present. During the summer recess break, while there are no scheduled meetings of Council, however, the flexibility and ability for Council to schedule a meeting for any purpose always exists and ought to exist at all times.

Claudia Jesson
Manager, Legislative Services
(604-276-4006)

Attachment

Cc: SMT

To send to the following three resolutions to UBCM for consideration at the 2019 convention and to send copies to the Local Governments of BC for their favourable consideration prior to the 2019 UBCM meeting. An additional copy to be sent to the Minister of Municipal Affairs.

1) *Statement of Disclosure Updates*

Whereas professional regulatory bodies, such as CPABC, BC Law Society, APEGBC, and others, have conflict of interest and ethics rules for their members, under which appearance of conflict of interest is disallowed;

Whereas the public expects elected representatives to act to a professional standard of conduct;

And whereas the scope of decisions and responsibilities of an elected representative can be broad and encompass a variety of issues,

So be it resolved that the Statement of Disclosure for municipal nominees and elected representatives be updated to additionally include a spouse's assets; a spouse's liabilities; and real property, other than their primary residence, held singly or jointly by a spouse, child, brother, sister, mother or father. Further, within 60 days of being sworn in, to file a confidential financial disclosure statement to a non-partisan Municipal Conflict of Interest Commissioner.

2) *Conflict of Interest Complaint Mechanism*

Whereas professional regulatory bodies, such as CPABC, BC Law Society, APEGBC, and others, have conflict of interest and ethics rules for their members and enforce them through a complaints process;

Whereas the public expects elected representatives to be held to a professional standard of conduct;

And whereas the only remedy for a citizen complaint of a municipal elected person's conflict of interest is through a judgement of the Supreme Court of British Columbia,

So be it resolved that the Province of British Columbia provide a mechanism to resolve and remedy conflict of interest complaints through a non-partisan Municipal Conflict of Interest Commissioner or expansion of the scope of powers of the BC Ombudsperson.

3) *Conflict of Interest During Election Period*

Whereas provincial and federal governments are dissolved during the writ period;

Whereas an elected representative could electioneer during the election period and be perceived to be acting for political gain;

Whereas an elected representative may not be re-elected, yet retain their position for a period of time after Election Day, effectively a "lame duck" candidate;

Whereas municipal government staff effectively manage the city without a sitting Council for four consecutive weeks each year, at minimum;

So be it resolved that all municipal government meetings, except those provided for under the Emergency Program Act, be suspended during the election period and that the previous municipal government is dissolved on Election Day.

City of Richmond

Report to Council

To:	Richmond City Council	**Date:**	June 3, 2019
From:	Andrew Nazareth General Manager, Finance and Corporate Services	**File:**	03-1200-03/2019-Vol 01
Re:	**Council Remuneration and Expenses for 2018**		

Staff Recommendation

That the 2018 Council Remuneration and Expenses be approved.

Andrew Nazareth
General Manager, Finance and Corporate Services
(604-276-4095)

REPORT CONCURRENCE
CONCURRENCE OF GENERAL MANAGER
CONCURRENCE OF SMT
APPROVED BY CAO

Staff Report

Origin

Pursuant to Section 168 (1) of the Community Charter, the total remuneration, benefits and expenses incurred by each member of Council must be reported annually.

Analysis

Total salaries paid to Council members for 2018 were $676,422 and the cost of benefits was $153,073. Total expenses incurred were $26,262. The schedule below provides a summary by each member of Council.

	Base Salary	Benefits & Other[1]		Community Events & Meetings	Seminars & Conferences	Business Travel	General Travel – Parking/ Taxi	Total Expenses
Mayor Brodie	$135,210	$22,807		$783	$5,647	$435	$415	$7,280
Councillor Au	67,605	16,682		137	3,753	-	-	3,890
Councillor Dang	59,058	15,522		-	-	-	-	-
Councillor Day	67,605	15,682		115	72	-	-	187
Councillor Greene	8,733	2,039		151	422	-	-	573
Councillor Johnston	59,058	14,566		139	-	-	-	139
Councillor Loo	67,605	17,596		1,562	5,150	-	-	6,712
Councillor McNulty	67,605	18,810		564	-	-	-	564
Councillor McPhail	67,605	11,080		174	1,609	-	-	1,783
Councillor Steves	67,605	16,391		-	4,138	25	971	5,134
Councillor Wolfe	8,733	1,898		-	-	-	-	-

[1]Consists of taxable and non-taxable benefits. The 2018 Statement of Financial Information issued under separate cover reports taxable benefits only.

Financial Impact

None.

Conclusion

The report on Council remuneration and expenses for the year ended December 31, 2018 has been prepared in accordance with the *Community Charter*.

Andrew Nazareth
General Manager, Finance and Corporate Services
(604)-276-4095

AN: mc

City of Richmond

Report to Council

To:	Richmond City Council	**Date:**	June 3, 2019
From:	Andrew Nazareth General Manager, Finance and Corporate Services	**File:**	03-1200-03/2019-Vol 01
Re:	**2018 Statement of Financial Information**		

Staff Recommendation

That the 2018 Statement of Financial Information be approved.

Andrew Nazareth
General Manager, Finance and Corporate Services
(604-276-4095)

REPORT CONCURRENCE
CONCURRENCE OF GENERAL MANAGER
CONCURRENCE OF SMT
APPROVED BY CAO

Staff Report

Origin

Section 2(2) and (3) of the *Financial Information Act* states that a municipality must prepare the "Statement of Financial Information" within six months of the end of each fiscal year. Furthermore, Section 9(2) of the Financial Information Regulation requires that the statement be approved by its Council and by the officer assigned responsibility for financial administration under the *Local Government Act*. The following statements and schedules of financial information must be prepared:

- statement of assets and liabilities;
- an operational statement;
- a schedule of debts;
- a schedule of guarantee and indemnity agreements;
- a schedule showing remuneration and expenses paid to or on behalf of each employee as required by the Act;
- a schedule showing the payments for each supplier of goods and services;
- a schedule of grants and subsidies.

The current prescribed amounts for the purpose of reporting under the Financial Information Regulation for employee remuneration/expenses and payments to suppliers are $75,000 and $25,000 respectively.

Analysis

Sections 1 to 4 of the attached schedules is captured in the City's 2018 audited consolidated financial statements. Section 5 is not applicable as there were no guarantee and indemnity agreements provided under the Guarantees and Indemnities Regulation (BC Reg. 258/87).

A schedule which shows employee remuneration in excess of $75,000 and related expenses for the 2018 fiscal year is attached in Section 6.

Remuneration consists of base salary, taxable benefits and lump sum payments. Taxable benefits may include employer paid benefit such as medical services plan, life insurance and vehicle benefits. Lump sum payments may include banked leave balances owed to employees, union gratuities and union overtime.

Expenses are reported in accordance with the *Financial Information Act*, and may include items such as individual professional memberships, mandatory professional development, employee tuition, and expenses incurred as part of the employee's job function.

The remuneration and expenses that are being reported are within the 5 Year Financial Plan Bylaw that was approved by Council. The internal controls on expenditures include bylaws, policies, administrative procedures, guidelines, and governance through reviews by Senior Management and Council.

A statement listing payments to suppliers for goods and services in excess of $25,000 for the 2018 fiscal year is attached in Section 7.

A statement listing payments for the purposes of grants and subsidies is attached in Section 7.

Financial Impact

None.

Conclusion

The attached 2018 Statement of Financial Information has been prepared in accordance with the *Financial Information Act*.

Jerry Chong
Director, Finance
(604) 276-4064

JC:mc

CITY OF RICHMOND
STATEMENT OF FINANCIAL INFORMATION
For the year ended December 31, 2018

INDEX

1)	Consolidated Statements.....	See Financial Statements
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	Statement of Grants and Subsidies.....	Section 7

CITY OF RICHMOND

2018 STATEMENT OF FINANCIAL INFORMATION APPROVAL

The undersigned, as authorized by the Financial Information Regulation, Schedule 1, subsection 9(2) approves all the statements and schedules included in this Statement of Financial Information, produced under the *Financial Information Act*.

Andrew Nazareth
General Manager, Finance and
Corporate Services

Malcolm D. Brodie
Mayor

Prepared pursuant to the Financial Information Regulation, Schedule 1, Section 9

MANAGEMENT REPORT

The consolidated financial statements contained in this Statement of Financial Information under the *Financial Information Act* have been prepared by management in accordance with generally accepted accounting principles. The integrity and objectivity of the consolidated financial statements are management's responsibility. Management is responsible for all the schedules prepared for the Statement of Financial Information, and for ensuring that the schedules are consistent, where appropriate, with the information contained in the consolidated financial statements.

Management is also responsible for implementing and maintaining a system of internal controls to provide reasonable assurance that reliable financial information is produced.

Council is responsible for ensuring that management fulfils its responsibilities for financial reporting and internal control and for approving the financial information included in the Statement of Financial Information.

The external auditors, KPMG LLP, conducted an independent examination, in accordance with generally accepted auditing standards, and express their opinion on the consolidated Statement of Financial Information financial statements. Their examination does not relate to the other schedules and statements required by the *Financial Information Act*. Their examination includes a review and evaluation of the City's system of internal controls and appropriate tests and procedures to provide reasonable assurance that the financial statements are presented fairly. The external auditors presented their findings to the City's Finance Committee.

Andrew Nazareth
General Manager, Finance and Corporate Services

Dated: June 13, 2019

Consolidated Financial Statements of

CITY OF RICHMOND

Year ended December 31, 2018

KPMG LLP
PO Box 10426 777 Dunsmuir Street
Vancouver BC V7Y 1K3
Canada
Telephone (604) 691-3000
Fax (604) 691-3031

INDEPENDENT AUDITORS' REPORT

To the Mayor and Council of the City of Richmond

Opinion

We have audited the consolidated financial statements of the City of Richmond (the "City"), which comprise:

- the consolidated statement of financial position as at December 31, 2018
- the consolidated statement of operations for the year then ended
- the consolidated statement of changes in net financial assets for the year then ended
- the consolidated statement of cash flows for the year then ended
- and notes to the consolidated financial statements, including a summary of significant accounting policies

(hereinafter referred to as the "financial statements").

In our opinion, the accompanying financial statements present fairly, in all material respects, the consolidated financial position of the City as at December 31, 2018, and its consolidated results of operations, its consolidated changes in net financial assets and its consolidated cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the "***Auditors' Responsibilities for the Audit of the Financial Statements***" section of our auditors' report.

We are independent of the City in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the City's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the City or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the City's financial reporting process.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit.

We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion.

  The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the City's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the City's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the City to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group entity to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

KPMG LLP

Chartered Professional Accountants

Vancouver, Canada
May 13, 2019

CITY OF RICHMOND

Consolidated Statement of Financial Position
(Expressed in thousands of dollars)

December 31, 2018, with comparative information for 2017

	2018	2017
Financial Assets		
Cash	$ 121,861	$ 47,867
Investments (note 3)	1,004,928	972,783
Investment in Lulu Island Energy Company ("LIEC") (note 4)	29,780	28,289
Accrued interest receivable	7,443	6,651
Accounts receivable (note 5)	29,151	27,036
Taxes receivable	11,844	8,976
Development fees receivable	25,545	22,376
Debt reserve fund - deposits (note 6)	508	508
	1,231,060	1,114,486
Liabilities		
Accounts payable and accrued liabilities (note 7)	95,231	99,036
Development cost charges (note 8)	158,882	130,684
Deposits and holdbacks (note 9)	113,620	82,786
Deferred revenue (note 10)	67,364	66,287
Debt, net of MFA sinking fund deposits (note 11)	32,842	37,603
	467,939	416,396
Net financial assets	763,121	698,090
Non-Financial Assets		
Tangible capital assets (note 12)	2,371,694	2,251,901
Inventory of materials and supplies	3,602	3,762
Prepaid expenses	2,673	2,376
	2,377,969	2,258,039
Accumulated surplus (note 13)	$ 3,141,090	$ 2,956,129

Contingent demand notes (note 6)
Commitments and contingencies (note 18)

See accompanying notes to consolidated financial statements.

General Manager, Finance and Corporate Services

CITY OF RICHMOND

Consolidated Statement of Operations
(Expressed in thousands of dollars)

Year ended December 31, 2018, with comparative information for 2017

	2018 Budget (notes 2(p) and 24)	2018	2017
Revenue:			
Taxation and levies	$ 216,703	$ 216,908	$ 206,901
Utility fees	100,786	102,915	99,493
Sales of services	39,246	39,111	39,430
Payments-in-lieu of taxes	14,245	15,489	14,647
Provincial and federal grants	7,692	10,355	9,276
Development cost charges (note 8)	31,638	17,432	15,710
Other capital funding sources	58,685	95,859	57,570
Other revenue:			
Investment income	14,694	20,705	17,832
Gaming revenue	16,500	16,837	16,753
Licenses and permits	10,384	13,637	13,011
Other (note 21)	10,921	48,678	31,502
Equity income in government business enterprise ("GBE") (note 4)	-	1,491	1,042
	521,494	599,417	523,167
Expenses:			
Community safety	101,786	98,500	89,933
Utilities: water, sewer and sanitation	90,460	89,959	87,757
Engineering, public works and project development	76,077	68,793	66,120
Community services	66,159	63,882	77,387
General government	61,796	52,549	51,720
Planning and development	16,120	15,368	15,417
Richmond Olympic Oval	16,211	15,424	15,331
Library services	10,758	9,981	9,619
	439,367	414,456	413,284
Annual surplus	82,127	184,961	109,883
Accumulated surplus, beginning of year	2,956,129	2,956,129	2,846,246
Accumulated surplus, end of year	$ 3,038,256	$ 3,141,090	$ 2,956,129

See accompanying notes to consolidated financial statements.

CITY OF RICHMOND

Consolidated Statement of Changes in Net Financial Assets
(Expressed in thousands of dollars)

Year ended December 31, 2018, with comparative information for 2017

	2018 Budget (notes 2(p) and 24)	2018	2017
Annual surplus for the year	$ 82,127	$ 184,961	$ 109,883
Acquisition of tangible capital assets	(162,318)	(92,851)	(110,742)
Contributed tangible capital assets	(47,410)	(88,021)	(52,249)
Amortization of tangible capital assets	58,717	60,542	58,012
Net loss (gain) on disposal of tangible capital assets	-	324	(3,293)
Proceeds on sale of tangible capital assets	-	213	5,361
Reclassification of assets to LIEC as GBE	-	-	31,036
Classification of LIEC as GBE	-	-	(2,182)
	(68,884)	65,168	35,826
Acquisition of inventories of materials and supplies	-	(3,602)	(3,762)
Acquisition of prepaid expenses	-	(2,673)	(2,376)
Consumption of inventories of materials and supplies	-	3,762	3,138
Use of prepaid expenses	-	2,376	2,525
Change in net financial assets	(68,884)	65,031	35,351
Net financial assets, beginning of year	698,090	698,090	662,739
Net financial assets, end of year	$ 629,206	$ 763,121	$ 698,090

See accompanying notes to consolidated financial statements.

CITY OF RICHMOND

Consolidated Statement of Cash Flows
(Expressed in thousands of dollars)

Year ended December 31, 2018, with comparative information for 2017

	2018	2017
Cash provided by (used in):		
Operating activities:		
Annual surplus	$ 184,961	$ 109,883
Items not involving cash:		
Amortization	60,542	58,012
Loss (gain) on disposal of tangible capital assets	324	(3,293)
Contributions of tangible capital assets	(88,021)	(52,249)
Accounting adjustments upon transition of LIEC to a GBE	-	5,846
Equity income in GBE	(1,491)	(1,042)
Change in non-cash operating working capital:		
Accrued interest receivable	(792)	321
Accounts receivable	(2,115)	730
Taxes receivable	(2,868)	446
Development fees receivable	(3,169)	(5,664)
Inventories of materials and supplies	160	(624)
Prepaid expenses	(297)	149
Accounts payable and accrued liabilities	(3,805)	2,316
Development cost charges	28,198	13,087
Deposits and holdbacks	30,834	9,990
Deferred revenue	1,077	(33)
Net change in cash from operating activities	203,538	137,875
Capital activities:		
Cash used to acquire tangible capital assets	(92,851)	(110,742)
Proceeds on disposal of tangible capital assets	213	5,361
Net change in cash from capital activities	(92,638)	(105,381)
Financing activities:		
Repayments of debt	(4,761)	(4,578)
Investing activities:		
Net sale (purchase) of investments	(32,145)	5,855
Contribution to LIEC	-	(4,239)
Net change in cash from investing activities	(32,145)	1,616
Net change in cash	73,994	29,532
Cash, beginning of year	47,867	18,335
Cash, end of year	$ 121,861	$ 47,867

See accompanying notes to consolidated financial statements.

1. Operations:

The City of Richmond (the "City") is incorporated under the Local Government Act of British Columbia. The City's principal activities include the provision of local government services to residents of the incorporated area. These include administrative, protective, transportation, infrastructure, environmental, recreational, water, sewer, and drainage.

2. Significant accounting policies:

The consolidated financial statements of the City have been prepared in accordance with Canadian public sector accounting standards as prescribed by the Public Sector Accounting Board ("PSAB") of the Chartered Professional Accountants Canada.

(a) Basis of consolidation:

The consolidated financial statements reflect a combination of the City's General Revenue, General Capital and Loan, Waterworks and Sewerworks, and Reserve Funds consolidated with the Richmond Public Library (the "Library") and the Richmond Olympic Oval (the "Oval"). The Library is consolidated as the Library Board is appointed by the City. The Oval is consolidated as they are a wholly owned municipal corporation of the City. Interfund transactions, fund balances and activities have been eliminated on consolidation. The City's investment in Lulu Island Energy Company ("LIEC"), a wholly owned government business enterprise ("GBE"), is accounted for using the modified equity method effective January 1, 2017 (note 2(f)).

(*i*) General Revenue Fund:

This fund is used to account for the current operations of the City as provided for in the Annual Budget, including collection of taxes, administering operations, policing, and servicing general debt.

(*ii*) General Capital and Loan Fund:

This fund is used to record the City's tangible capital assets and work-in-progress, including engineering structures such as roads and bridges, and the related debt.

(*iii*) Waterworks and Sewerworks Funds:

These funds have been established to cover the costs of operating these utilities, with related capital and loan funds to record the related tangible capital assets and debt.

(*iv*) Reserve Funds:

Certain funds are established by bylaws for specific purposes. They are funded primarily by budgeted contributions from the General Revenue Fund and developer contributions plus interest earned on fund balances.

2. Significant accounting policies (continued):

(b) Basis of accounting:

The City follows the accrual method of accounting for revenue and expenses. Revenue is recognized in the year in which it is earned and measurable. Expenses are recognized as they are incurred and measurable as a result of receipt of goods and services and/or the creation of a legal obligation to pay.

(c) Government transfers:

Restricted transfers from governments are deferred and recognized as revenue as the related expenditures are incurred or the stipulations in the related agreement are met. Unrestricted transfers are recognized as revenue when received or if the amount to be received can be reasonably estimated and collection is reasonably assured.

(d) Cash and cash equivalents:

Cash and cash equivalents consist of cash, highly liquid money market investments and short-term investments with maturities of less than 90 days from date of acquisition.

(e) Investments:

Investments are recorded at cost, adjusted for amortization of premiums or discounts. Provisions for losses are recorded when they are considered to be other than temporary.

(f) Investment in government business enterprises:

Government business enterprises are recorded using the modified equity method of accounting. The City's investment in the GBE is recorded as the value of the GBE's shareholder's equity. The investment's income or loss is recognized by the City when it is earned by the GBE. Inter-organizational transactions and balances are not eliminated, except for any gains or losses on assets remaining within the City.

(g) Accounts receivable:

Accounts receivable are net of an allowance for doubtful accounts and therefore represent amounts expected to be collected.

(h) Development cost charges:

Development cost charges are restricted by legislation to expenditures on capital infrastructure. These amounts are deferred upon receipt and recognized as revenue when the expenditures are incurred in accordance with the restrictions.

2. Significant accounting policies (continued):

(i) Post-employment benefits:

The City and its employees make contributions to the Municipal Pension Plan. As this plan is a multi-employee plan, contributions are expensed as incurred.

Post-employment benefits also accrue to the City's employees. The liabilities related to these benefits are actuarially determined based on service and best estimates of retirement ages and expected future salary and wage increases. The liabilities under these benefits plans are accrued based on projected benefits prorated as employees render services necessary to earn the future benefits.

(j) Non-financial assets:

Non-financial assets are not available to discharge existing liabilities and are held for use in the provision of services. They have useful lives extending beyond the current year and are not intended for sale in the ordinary course of operations.

(*i*) Tangible capital assets:

Tangible capital assets are recorded at cost, which includes amounts that are directly attributable to acquisition, construction, development, or betterment of the assets. The cost, less the residual value, of the tangible capital assets, excluding land, are amortized on a straight line basis over their estimated useful lives as follows:

Asset	Useful life - years
Buildings and building improvements	10 - 75
Infrastructure	5 - 100
Vehicles, machinery and equipment	3 - 40
Library's collections, furniture and equipment	4 - 20

Amortization is charged over the asset's useful life commencing when the asset is acquired. Assets under construction are not amortized until the asset is available for productive use.

(*ii*) Contributions of tangible capital assets:

Tangible capital assets received as contributions are recorded at their fair value at the date of receipt and also are recorded as revenue.

(*iii*) Natural resources, works of art, and cultural and historic assets:

Natural resources, works of art, and cultural and historic assets are not recorded as assets in the consolidated financial statements.

2. Significant accounting policies (continued):

(j) Non-financial assets (continued):

(*iv*) Interest capitalization:

The City does not capitalize interest costs associated with the construction of a tangible capital asset.

(*v*) Labour capitalization:

Internal labour directly attributable to the construction, development or implementation of a tangible capital asset is capitalized.

(*vi*) Leased tangible capital assets:

Leases which transfer substantially all of the benefits and risks incidental to ownership of property are accounted for as leased tangible capital assets. All other leases are accounted for as operating leases and the related payments are charged to expenses as incurred.

(*vii*) Impairment of tangible capital assets:

Tangible capital assets are written down when conditions indicate that they no longer contribute to the City's ability to provide goods and services, or when the value of future economic benefits associated with the tangible capital assets are less than their net book value. The net write-downs are accounted for as expenses in the consolidated statement of operations.

(*viii*) Inventory of materials and supplies:

Inventory is recorded at cost, net of an allowance for obsolete stock. Cost is determined on a weighted average basis.

(k) Revenue recognition:

Revenue is recognized in the period in which the transactions or events occurred that gave rise to the revenue. All revenue is recorded on an accrual basis, except when the accruals cannot be determined with a reasonable degree of certainty or when their estimation is impractical.

The City is required to act as the agent for the collection of certain taxes and fees imposed by other authorities. Collections for other authorities are excluded from the City's taxation revenue.

(l) Property taxes:

The City establishes property tax rates based on assessed market values provided by the British Columbia Assessment Authority (BCA). Market values are determined as of July 1st of each year. The City records taxation revenue at the time the property tax bills are issued. The City is entitled to collect interest and penalties on overdue taxes.

2. Significant accounting policies (continued):

(m) Deferred revenue:

The City defers a portion of the revenue collected from permits, licenses and other fees and recognizes this revenue in the year in which related inspections are performed, other related expenses are incurred or services are provided.

Deferred revenue also represents funds received from external parties for specified purposes. This revenue is recognized in the period in which the related expenses are incurred.

(n) Deposits:

Receipts restricted by the legislation of senior governments or by agreement with external parties are deferred and reported as deposits and are refundable under certain circumstances. When qualifying expenses are incurred, deposits are recognized as revenue at amounts equal to the qualifying expenses.

(o) Debt:

Debt is recorded net of related sinking fund balances.

(p) Budget information:

Budget information, presented on a basis consistent with that used for actual results, was included in the City's 5 Year Consolidated Financial Plan (2018-2022) ("Consolidated Financial Plan") and was adopted through Bylaw No. 9800 on March 12, 2018.

(q) Contaminated sites:

Contaminated sites are a result of contamination being introduced into air, soil, water, or sediment of a chemical, organic or radioactive material of live organism that exceeds an environmental standard. Liabilities are recorded net of any expected recoveries.

A liability for remediation of contaminated sites is recognized when a site is not in productive use and the following criteria are met:

(*i*) An environmental standard exists;

(*ii*) Contamination exceeds the environmental standard;

(*iii*) The City is directly responsible or accepts responsibility;

(*iv*) It is expected that future economic benefits will be given up; and

(*v*) A reasonable estimate of the amount can be made.

The liability is recognized as management's estimate of the cost of post-remediation including operation, maintenance and monitoring that are an integral part of the remediation strategy for a contaminated site.

2. Significant accounting policies (continued):

(r) Use of accounting estimates:

The preparation of consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amount of revenue and expenditures during the reporting period. Significant areas requiring the use of management estimates relate to the value of contributed tangible capital assets, value of developer contributions, useful lives for amortization, determination of provisions for accrued liabilities, performing actuarial valuation of employee future benefits, allowance for doubtful accounts, and provision for contingencies. Actual results could differ from those estimates. Adjustments, if any, will be reflected in the consolidated financial statements in the period that the change in estimate is made, as well as in the period of settlement if the amount is different.

(s) Segment disclosures:

A segment is defined as a distinguishable activity or group of activities of a government for which it is appropriate to separately report financial information to achieve the objectives of the standard. The City has provided definitions of segments as well as presented financial information in segment format.

3. Investments:

	2018		2017	
	Cost	Market value	Cost	Market value
Short-term notes and deposits	$ 577,416	$ 577,060	$ 499,541	$ 488,215
Government and government guaranteed bonds	164,943	165,401	177,648	178,246
Municipal Finance Authority pooled investment	46,150	44,716	45,065	43,943
Other bonds	216,419	213,577	250,529	249,120
	$ 1,004,928	$ 1,000,754	$ 972,783	$ 959,524

4. Investment in Lulu Island Energy Company Ltd:

The City owns 100% of the issued and outstanding shares of LIEC, which was incorporated under the British Columbia Business Corporation Act on August 19, 2013. LIEC develops, manages and operates district energy utilities in the City, on the City's behalf, including but not limited to energy production, generation or exchange, transmission, distribution, maintenance, marketing and sales to customers, customer service, profit generation, financial management and advisory services for energy and infrastructure.

Summarized financial information relating to LIEC is as follows:

	2018	2017
Cash, cash equivalents, and investments	$ 8,596	$ 6,227
Accounts receivable	2,242	1,488
Tangible capital assets	32,361	32,033
Total assets	43,199	39,748
Accounts payable and accrued liabilities	1,922	1,550
Deferred contributions	5,268	3,522
Concession liability	6,229	6,387
Total liabilities	13,419	11,459
Shareholder's equity	$ 29,780	$ 28,289
Total revenue	$ 4,888	$ 4,224
Total expenses	3,397	3,182
Net income	$ 1,491	$ 1,042

Included in accounts payable and accrued liabilities in the City's consolidated statement of financial position are payables to LIEC in the amount of $1,375,799 (2017 - $360,766).

On October 30, 2014, LIEC and the Oval Village district energy utility developer ("the Concessionaire") entered into a 30-year Concession Agreement, which is a public-private partnership project ("P3"), where the Concessionaire will design, construct, finance, operate, and maintain the infrastructure for the district energy utility at the Oval Village community. As part of the Agreement, the infrastructure will be owned by LIEC.

On October 30, 2014, the Concessionaire and the City entered into a Limited Guarantee Agreement. The City is the Guarantor and guarantees the performance of some of the Company's obligations under the Concession Agreement to a maximum of $18.2 million (2017 - $18.2 million).

5. Accounts receivable:

	2018	2017
Water and sewer utilities	$ 11,999	$ 12,661
Casino revenue	4,010	4,025
Capital grants	5,003	2,929
Other trade receivables	8,139	7,421
	$ 29,151	$ 27,036

6. Debt reserve fund deposits and contingent demand notes:

The City issues its debt instruments through the Municipal Finance Authority (the "MFA"). As a condition of these borrowings, a portion of the debenture proceeds is withheld by the MFA in a Debt Reserve Fund. The City also executes demand notes in connection with each debenture whereby the City may be required to loan certain amounts to the MFA. These demand notes are contingent in nature and are not reflected in the City's accounts. The details of the cash deposits and contingent demand notes at December 31, 2017 and 2018 are as follows:

	Cash deposits	Contingent demand notes
General Revenue Fund	$ 508	$ 2,447

7. Accounts payable and accrued liabilities:

	2018	2017
Trade and other liabilities	$ 64,917	$ 68,618
Post-employment benefits (note 15)	30,314	30,418
	$ 95,231	$ 99,036

8. Development cost charges:

	2018	2017
Balance, beginning of year	$ 130,684	$ 117,597
Contributions	42,792	26,866
Interest	2,838	1,931
Revenue recognized	(17,432)	(15,710)
Balance, end of year	$ 158,882	$ 130,684

9. Deposits and holdbacks:

	Balance December 31, 2017	Deposit contributions	Refund/ expenditures	Balance December 31, 2018
Security deposits	$ 58,083	$ 63,785	$ (32,311)	$ 89,557
Developer contributions	6,953	360	-	7,313
Contract holdbacks	7,830	2,748	(3,928)	6,650
Other	9,920	8,814	(8,634)	10,100
	$ 82,786	$ 75,707	$ (44,873)	$ 113,620

10. Deferred revenue:

	Balance December 31, 2017	External restricted inflows	Revenue earned/ adjustments	Balance December 31, 2018
Taxes and utilities	$ 19,613	$ 20,450	$ (19,613)	$ 20,450
Building permits/development	13,726	7,545	(5,673)	15,598
Oval	6,515	10,304	(10,500)	6,319
Capital grants	20,278	7,240	(7,960)	19,558
Business licenses	2,510	2,136	(2,123)	2,523
Parking easement/leased land	2,423	54	(47)	2,430
Other	1,222	6,833	(7,569)	486
	$ 66,287	$ 54,562	$ (53,485)	$ 67,364

11. Debt, net of MFA sinking fund deposits:

The interest rate for the year ended December 31, 2018 on the principal amount of the MFA debentures was 3.30% (2017 - 3.30%) per annum. Interest expense incurred for the year on the long-term debt was $1,676,895 (2017 - $1,676,895). The maturity date of the MFA debt is April 7, 2024.

The City obtains debt instruments through the MFA pursuant to security issuing bylaws under authority of the Community Charter to finance certain capital expenditures.

Gross amount for the debt less principal payments and actuarial adjustments to date are as follows:

	Gross amount borrowed	Repayments and actuarial adjustments	Net debt 2018	Net debt 2017
General Fund	$ 50,815	$ 17,973	$ 32,842	$ 37,603

Repayments on net outstanding debt over the next five years and thereafter are as follows:

2019	$ 4,951
2020	5,149
2021	5,355
2022	5,570
2023	5,792
Thereafter	6,025
	$ 32,842

12. Tangible capital assets:

Cost	Balance December 31, 2017	Additions and transfers	Disposals	Balance December 31, 2018
Land	$ 905,118	$ 78,883	$ -	$ 984,001
Building and building improvements	416,029	26,210	(58)	442,181
Infrastructure	1,697,075	47,729	(3,124)	1,741,680
Vehicles, machinery and equipment	130,776	16,434	(4,417)	142,793
Library's collections, furniture and equipment	9,047	1,072	(674)	9,445
Assets under construction	140,752	10,544	-	151,296
	$ 3,298,797	$ 180,872	$ (8,273)	$ 3,471,396

Accumulated amortization	Balance December 31, 2017	Disposals	Amortization expense	Balance December 31, 2018
Building and building improvements	$ 170,579	$ (52)	$ 15,752	$ 186,279
Infrastructure	789,365	(2,865)	33,887	820,387
Vehicles, machinery and equipment	81,260	(4,148)	9,714	86,826
Library's collections, furniture and equipment	5,692	(671)	1,189	6,210
	$ 1,046,896	$ (7,736)	$ 60,542	$ 1,099,702

Net book value	December 31, 2018	December 31, 2017
Land	$ 984,001	$ 905,118
Buildings and building improvements	255,902	245,450
Infrastructure	921,293	907,710
Vehicles, machinery and equipment	55,967	49,516
Library's collection, furniture and equipment	3,235	3,355
Assets under construction	151,296	140,752
Balance, end of year	$ 2,371,694	$ 2,251,901

12. Tangible capital assets (continued):

(a) Assets under construction:

Assets under construction having a value of $151,295,702 (2017 - $140,751,542) have not been amortized. Amortization of these assets will commence when the asset is put into service.

(b) Contributed tangible capital assets:

Contributed tangible capital assets have been recognized at fair market value at the date of contribution. The value of contributed assets received during the year is $88,020,879 (2017 - $52,248,550) comprised of land in the amount of $69,654,386 (2017 - $36,128,140), infrastructure in the amount of $13,666,004 (2017 - $13,694,410), and buildings in the amount of $4,700,489 (2017 - $2,426,000).

(c) Tangible capital assets disclosed at nominal values:

Where an estimate of fair value could not be made, the tangible capital asset was recognized at a nominal value.

(d) Works of art and historical treasures:

The City manages and controls various works of art and non-operational historical cultural assets including building, artifacts, paintings, and sculptures located at City sites and public display areas. The assets are not recorded as tangible capital assets and are not amortized.

(e) Write-down of tangible capital assets:

There were no write-downs of tangible capital assets during the year (2017 - nil).

13. Accumulated surplus:

	General and Reserve Funds	Waterworks Utility Fund	Sewerworks Utility Fund	Richmond Olympic Oval	Library	2018 Total	2017 Total
Investment in tangible capital assets	$ 2,323,998	$ -	$ -	$ 9,256	$ 3,235	$ 2,336,489	$ 2,211,771
Reserves (note 14)	533,829	-	-	6,324	-	540,153	484,883
Appropriated surplus	183,477	13,533	8,576	1,357	230	207,173	205,010
Investment in LIEC	29,780	-	-	-	-	29,780	28,289
Surplus	15,750	247	6,247	592	1,193	24,029	22,618
Other equity	3,466	-	-	-	-	3,466	3,558
Balance, end of year	$ 3,090,300	$ 13,780	$ 14,823	$17,529	$ 4,658	$ 3,141,090	$ 2,956,129

14. Reserves:

	Balance, December 31, 2017	Change during year	Balance, December 31, 2018
Affordable housing	$ 10,168	$ 668	$ 10,836
Arts, culture and heritage	4,183	(180)	4,003
Capital building and infrastructure	69,731	12,032	81,763
Capital reserve	163,599	12,543	176,142
Capstan station	19,725	12,607	32,332
Child care development	3,006	3,800	6,806
Community legacy and land replacement	8,623	229	8,852
Drainage improvement	56,956	(824)	56,132
Equipment replacement	22,168	(2,568)	19,600
Hamilton area plan community amenity	735	17	752
Leisure facilities	6,765	12,000	18,765
Local improvements	6,047	1,108	7,155
Neighborhood improvement	7,100	420	7,520
Oval	4,749	1,575	6,324
Public art program	3,861	999	4,860
Sanitary sewer	42,909	1,198	44,107
Steveston off-street parking	310	7	317
Steveston road ends	211	(56)	155
Waterfront improvement	344	(27)	317
Watermain replacement	53,693	(278)	53,415
	$ 484,883	$ 55,270	$ 540,153

15. Post-employment benefits:

The City provides certain post-employment benefits, non-vested sick leave, compensated absences, and termination benefits to its employees.

	2018	2017
Accrued benefit liability, beginning of year	$ 30,418	$ 31,303
Current service cost	1,947	1,814
Interest cost	879	1,015
Past service credit	(397)	-
Amortization of actuarial gain	(25)	(61)
Benefits paid	(2,508)	(3,653)
Accrued benefit liability, end of year	$ 30,314	$ 30,418

15. Post-employment benefits (continued):

An actuarial valuation for these benefits was performed to determine the City's accrued benefit obligation as at December 31, 2018. The difference between the actuarially determined accrued benefit obligation of approximately $28,423,000 (2017 - $29,892,000) and the liability of approximately $30,314,000 (2017 - $30,418,000) as at December 31, 2018 is an unamortized net actuarial gain of $1,891,000 (2017 - $526,000). This actuarial gain is being amortized over a period equal to the employees' average remaining service lifetime of 10 years (2017 - 10 years).

	2018	2017
Actuarial benefit obligation:		
Liability, end of year	$ 30,314	$ 30,418
Unamortized actuarial gain	(1,891)	(526)
Balance, end of year	$ 28,423	$ 29,892

Actuarial assumptions used to determine the City's accrued benefit obligation are as follows:

	2018	2017
Discount rate	3.30%	2.90%
Expected future inflation rate	2.00%	2.00%
Expected wage and salary range increases	2.50% to 3.00%	2.50% to 3.00%

16. Pension plan:

The City and its employees contribute to the Municipal Pension Plan (a jointly trusteed pension plan). The board of trustees, representing plan members and employers, is responsible for administering the plan, including investment of assets and administration of benefits. The plan is a multi-employer defined benefit pension plan. Basic pension benefits are based on a formula. As at December 31, 2017, the plan has about 197,000 active members and approximately 95,000 retired members. Active members include approximately 39,000 contributors from local governments.

Every three years, an actuarial valuation is performed to assess the financial position of the plan and adequacy of plan funding. The actuary determines an appropriate combined employer and member contribution rate to fund the plan. The actuary's calculated contribution rate is based on the entry-age normal cost method, which produces the long-term rate of member and employer contributions sufficient to provide benefits for average future entrants to the plan. This rate is then adjusted to the extent there is amortization of any funding deficit.

16. Pension plan (continued):

The most recent valuation for the Municipal Pension Plan as at December 31, 2015, indicated a $2,224 million funding surplus for basic pension benefits on a going concern basis. As a result of the 2015 basic account actuarial valuation surplus and pursuant to the joint trustee agreement, $1,927 million was transferred to the rate stabilization account and $297 million of the surplus ensured the required contribution rates remained unchanged.

The City paid $12,759,865 (2017 - $12,284,569) for employer contributions while employees contributed $10,615,884 (2017 - $10,154,394) to the plan in fiscal 2018.

The next valuation will be as at December 31, 2018, with results available in 2019.

Employers participating in the plan record their pension expense as the amount of employer contributions made during the fiscal year (defined contribution pension plan accounting). This is because the plan records accrued liabilities and accrued assets for the plan in aggregate, resulting in no consistent and reliable basis for allocating the obligation, assets and cost to individual employers participating in the plan.

17. Contingent assets and contractual rights:

(a) Contingent assets:

Contingent assets are possible assets arising from existing conditions or situations involving uncertainty. That uncertainty will ultimately be resolved when one or more future events not wholly within the City's control occurs or fails to occur.

The City has legal claims, service agreements, and land dedications that may qualify as contingent assets. Amounts cannot be estimated as of December 31, 2018. Contingent assets are not recorded in the consolidated financial statements.

(b) Contractual rights:

The City has entered into contracts or agreements in the normal course of operations that it expects will result in revenue and assets in future fiscal years. The City's contractual rights are comprised of leases, licenses, grants and various other agreements, including the provision of police services with the Vancouver Airport Authority. The following table summarizes the expected revenue from the City's contractual rights:

2019	$ 13,609
2020	8,814
2021	2,576
2022	2,169
2023	724
Thereafter	5,573

17. Contingent assets and contractual rights (continued):

(b) Contractual rights (continued):

The City is entitled to receive revenue from certain other agreements. The revenue from these agreements cannot be quantified and has not been included in the amounts noted above.

18. Commitments and contingencies:

(a) Joint and several liabilities:

The City has a contingent liability with respect to debentures of the Greater Vancouver Water District, Greater Vancouver Sewerage and Drainage District and Greater Vancouver Regional District, to the extent provided for in their respective Enabling Acts, Acts of Incorporation and Amending Acts. Management does not consider payment under this contingency to be likely and therefore no amounts have been accrued.

(b) Lease payments:

The City is committed to operating lease payments for premises and equipment in the following approximate amounts:

2019	$ 4,808
2020	3,050
2021	3,059
2022	2,329
2023	2,314
Thereafter	9,963

(c) Litigation:

As at December 31, 2018, there were a number of claims or risk exposures in various stages of resolution. The City has made no specific provision for those where the outcome is presently not determinable.

(d) Municipal Insurance Association of British Columbia ("Association"):

The City is a participant in the Association. Should the Association pay out claims in excess of premiums received, it is possible that the City, along with other participants, would be required to contribute towards the deficit. Management does not consider external payment under this contingency to be likely and therefore, no amounts have been accrued.

(e) Contractual obligation:

The City has entered into various contracts for services and construction with periods ranging beyond one year. These commitments are in accordance with budgets passed by Council.

18. Commitments and contingencies (continued):

(f) E-Comm Emergency Communications for Southwest British Columbia Incorporated ("E-Comm"):

The City is a shareholder of the E-Comm whose services provided include: regional 9-1-1 call centre for the Greater Vancouver Regional District; Wide Area Radio network; dispatch operations; and records management. The City has 2 Class A shares and 1 Class B share (of a total of 32 Class A and 21 Class B shares issued and outstanding as at December 31, 2018). As a Class A shareholder, the City shares in both funding the future operations and capital obligations of E-Comm (in accordance with a cost sharing formula), including any lease obligations committed to by E-Comm up to the shareholder's withdrawal date.

(g) Community associations:

The City has agreements with the various community associations which operate the community centers throughout the City. The City generally provides the buildings and grounds, pays the operating costs of the facilities, and provides certain staff and other services such as information technology. Typically the community associations are responsible for providing programming and services to the community. The community associations retain all revenue which they receive.

19. Trust funds:

Certain assets have been conveyed or assigned to the City to be administered as directed by agreement or statute. The City holds the assets for the benefit of and stands in fiduciary relationship to the beneficiary. The following trust fund is excluded from the City's consolidated financial statements.

	2018	2017
Richmond Community Associations	$ 1,837	$ 1,800

20. Collections for other authorities:

The City is obligated to collect certain taxation revenue on behalf of other government bodies. These funds are excluded from the City's consolidated financial statements since they are not revenue of the City. Such taxes collected (after supplementary adjustments) and remitted to the government bodies during the year are as follows:

	2018	2017
Province of British Columbia - Schools	$ 169,005	$ 162,120
Greater Vancouver Regional District and others	47,298	44,702
	$ 216,303	$ 206,822

21. Other revenue:

	2018	2017
Developer contributions	$ 33,672	$ 13,014
Tangible capital assets gain on sale of land	-	4,217
Penalties and fines	3,784	3,247
Parking program	2,054	1,818
Other	9,168	9,206
	$ 48,678	$ 31,502

22. Government transfers:

Government transfers are received for operating and capital activities. The operating transfers consist of gaming revenue and provincial and federal grants. Capital transfers are included in other capital funding sources revenue. The source of the government transfers are as follows:

	2018	2017
Operating		
Province of British Columbia	$ 21,899	$ 21,368
TransLink	3,593	2,656
Government of Canada	1,700	1,580
Capital		
Province of British Columbia	5,685	746
TransLink	1,680	456
Government of Canada	36	803
	$ 34,593	$ 27,609

23. Segmented reporting:

The City provides a wide variety of services to its residents. For segment disclosure, these services are grouped and reported under service areas/departments that are responsible for providing such services. They are as follows:

(a) **Community Safety** brings together the City's public safety providers such as Police (RCMP), Fire-Rescue, Emergency Programs, and Community Bylaws. It is responsible for ensuring safe communities by providing protection services with a focus on law enforcement, crime prevention, emergency response, and protection of life and properties.

(b) **Utilities** provide such services as planning, designing, constructing, operating, and maintaining the City's infrastructure of water and sewer networks and sanitation and recycling.

(c) **Engineering, Public Works and Project Development** comprises of General Public Works, Roads and Construction, Storm Drainage, Fleet Operations, Engineering, Project Development, and Facility Management. The services provided are construction and maintenance of the City's infrastructure and all City owned buildings, maintenance of the City's road networks, managing and operating a mixed fleet of vehicles, heavy equipment and an assortment of specialized work units for the City operations, development of current and long-range engineering planning and construction of major projects.

(d) **Community Services** comprises of Parks, Recreation, Arts, Culture and Heritage Services and Community Social Development. These departments ensure recreation opportunities in Richmond by maintaining a variety of facilities such as arenas, community centres, pools, etc. It designs, constructs and maintains parks and sports fields to ensure there is adequate open green space and sports fields available for Richmond residents. It also addresses the economic, arts, culture, and community issues that the City encounters.

(e) **General Government** comprises of Mayor and Council, Corporate Administration, and Finance and Corporate Services. It is responsible for adopting bylaws, effectively administering city operations, levying taxes, legal services, providing sound management of human resources, information technology, City finance, and ensuring high quality services to Richmond residents.

(f) **Planning and Development** is responsible for land use plans, developing bylaws and policies for sustainable development in the City including the City's transportation systems.

(g) **Richmond Olympic Oval Corporation** is formed as a wholly owned subsidiary of the City. The City uses the Richmond Olympic Oval facility as a venue for a wide range of sports, business and community activities.

(h) **Richmond Public Library** provides public access to information by maintaining 5 branches throughout the City.

23. Segmented reporting (continued):

	Community safety	Utilities	Engineering, public works and project development	Community services	General government	Planning and development	Total City subtotal
Revenue:							
Taxation and levies	$ -	$ -	$ -	$ -	$ 216,908	$ -	$ 216,908
User fees	-	91,168	11,747	-	-	-	102,915
Sales of services	6,196	2,816	2,646	9,050	7,730	2,246	30,684
Payments-in-lieu of taxes	-	-	-	-	15,489	-	15,489
Provincial and federal grants	154	-	3,658	139	3,125	-	7,076
Development cost charges	-	1,226	2,911	4,517	2,202	6,576	17,432
Other capital funding sources	-	1,013	15,966	6,402	69,654	2,824	95,859
Other revenue:							
Investment income	-	543	-	-	20,143	-	20,686
Gaming revenue	687	-	-	-	16,150	-	16,837
Licenses and permits	4,480	6	588	-	10	8,553	13,637
Other	2,373	3,248	701	936	39,303	106	46,667
Equity income	-	-	-	-	1,491	-	1,491
	13,890	100,020	38,217	21,044	392,205	20,305	585,681
Expenses:							
Wages and salaries	41,735	12,698	23,450	32,656	25,445	10,258	146,242
Public works maintenance	61	6,694	5,910	1,950	(1,447)	235	13,403
Contract services	50,867	8,957	3,609	4,609	3,552	1,484	73,078
Supplies and materials	3,094	31,151	1,777	14,438	10,641	673	61,774
Interest and finance	70	21,217	-	67	1,792	-	23,146
Transfer from (to) capital for tangible capital assets	(50)	1,113	7,353	3,241	455	1,291	13,403
Amortization of tangible capital assets	2,750	8,070	26,809	6,921	11,764	1,331	57,645
Loss (gain) on disposal of tangible capital assets	(27)	59	(115)	-	347	96	360
	98,500	89,959	68,793	63,882	52,549	15,368	389,051
Annual surplus (deficit)	**$ (84,610)**	**$ 10,061**	**$ (30,576)**	**$ (42,838)**	**$ 339,656**	**$ 4,937**	**$ 196,630**

23. Segmented reporting (continued):

	Total City subtotal	Richmond Olympic Oval	Richmond Public Library	2018 Consolidated	2017 Consolidated
Revenue:					
Taxation and levies	$ 216,908	$ -	$ -	$ 216,908	$ 206,901
User fees	102,915	-	-	102,915	99,493
Sales of services	30,684	8,346	81	39,111	39,430
Payments-in-lieu of taxes	15,489	-	-	15,489	14,647
Provincial and federal grants	7,076	2,899	380	10,355	9,276
Development cost charges	17,432	-	-	17,432	15,710
Other capital funding sources	95,859	-	-	95,859	57,570
Other revenue:					
Investment income	20,686	-	19	20,705	17,832
Gaming revenue	16,837	-	-	16,837	16,753
Licenses and permits	13,637	-	-	13,637	13,011
Other	46,667	1,764	247	48,678	31,502
Equity income	1,491	-	-	1,491	1,042
	585,681	13,009	727	599,417	523,167
Expenses:					
Wages and salaries	146,242	8,919	7,170	162,331	159,576
Public works maintenance	13,403	-	2	13,405	14,973
Contract services	73,078	-	401	73,479	64,912
Supplies and materials	61,774	4,798	1,347	67,919	65,959
Interest and finance	23,146	-	3	23,149	23,216
Transfer from (to) capital for tangible capital assets	13,403	-	(96)	13,307	25,712
Amortization of tangible capital assets	57,645	1,707	1,190	60,542	58,012
Loss (gain) on disposal of tangible capital assets	360	-	(36)	324	924
	389,051	15,424	9,981	414,456	413,284
Annual surplus (deficit)	**$ 196,630**	**$ (2,415)**	**$ (9,254)**	**$ 184,961**	**$ 109,883**

24. Budget data:

The budget data presented in these consolidated financial statements is based on the Consolidated Financial Plan adopted by Council on March 12, 2018. The table below reconciles the adopted Consolidated Financial Plan to the budget amounts reported in these consolidated financial statements.

	Financial plan Bylaw No. 9800	Financial statement budget
Consolidated financial plan:		
Revenue	$ 521,494	$ 521,494
Expenses	439,367	439,367
Annual surplus	82,127	82,127
Less:		
Acquisition of tangible capital assets	(419,998)	-
Contributed tangible capital assets	(47,410)	-
Transfer to reserves	(66,999)	-
Debt principal	(4,761)	-
Add:		
Capital funding	422,925	-
Transfer from surplus	34,116	-
Annual surplus	$ -	$ 82,127

25. Comparative information:

Certain comparative information has been reclassified to conform to the consolidated financial statement presentation adopted for the current year.

A Schedule of Guarantees and Indemnity payments has not been prepared as the City of Richmond has not given any guarantees or indemnities under the Guarantees and Indemnities Regulation.

Prepared under the Financial Information Regulation, Schedule 1, Section 5

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Elected Officials for 2018

Name		Base Salary	Benefits & Other [1]	Expenses
Brodie, Malcolm	Mayor	$ 135,210	$ 18,054	$ 7,280
Au, Chak	Councillor	67,605	11,928	3,890
Dang, Derek	Councillor	59,058	10,715	-
Day, Carol	Councillor	67,605	10,928	187
Greene, Kelly	Councillor	8,733	1,162	573
Johnston, Ken	Councillor	59,058	10,534	139
Loo, Alexa	Councillor	67,605	11,928	6,712
McNulty, William	Councillor	67,605	14,056	564
McPhail, Linda	Councillor	67,605	11,080	1,783
Steves, Harold	Councillor	67,605	11,637	5,134
Wolfe, Michael	Councillor	8,733	1,162	-
Total		**$ 676,422**	**$ 113,184**	**$ 26,262**

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle allowance)

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Achiam, Cecilia	$ 205,017	$ 35,459	$ 6,332
Adams, Reg	94,570	2,443	-
Adamson, Claire	98,337	4,473	12,208
Allas, Benjamin	63,135	12,363	-
Allen, Michael	111,764	7,524	-
Alves, Luis	98,961	12,724	203
Anderson, Adam	96,087	7,362	-
Anderson, Christopher	60,349	17,347	-
Anderson, Mark	55,700	22,849	695
Andersson, Bengt	80,028	2,146	431
Anselmo, David	79,329	1,529	674
Araki, Stephen	60,344	17,805	232
Arcand, Daniel	81,435	1,540	70
Armstrong, Warren	66,083	31,301	-
Arneson, Christina	75,840	4,129	716
Arrigo, Stephen	86,274	18,814	70
Askwith, Stephanie	96,087	8,373	1,822
Atva, Tina	137,857	10,732	551
Atwal, Bhupinder	81,376	7,066	20
Aujla, Jag	98,957	2,155	-
Ayers, Elizabeth	142,495	17,275	3,039
Babalos, Alexander	96,077	7,089	-
Bachynski, Laurie	152,784	11,836	-
Badra, Marcos	93,757	1,823	451
Badyal, Sara	98,711	4,013	928
Bains, Mandeep	111,765	4,618	5,713
Bajwa, Akhtar	65,530	19,670	-
Baker, Danny	96,081	2,979	-
Baker, Steven	90,780	8,851	32
Baluyot, Hilario	66,083	14,568	620
Bardin, Harjap	98,739	9,460	787
Barkley, Matthew	96,087	5,692	-
Barlow, Kenneth	111,775	6,681	120
Barlow, Paul Graham	98,968	9,383	1,403
Barnes, Richard	140,536	8,110	-
Barstow, Murray	90,342	8,174	621
Bartley-Smith, Brenda	111,765	5,518	1,006

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Barwin, Simon	79,615	9,010	-
Basraon, Avtar	62,869	21,060	721
Bath, Paul	86,281	20,034	-
Batke, Wilfred	80,035	26,874	24
Batkin, Wayne	95,204	33,546	-
Bauder, Kristine	90,788	5,146	262
Baumeister, Richard	79,079	10,513	-
Bavis, Nathan	98,961	8,704	1,403
Baxter, Jennifer	69,189	9,142	-
Beare, Adam	98,957	4,101	-
Beaulne, Guy	69,229	6,728	150
Beeby, James	98,968	12,070	150
Beetstra, Jack	135,598	6,287	85
Beley, Scott	75,847	1,210	-
Bennett, Shayne	98,957	8,703	1,403
Benning, Dal	90,953	2,339	50
Bennington, Monica	77,354	4,143	349
Berg, Debra	75,840	4,127	1,524
Berg, Hanieh	85,477	8,186	3,184
Berg, Wayne	79,360	2,357	1,390
Bergsma, Nolan	81,491	4,062	1,137
Bergsma, Peter	94,487	2,171	-
Biason, Evangel	75,847	5,815	-
Bie, Lloyd	137,469	12,486	1,084
Billings, Alan	98,961	4,816	515
Bishay, Soraya	73,686	2,033	-
Bleidistel, Michael	94,200	11,006	245
Bogner, Christopher	79,756	24,014	-
Bola, Kulwinder	98,957	3,302	1,403
Bolton, George	72,377	3,685	-
Bonato, Steven	98,957	4,803	-
Bosley, Janine	78,006	2,128	-
Bowley-Cowan, Laura	102,281	6,573	586
Bowman, Joshua	78,051	3,771	-
Boyal, Amarjit	63,150	14,198	-
Brannen, Andrew	98,961	10,105	-
Brar, Amaritpal	100,399	8,060	58

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Braun, Robert	80,029	3,378	-
Bredeson, Lance	153,026	10,340	5,550
Brevner, Mark	98,961	14,028	-
Broughton, Skyler	81,491	22,476	214
Brownlee, David	98,739	1,820	-
Brunskill, Jason	120,732	3,104	203
Buchannon, William	120,732	11,847	203
Buemann, Tricia	90,788	8,719	240
Buie, Dovelle	127,741	10,121	386
Bulick, John	98,968	7,290	1,822
Burbidge, Scott	79,079	2,653	529
Burgess, Tyson	75,862	7,557	-
Burner, Melanie	80,035	2,474	50
Burns, Brendan	152,320	10,260	4,325
Bursey, Bradley	90,389	25,177	413
Burt, Christopher	59,755	33,059	-
Bustillo, Juanito	60,344	26,722	-
Butler, Jason	74,590	14,088	187
Buttar, Onkar	83,437	3,350	119
Bycraft, Suzanne	134,726	235,702	7,226
Byrne, Daisy	69,682	6,863	-
Cabatic, Allan	97,341	6,642	3,843
Camacho, Alexander	76,833	2,088	355
Candusso, Giorgio	86,226	4,194	-
Cantarella, Lorraine	98,461	6,119	38
Capogna, Nan	87,003	3,705	-
Caravan, Joan	94,553	2,305	-
Carey, Alisa	80,458	4,232	-
Carlile, Cathryn	37,872	104,173	-
Carlile, Tanner	72,000	3,369	-
Carron, Kimberley	86,981	17,115	-
Carter, Chris	98,957	10,285	-
Carter-Huffman, Suzanne	112,047	7,078	-
Cerantola, Davin	98,977	5,617	150
Chai, Sandra	127,615	8,195	950
Chaichian, Camyar	90,780	3,377	2,445
Chan, Christopher	90,200	2,325	2,840

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Chan, Donna L	73,686	4,308	-
Chan, Donna	137,058	7,021	1,232
Chan, Kavid	94,564	15,675	-
Chan, Milton	137,047	26,111	771
Chand, Amit	75,862	18,454	214
Chandra, Ryan	79,764	7,719	-
Cheema, Felicia	64,906	13,366	-
Cheng, Reinaldo	94,174	2,909	1,631
Cheuk, Chun Yu	81,491	10,645	1,369
Chiang, Paul	87,003	4,982	3,337
Chima, Jaspal	80,006	12,555	-
Chin, Donald	102,854	15,826	203
Ching, Ka Wai	76,833	2,741	1,044
Ching, Mike	122,455	13,539	950
Choiselat, Sasha	76,833	1,791	1,031
Chong, Jerry	170,310	27,892	1,751
Chou, Yu-Hsuan	73,585	5,745	1,518
Chow, Joanne	88,651	1,786	2,310
Christopherson, Tracy	76,833	2,092	286
Chu, Vincent	127,717	6,979	2,422
Chung, Leon	72,034	4,258	-
Cinquemani, Leonardo	66,089	12,868	394
Clark, Alison	98,892	3,158	-
Clarke, Tristan	84,531	2,900	2,104
Clarkson, Neil	74,077	1,365	2,759
Close, Kirsten	94,867	4,807	2,909
Cockburn, Paul	81,488	2,617	-
Collinge, Chris	78,899	4,352	208
Cook, Tara	80,029	2,094	200
Cooper, Brad	114,176	6,341	203
Cooper, James	134,800	13,755	1,839
Cordoni, Raymond	150,075	13,674	125
Cornelssen, Kelvin	98,988	7,818	931
Craddock, Jeffrey	76,826	4,937	261
Craig, Wayne	170,310	26,131	526
Creighton, Gregg	90,399	4,551	84
Cromie, Spencer	78,143	2,213	734

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Crowe, Terence	110,948	46,964	-
Csepany, Andras	86,281	1,059	-
Culshaw, Steven	60,344	17,993	658
Curry, Anthony	98,957	4,979	-
Dacey, Shaun	88,755	2,304	345
D'Altroy, Curtis	120,754	1,361	635
Dalziel, Jeffrey	89,628	6,044	353
Davidson, Frank	90,408	15,583	-
Davies, Dean	60,349	19,060	892
Davies, Sean	80,028	3,598	-
Davies, Sean D	58,599	17,149	856
Davis, Sue	73,686	1,673	-
de Brouwer, Dave	71,625	19,520	203
de Crom, Theodore	137,058	21,620	2,382
De Sousa, Steven	72,390	3,986	2,176
De Visser, Chee	80,572	4,139	950
Deane, Gregory	120,746	6,024	203
Decker, Kim	109,619	8,848	1,362
Deer, Angela	96,570	4,946	308
DeGianni, Rod	108,566	13,600	203
Del Rosario, Susan	75,579	2,144	2,961
Demers, Michel	75,723	3,012	278
Dennis, Alison	98,020	4,543	972
Dhaliwal, Kamaljit	88,309	10,761	226
Dhaliwal, Manjinder	79,086	3,706	299
Dhanowa, Dalvinder	79,079	12,393	130
Dharampal, Jasjit	77,145	3,994	1,243
Dhillon, Kearnbir	98,968	6,028	-
Dhillon, Navtej	89,286	8,553	-
Dias, Ben	137,058	24,044	324
Dickson, James	98,988	4,758	357
Digby, Janet	111,111	8,707	1,435
Dimitrov, Momchil	92,094	1,974	416
Dineen, Scott	98,968	11,223	-
Discusso, Peter	115,183	134,604	579
Dixon, Scott	98,968	4,861	150
Dohanic, Mike	72,327	8,103	-

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Donald, Gary	69,007	11,205	-
Douglas, Stewart	98,961	7,350	1,760
Draper, Jason	98,972	25,252	857
Drawc, Chris	75,850	1,152	-
Duarte, Victor	88,478	1,625	43
Dube, Danielle	96,077	7,731	236
Dubnov, Shawn	90,384	21,700	497
Duddles, Kevin	71,882	4,155	162
Duncan, George	319,091	39,398	8,796
Duncan, Scott	120,721	6,957	203
Dunn, Darrell	114,728	45,874	-
Dunn, David	98,961	6,445	3,225
Duranleau, Sonia	98,968	6,786	-
Dusanj, Sukhjeevan	72,345	7,700	190
Dyer, Sean	85,710	5,230	3,930
Ebert, Marcus	60,349	19,609	-
Edwards, Brenda	76,620	1,902	-
Ellis, Joshua	60,349	14,701	1,196
Elmore, Jeanette	98,732	4,397	1,091
Elshof, Eric	120,732	3,387	203
Enefer, John	120,177	13,737	-
Eng, Kevin	98,730	7,241	-
Erceg, Joe	230,083	33,020	3,546
Esko, Jamie	137,047	6,612	1,154
Estabrook, Russell	78,859	3,181	-
Eward, Cindy	90,788	2,187	680
Falconer, Todd	120,735	2,676	278
Farrell, Daniel	83,430	3,553	-
Fasciani, Mary Ann	73,555	2,758	18
Fatiaki, Kamoe	60,344	20,740	-
Fedoruk, Lisa	82,866	3,142	618
Fengstad, Grant	170,310	17,978	6,874
Fenwick, Marie	115,368	9,842	4,349
Ferland, Khadija	97,515	5,231	3,323
Fernandes, Carlos	79,079	5,279	-
Fernyhough, Jane	157,401	20,971	954
Ferraro, Domenic	90,372	10,749	70

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Findlay, Pauline	60,349	20,543	233
Fiss, Eric	75,759	6,082	230
Fitton, Russell	98,988	4,792	150
Fleury, Shane	60,349	21,024	162
Fong, Mindy	66,231	29,916	-
Fong, Patrick	93,632	5,985	409
Ford, Larry	124,245	19,840	4,014
Forrest, Rebecca	88,713	6,332	3,353
Frampton, Michael	98,957	9,695	-
Fraser, Kevin	76,367	1,584	2,572
Frederickson, Gordon	80,035	2,287	-
Friess, Paul	79,367	3,337	431
Froelich, Judy	86,707	3,713	-
Fyrk, Terry	66,089	15,450	59
Galano-Tan, John	86,994	16,988	1,120
Galbraith, Adam	98,957	6,499	554
Galloway, Shane	71,739	10,270	70
Gardiner, Rock	74,983	1,268	-
Gauvin, Darnell	60,344	15,251	246
Gee, Peter	81,449	5,846	-
Gelz, Earl	90,399	974	-
Gibson, Christina	80,035	3,965	-
Gilbert, Daniel	57,641	22,549	1,042
Gilchrist, Robert	77,582	35,357	-
Gilfillan, Cindy	127,741	8,283	950
Gilfillan, Kris	88,803	31,754	-
Gilfillan, Terry	90,391	10,972	-
Gill, Raminder	98,966	3,240	911
Gillis, David	98,746	14,783	-
Gillon, Robert	79,853	3,351	1,031
Girard, Terrance	60,091	17,815	231
Glahn, Brad	119,078	2,616	-
Goll, Sharil	82,603	4,158	-
Gondos, Kyle	60,349	23,462	84
Gonzalez, Roberto	239,841	35,693	10,430
Graebel, Gordon	140,530	5,663	-
Graham, Ronald	90,780	2,875	50

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Grauer, Craig	70,019	9,842	142
Gray, Kevin	150,016	27,978	1,612
Greenlees, Matthew	81,498	7,600	228
Griffin, Kevin	98,957	13,309	203
Griffin, Michael	98,957	9,413	357
Griffith, Michael	75,862	6,198	4,497
Gronlund, Todd	98,961	13,259	-
Gushel, Brad	90,391	20,590	-
Haer, Corrine	108,464	6,525	736
Hahn, Ruth	98,732	2,119	721
Halldorson, Arnie	90,371	18,545	70
Hamaguchi, Trevor	89,267	5,886	-
Hamalainen, Juha	81,466	4,520	-
Hanna, Kenneth	80,003	18,925	-
Hansen, Terry	120,738	3,291	203
Harris, David	98,968	4,966	-
Harris, Douglas	120,746	17,078	203
Harrison, Anthony	43,714	45,587	-
Hayes, Jennifer	153,026	10,567	3,213
Heap, Nicholas	111,737	4,680	58
Heidrich, George	81,498	9,795	1,265
Heinrich, George	90,383	32,168	70
Henderson, Derek	79,330	4,139	415
Henderson, George	65,748	14,334	-
Heng, William	81,048	6,012	442
Herbert, Nicholas	69,791	15,617	1,008
Hertha, Deborah	89,749	4,658	861
Hickey, Paula	76,826	6,673	-
Higgs, Levi	110,351	6,610	4,198
Hill, James	89,184	3,698	1,357
Hill, Sheila	79,870	2,171	716
Hilton, Vanessa	79,609	5,485	-
Hingorani, Sonali	111,775	6,231	506
Hinman, Gregory	89,215	2,573	-
Ho, Jason	111,765	11,381	1,318
Ho, Mei Ping	93,765	23,150	1,887
Ho, Michael	58,686	23,592	-

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
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Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Ho, Wing Chun	76,810	1,809	214
Hobman, Lisa	103,898	6,606	6,745
Hoff, Paul	120,746	5,829	203
Hoff, Tresse	90,343	5,188	1,323
Hogan, Angela	80,035	1,866	24
Hogan, Ruth	70,574	7,905	-
Homeniuk, Alexander	80,028	1,639	-
Hopkins, John	111,963	8,367	665
Horstmann, Michelle	75,847	4,127	-
Howe, Shawn	81,491	4,039	-
Huang, Leo	90,917	2,392	2,999
Hui, Albert	76,826	2,088	1,031
Hui, Ka Yi	94,564	5,761	-
Humhej, Jerry	98,981	6,622	483
Hung, Edward	140,026	27,262	67
Hunter, Derek	90,310	8,683	70
Hyde, Ryan	60,349	22,807	-
Ince, David	137,055	13,948	61
Irvine, Katherine	83,516	47,305	272
Irving, John	170,324	38,809	7,527
Isaac, Darryl	98,966	7,162	-
Ison, Marvin	98,906	9,553	1,744
Iuliano, Mike	81,494	5,849	220
Jacobo, Erwin	81,491	2,815	-
Jacobsen, Carl	81,498	2,671	150
Jaggs, Gordon	110,692	7,785	651
Jameson, Marty	90,398	974	18
Jansen, Sandra	140,528	1,961	1,010
Jauk, Liesl	115,756	9,402	996
Javadi-Doodran, Yashar	71,206	6,220	-
Jeffcoatt, Steven	120,738	7,958	203
Jesson, Claudia	123,560	13,452	2,491
Jesty, Brian	60,033	15,877	-
Jochimski, Colin	75,862	15,252	-
Johal, Bill	88,969	18,365	117
Johal, Jatinder	127,635	8,734	1,009
Johnson, Thomas	120,738	15,606	203

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

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Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Johnson, Trevor	140,524	4,212	-
Johnston, David	120,732	20,186	203
Jones, Alan	98,957	14,478	4,184
Jones, Debra	80,035	1,426	647
Jones, Glen	74,420	4,669	-
Jorger, Ben	83,863	2,979	70
Jut, Jeffrey	60,349	17,792	-
Kahn, Stacey	111,775	6,681	3,395
Kam, Marilyn	79,568	2,267	657
Kam, Richard	98,957	6,818	-
Kaptur, Suzanna	80,354	5,628	-
Karpun, Mark	120,743	5,487	203
Keating, Roger	94,094	8,881	331
Keenan, Bernadette	76,833	18,219	881
Kelder, Randall	120,746	9,346	-
Kelly, Michael	119,090	12,011	203
Kelly, Patrick	79,659	7,958	-
Kendall, Donald	59,994	15,919	-
Kenny, Richard	76,820	3,434	8
Ketelsen, Brodie	73,686	2,814	43
Khatami, Eileen	57,566	22,755	2,502
Kiesewetter, Harold	120,732	14,295	203
Kinney, Gary	90,341	19,886	-
Kirichuk, Iryna	94,562	5,600	-
Kita, Jason	135,180	8,952	12,479
Kivari, Mia	98,961	5,383	-
Klomp, Frederik	96,077	4,565	-
Knapp, Barry	112,559	39,459	-
Knowles, Thomas	79,085	4,440	84
Kolb, Daniel	79,367	1,716	1,261
Kong, Loletta	107,417	6,042	-
Konkin, Barry	140,844	14,297	-
Konkin, Don	79,601	1,342	70
Kopp, Brent	120,738	3,837	203
Kotze, Arthur	97,696	7,017	1,022
Kovacs, James	60,344	16,427	70
Kovich, John	80,859	3,163	-

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

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Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Kruk, Robert	66,089	13,160	416
Krumenacker, Kurtis	60,349	22,535	-
Krungtanmueng, Bunruen	60,086	15,337	550
Kube-Njenga, Jennifer	109,619	5,606	-
Kucher, Leanne	73,678	2,154	131
Kulusic, Stephen	80,035	3,150	-
Kump, Will	80,028	3,979	6
Kurnicki, Alexander	98,152	5,345	1,029
Kurta, Stanley	94,572	9,078	-
Laboucane, Kenneth	63,440	15,051	1,007
Lai, Patrick	85,957	6,700	759
Laidlaw, Scott	79,329	8,126	723
Laing, Kari	125,278	8,214	907
Laird, Scott	60,344	14,843	287
Lam, Annie	73,651	6,732	51
Lamont, Ryan	120,732	6,131	203
Lannard, Kevin	86,996	2,619	881
Lapalme, Karina	125,278	10,701	431
Lawless, Ann	81,498	424	653
Lazar-Schuler, Christina	80,028	1,470	122
Ledezma, Gonzalo	98,968	6,641	-
Lee, Edwin	83,435	2,029	526
Lee, James	80,388	8,505	611
Lee, Wun Fung	83,412	8,373	-
Lehbauer, Jordan	98,968	6,350	3,820
Leiva, Anastacio	96,087	6,853	1,822
Lemaire, Joel	120,741	3,205	1,236
Leney, Kyle	97,245	19,296	203
Lepine, Carol	80,035	1,426	-
Leung, Chi Choi	94,557	4,175	2
Leung, Michael	75,856	3,446	214
Leung, Simon	75,623	12,553	60
Lewis, Arthur	120,746	20,335	203
Li, Alvin	73,217	2,868	644
Li, Jessie	87,056	14,258	-
Lilova, Neonila	127,741	10,755	2,240
Lim, Wesley	84,116	6,010	443

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

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Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Lin, Fred	127,731	7,462	1,330
Lincoln, Dawn	73,686	6,979	-
Lindenbach, Greg	98,461	6,001	-
Liu, Douglas	111,775	5,518	35
Liu, Marcus	98,739	4,378	14
Livingston, Amy	73,070	3,398	-
Livingston, Steve	119,021	7,247	203
Lloyd, Adrian	81,498	5,688	216
Lloyd, Susan	95,162	6,965	2,570
Lo, Judy	73,679	6,767	-
Lochbaum, Kim	60,399	25,339	232
Loran, Gerry	90,322	1,179	-
Louie, Beayue	96,059	15,369	3
Lovett, Andrew	79,764	5,316	4,240
Luk, Becky	80,303	3,981	-
Luk, Yun	83,437	31,578	184
Lum, Robert	82,610	6,997	-
Lum, Shawna	82,581	4,842	2,490
Lusk, Serena	197,958	49,698	8,211
Lussier, Cynthia	79,813	2,533	-
Lyon, Grant	60,349	21,354	70
Ma, Cliff	98,957	3,526	357
Ma, Nicole	87,701	4,101	-
MacArthur, Gordon	75,856	1,969	-
MacDonald, Lisa	73,686	1,673	881
MacEachern, Karen	90,788	2,287	-
Mack, Kelly	94,564	2,045	9
Mack, Rodney	72,431	23,399	72
MacKinnon, Deb	98,461	17,421	12
MacLeod, Brian	120,722	7,651	16
MacNeill, Thomas	95,363	10,552	675
Mahon, Steve	90,788	2,337	1,443
Makaoff, Frank	77,820	16,699	-
Maksymchuk, Chuck	60,344	18,103	-
Maldonado, Tanya	73,686	1,714	-
Mand, Paul	81,497	2,412	335
Mander, Daljit	76,001	33,463	355

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Manke, Gordon	81,491	10,255	-
Mann, Amraj	79,079	3,482	295
Marcotte, Ford	58,473	20,827	-
Markham, Maria	71,859	30,336	891
Martin, Cindi	58,471	17,459	-
Martin, Paul	98,968	5,972	1,000
Massender, Ian	112,846	7,327	278
Matheson, Kathy	65,530	19,300	-
Matson, Jason	66,089	13,804	145
Maxwell, James	76,660	730	-
Maxwell, Mark	81,498	10,780	172
Maxwell, Michael	112,771	28,193	400
Maxwell, Randy	81,498	879	-
McCaffrey, John	120,746	6,591	-
McCall, Robert	96,081	5,215	-
McCluskey, Ryan	98,968	8,020	-
McCluskey, Shawn	120,109	6,468	203
McConkey, Patrick	96,081	12,858	4,030
McCullough, Cameron	96,087	9,523	1,822
McDonald, Michael	72,061	4,491	-
McDougall, Karen	70,574	9,226	-
McDougall, Mitch	69,223	13,281	-
McElgunn, Jennifer	98,968	4,319	3,838
McGee, David	80,029	2,146	12
McGrath, Alan	136,510	13,153	1,259
McKenzie-Cook, Christopher	90,284	20,469	815
McMillan, Richard	120,738	12,045	203
McMullen, Mark	127,741	8,262	526
McVea, Aidan	120,732	11,106	-
Mearns, Jonathan	87,742	5,432	956
Medhurst, Colin	98,968	11,461	-
Melnychuk, John	87,003	8,768	1,125
Memon, Wasim	94,564	62,836	348
Mercer, Barry	86,281	24,513	11
Mercer, Noel	60,349	21,861	-
Merchant, Rozina	94,810	2,120	2,518
Metzak, Brian	98,981	11,472	-

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Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Milaire, Pratima	97,705	15,650	3,921
Miller, Chad	79,086	32,661	-
Miller, Jacquie	65,048	14,605	389
Miller, Jesse	59,059	21,390	1,150
Mills, John	151,323	20,626	-
Mills, Warren	76,423	2,061	1,162
Minshall, Travis	81,498	1,974	162
Mitzel, Dale	80,035	1,786	881
Mohan, Colin	120,746	15,129	203
Molema, Kenneth	98,968	20,437	-
Monkman, Thomas	120,746	17,299	203
Montague, Eli	73,085	16,029	70
Mora, Jamie	97,243	7,843	-
Morin, Michel	80,028	4,855	1,026
Morison, Douglas	96,087	4,707	-
Morizawa, Paul	73,686	1,997	238
Morris, Allen	100,544	5,094	699
Morris, Sarah	111,765	5,068	6,242
Morrison, Lesley	127,731	8,789	1,301
Moss, Kelly	96,166	10,890	1,018
Mossman, Cody	60,344	16,175	246
Moxin, Greg	84,029	16,146	952
Muir, Morgan	80,035	2,657	-
Muller, Shane	72,468	14,766	143
Mullock, Kevin	120,732	10,192	-
Mumblo, Ian	71,902	4,562	-
Murao, Dustin	89,219	2,912	-
Murray, Ken	98,961	7,411	203
Muter, Heather	95,538	7,238	701
Nagata, Darren	79,079	24,827	-
Nanray, Rajpal	70,568	7,704	2,694
Nathorst, Dave	86,281	7,688	-
Nazareth, Andrew	230,083	40,084	1,074
Neidig, Brad	120,746	4,619	203
Nenno, Pierre	59,312	18,095	-
Neufeld, Tammy	81,491	2,281	72
Newell, Allan	98,961	2,490	-

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Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Newstead, Blair	80,035	2,711	120
Ng, Beata	111,622	13,855	208
Ngan, Venus	127,741	7,483	1,339
Nguyen, Jennifer	101,877	10,085	950
Nickel, Christel	89,267	2,293	-
Nickel, Sarah	79,613	10,375	2
Nikolic, Diana	111,775	6,681	526
Nishi, Casey	73,584	10,301	143
Nishi, Ernest	73,217	66,776	38
Nishi, Grant	90,780	1,717	-
Nivens, Michael	74,859	9,837	837
Nolan, Mark	79,086	16,189	-
Northrup, Trevor	98,961	3,530	150
Norton, Ian	75,840	3,854	-
Oborne, Renata	88,139	28,918	364
O'Brien, Richard	60,349	23,289	-
Ogis, Peter	96,087	5,836	450
Olson, Brandon	85,494	6,141	193
Orr, Richard	75,849	13,081	-
Ouellet, Justin	81,488	9,268	-
Oviedo, Francisco	79,160	4,442	715
Paller, Elena	111,775	5,781	416
Palliser, Howard	80,035	2,476	80
Pang, Serene	74,097	8,108	772
Parhar, Gurdawar	98,968	2,524	-
Park, Minhee	89,307	2,381	526
Parker, Cory	120,738	3,534	203
Paterson, Kenneth	81,491	13,735	228
Patkau, Brad	98,966	13,228	203
Patrick, Terry	120,763	1,811	203
Pattullo, Chris	71,866	4,767	3,208
Paulin, Chad	104,151	6,531	2,137
Penney, Daniel	98,957	5,732	-
Penrose, Trevor	62,589	22,704	406
Perkins, Michael	98,957	10,103	554
Picado, Sylvio	70,032	8,455	-
Pighin, Darren	98,957	8,556	203

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Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Pinkney, Jason	98,968	8,132	150
Pitts, Dermott	89,765	26,633	-
Plishka, Miriam	94,469	4,343	627
Poole, Travis	60,349	20,294	231
Porlier, Sheila	98,461	5,004	17
Powell, Jo Anne	75,847	7,133	-
Poxon, Gerald	98,968	4,412	150
Price, Peter	124,105	38,792	-
Priest, Stephen	90,376	7,752	351
Protz, Gregory	113,333	13,078	203
Qaddoumi, Hikmat	98,739	26,475	-
Quan, Stanley	60,344	23,649	438
Quinn, Star of Peace	95,471	6,475	-
Racic, Mile	111,765	6,213	4,279
Ramirez, Antonio	73,222	5,898	1,188
Ramos, Dinos	86,172	1,031	-
Raschpichler, Norma	80,029	12,485	-
Rattan, Amarjeet	39,004	40,522	49
Redlinski, Jacek	87,003	3,975	1,031
Redzic, Vesna	94,572	2,457	-
Rempel, Timothy	81,498	2,474	-
Rende, Michael	98,961	6,912	203
Renwick, Rick	140,086	2,100	57
Revell, Michael	81,695	1,175	-
Richards, David	90,812	19,489	2,449
Ricketts, Terry	79,872	1,813	116
Ringwald, Leah	75,840	3,599	2,966
Roberts, Lance	88,716	6,486	497
Robertson, Cameron	71,880	5,460	252
Robie, Colin	81,034	6,202	655
Robles, Miguel	81,498	10,550	-
Robson, Mark	98,966	9,280	150
Rocha, Carlos	90,788	3,756	795
Rodriguez, Edgar	115,805	8,100	853
Rogal, Peter	72,417	32,060	-
Romas, Mike	100,215	7,100	2,312
Roszkowski, Ailie	79,079	2,382	421

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Rowley, Darren	96,785	7,722	150
Ru, Zhi	75,437	1,572	950
Russell, Paul	98,961	4,476	-
Russell, Peter	153,013	14,866	5,492
Ryan, Bhavani	71,929	6,039	-
Ryle, Brendan	79,701	1,993	431
Sage, Barbara	188,139	13,457	4,346
Saggers, Paul	86,996	4,059	1,845
Saito, Aaron	98,957	12,321	203
Sakai, Ross	80,028	5,072	9
Sakurai, Hanae	73,679	3,619	825
Salameh, Alexander	96,087	3,613	-
Salem, Sophia	76,833	2,088	120
Salmasi, Kamran	87,003	2,330	2,669
Salzl, Maria	111,765	5,068	250
Sameshima, Leonard	16,130	60,885	-
Samson, Brent	98,981	8,108	422
Sander, Amarjit	81,498	1,283	662
Sandhu, Amritpal	83,673	8,440	701
Sandhu, Parmel	79,758	8,282	-
Sandhu, Pulvinder	65,320	21,346	-
Sangha, Rajvinder	98,959	3,222	-
Santos, Victor	79,086	10,971	130
Sargent, Emily	73,246	5,185	212
Savoie, Gilbert	83,437	3,535	3,810
Sawada, Stephen	96,087	12,232	-
Sayson, Aida	122,052	154,969	1,495
Sayson, Alexander	94,572	5,076	-
Schell, Terry	120,732	6,948	203
Schiedel, Tyler	96,077	6,590	-
Schlossarek, Teresa	83,437	5,487	8
Schroeder, Scott	90,780	3,137	41
Schultz, Jeremy	86,357	12,607	1,403
Schultz, Kim	68,166	7,253	394
Schultz, Susan	67,315	16,829	-
Sciberras, Francis	94,564	2,045	-
Scott, Jason	79,079	5,593	70

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

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Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Scott, Sean	72,000	5,287	-
Scrutton, Joseph	81,491	590	-
Selinger, Edward	119,796	8,082	203
Semple, David	85,932	21,483	227
Sharma, Amen	76,833	2,118	50
Shaw, Trevor	84,543	5,400	1,809
Shebib, Jodie	85,827	8,339	5,407
Shepherd, Bryan	137,047	17,193	695
Sheridan, Conor	89,854	9,996	2,541
Sherlock, Lesley	98,739	3,981	398
Shiau, Melissa	86,707	6,796	1,120
Shigeoka, Shannon	75,582	4,189	1,609
Shimonek, Todd	75,830	2,373	-
Sholdra, Brian	96,081	2,638	-
Shum, Chi Ting	94,572	14,677	-
Siemens, Gregory	98,975	5,384	1,462
Sikora, Rose	98,461	5,229	-
Simas, Antonio	94,572	4,235	2,189
Simkin, Eric	98,957	8,852	-
Simmons, Norman	81,498	2,368	150
Simson, Richard	86,435	6,170	450
Slater, Tanya	73,953	10,522	-
Smith, Mark	98,961	5,788	253
Smith, Michael	98,961	4,708	-
Somerville, Kim	137,058	10,318	539
Sparolin, Eric	127,731	9,812	406
Specht, Darren	69,193	10,106	-
Squarci, Leigh	72,425	3,450	145
Standerwick, Jeffrey	98,957	23,937	1,278
Staples, Kaitlynn	75,743	3,549	2,789
Stene, Ryan	98,968	11,545	203
Stewardson, Kevin	98,957	8,838	832
Stewart, James	90,903	8,267	447
Stewart, Kathleen	75,551	1,853	1,048
Stewart, Tom	167,040	186,796	629
Stock, Dennis	99,730	15,745	-
Stockdale, Todd	98,968	4,107	-

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CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Stocking, Nicole	106,159	7,220	1,320
Stockley, Ivan Scott	60,344	17,844	-
Stratuliak, John	86,281	6,251	-
Sutton, Stuart	120,754	5,170	23
Swanson, Brad	77,950	2,820	-
Sweet, Sue	87,003	2,940	1,003
Swift, Brad	120,743	7,129	-
Szutu, Cindy	102,643	5,154	4,057
Tack, Troy	98,730	33,819	203
Tagger, Manvir	75,847	4,127	-
Tahir, Edwin	79,984	2,707	60
Tait, Jim	80,652	46,170	-
Tait, Kyle	98,968	3,008	-
Talmey Jr, Patrick	81,498	26,240	749
Talmey, Paul	110,692	5,272	-
Tambellini, Denise	111,765	7,390	15,205
Tanyag, Wilbert	75,862	1,262	214
Tarr, Christopher	94,609	4,864	-
Tasaka, Bryan	127,731	9,217	861
Tatchen, Elisabeth	96,077	9,334	4,186
Taylor, Kirk	153,026	10,349	1,026
Taylor, Mervyn	96,338	18,130	203
Teichrieb, Craig	96,100	3,147	2,219
Tellis, Peter	107,690	1,742	3,685
Teo, James	98,730	19,481	-
Tewfik, Frederic	130,102	10,096	3,851
Thandi, Neera	86,931	2,795	950
Thibodeau, Jon	90,224	5,701	1,057
Thomas, Bryan	81,491	1,936	-
Thomas, Cindy	125,278	8,664	635
Thomas, Marianne	102,959	3,382	950
Tikanmaki, Anna	146,903	18,220	-
Tillmanns, Mike	80,104	1,022	-
Tjepkema, Nicole	76,888	2,089	101
Tobin, Sean	79,659	7,067	-
Tong, Vanessa	73,441	2,082	60
Tooth, Gregory	83,430	1,485	3,051

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Tourigny, Christopher	81,491	387	-
Townsend, Ted	153,013	12,945	2,221
Townsley, Gail	102,512	5,239	120
Toyoda, Lianne	75,840	4,127	-
Tran, Vu	80,035	2,938	881
Tremayne, Brent	79,609	3,593	-
Tremblay, Gail	66,083	9,959	178
Trotter, Nicole	81,491	1,404	970
Truscott, Loic	96,087	4,548	-
Tsang, Jonathan	74,830	7,131	-
Turick, Julia	82,740	4,352	856
Turick, Renata	80,028	6,835	3
Tycholis, Kathy	80,028	2,146	312
Ubial, Jessie	84,216	2,220	-
Vallance, Scott	80,025	2,149	-
Van Bemmelen, Tyler	66,063	13,418	-
Van Den Boogaard, Leonardus	87,801	90,444	-
Van Iperen, Aaron	90,263	6,754	150
Van Neck, Caitlyn	96,079	5,302	-
Vance, Justin	69,158	16,830	443
Vanderwel, Christopher	89,269	14,170	-
Varley, Sue	90,780	2,375	5,894
Varney, Opal Catherine	115,525	6,777	1,151
Vaughn, Jerret	98,968	8,408	203
Venturas, Byron	63,190	17,266	-
Villaluz, Jaime	81,376	11,865	550
Virk, Manjit	70,568	5,946	-
Vodchenko, Ivan	75,856	1,845	64
Vrakela, Ivana	94,572	2,235	-
Vrba, Karol	98,961	8,727	-
Vrooman, Rowan	98,968	26,620	203
Wahl, Kevin	120,854	3,481	2,025
Wakelin, Frank	94,564	14,120	2,573
Walker, Wesley	117,269	2,832	2,536
Wall, Anthony	98,961	6,582	3,978
Walters, Bryan	109,678	11,717	203
Wan, King-Lun	80,024	13,944	-

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Warkentin, Daryle	120,746	19,889	203
Warren, Darren	86,999	2,954	265
Warzel, Edward	115,709	9,248	853
Weber, David	160,495	25,278	598
Wei, Victor	160,482	39,477	-
Weissler, Forrest	117,233	13,277	309
Wellsted, Darryl	120,692	32,536	998
Welsh, Michael	98,968	4,633	353
Weststrate, Jason	79,079	12,396	1,076
Wheeler, Gregg	111,775	9,263	325
White, Amelia	75,743	3,549	3,577
Whitmarsh, Kevin	72,312	3,413	77
Whitty, Robert	115,794	4,476	-
Whyman, Max	60,349	17,382	611
Wild, Danyon	120,738	6,665	203
Wilding, Marianne	73,679	5,404	224
Wilke, Steve	86,281	10,881	-
Wilkinson, Timothy	173,219	16,155	3,812
Williams, Carli	134,416	9,208	1,629
Windsor, Ryan	62,752	28,269	664
Wishlove, Vernon James	81,594	6,077	2,018
Wong, Desmond	89,243	3,027	-
Wong, Ivy	127,731	10,912	1,164
Wong, William	84,148	22,145	397
Woo, Gavin	112,748	59,307	1,232
Woolgar, John	137,058	10,768	297
Wyatt, Sail	81,491	5,435	-
Wyenberg, Grant	120,738	13,001	704
Wynne, Philip	98,739	3,651	1,031
Xavier, Victor	60,349	20,591	-
Yang, Judy	79,586	1,783	1,031
Yee, Stephen	84,899	15,212	761
Yeung, Yuen	86,318	6,295	2,278
Yoo, John	98,968	12,670	-
Young, Jim	160,482	14,385	1,832
Younis, Munkith	127,720	16,695	657
Zanardo, Wilma	86,996	3,969	-

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Employee Earnings in Excess of $75,000 and Related Expenses for 2018

Name	Base Salary	Benefits & Other [1]	Expenses
Zhang, Feng	73,680	10,312	950
Zhang, Ling Yi	69,447	8,063	60
Zukowsky, Doug	72,425	35,768	640
Total	**$ 72,945,332**	**$ 8,640,046**	**$ 580,162**

[1] Consists of taxable benefits (i.e. MSP, group life and vehicle) and lump sum payments such as banked leave balances owed to employees, union gratuities and union overtime.

CITY OF RICHMOND
Schedule of Remuneration and Expenses

Grand Total for 2018

Name		Remuneration[1]		Expenses
Employees Over $75,000	$	81,585,378	$	580,162
Employees Under $75,000		49,864,528		191,508
Total	**$**	**131,449,906**	**$**	**771,670**

[1]Combines salary, taxable benefits and other lump sum payouts

The variance between the Schedule of Remuneration and the salaries and benefit expenses reported in the consolidated financial statements of the City are due to various factors including:

- The remuneration schedule is based on actual cash payments made during the fiscal year (including payouts of vacation, union gratuities and union overtime banks) whereas the consolidated financial statement is on an accrual basis;
- The remuneration schedule includes taxable benefits while the financial statements includes items such as non-taxable benefits and employer pension contributions;
- The above remuneration schedule total excludes Council, Richmond Public Library, Richmond Olympic Oval Corporation and Lulu Island Energy Company.

There were 15 severance agreements between the City of Richmond and its employees during 2018

These agreements represent 2 weeks to 14 months of salary and benefits

Schedule 1 - Board of Trustees

Name		Remuneration	Expenses
Koch, Susan	Chair	$ -	$ -
Leung, Robin	Vice-Chair	-	143
McPhail, Linda	Councillor	-	-
Gillanders, Chaslynn	Trustee	-	143
Corr, Traci	Trustee	-	521
Cousar, Diane	Trustee	-	-
Oye, Jordan	Trustee	-	143
Shchedrinskiy, Arseniy	Trustee	-	-
Liu, Caty	Trustee	-	119
Total		**$ -**	**$ 1,069**

Schedule 2 - Employees Earnings in Excess of $75,000

Name	Remuneration*	Expenses
Adams, Kate	$ 77,857	$ 753
Au, Melanie	89,291	-
Bechard, Anne	95,738	3,679
Beecroft, Chad	80,789	-
Chi, Allen	78,469	314
Ellis, J.Mark	119,042	545
Gettel, Cathy	77,724	82
He, Ping	93,095	783
Ho, Cindy	75,818	1,485
Jang, Wendy	88,500	18
Lo, Dennis	81,432	-
Rahman, Shaneena	97,970	75
Smith, Lee Anne	98,712	38
Vokey, Stephanie	89,774	3
Walters, Susan	170,371	2,825
Zhang, Ying	76,203	-
Employees Over $75,000	**1,490,785**	**10,600**
Employees Under $75,000	**4,587,136**	**6,109**
Total	**$ 6,077,921**	**$ 16,709**

* Combines salary, taxable benefits and lump sum payouts

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name		Payment Amount
1832 Asset Management L.P.	$	120,000
3R Demolition Corp		46,050
4Refuel Canada LP		44,033
A J Forsyth, Div of Russel Metals Inc		31,970
A R Mower & Supply Ltd		44,240
Acklands Grainger Inc		171,514
Adcentives		31,407
Aecom Canada Ltd		128,631
Aeroclave LLC		38,120
Airon Heating & Air Conditioning Ltd		535,701
All-Pro Services Ltd		44,067
Amazon		27,924
Andrew Sheret Ltd		954,950
Anigraph Productions Limited		129,137
Ansan Industries Ltd		58,758
Anthony Jones & Associates Inc		39,400
APA Canada Inc		35,500
Aplin & Martin Consultants Ltd		858,366
Apple Canada Inc		181,366
Applied Engineering Solutions		36,670
Aquam		29,675
ARO Inc		28,637
Ashton Mechanical Ltd		1,872,717
ASPAC Projects Limited		81,590
Assa Abloy Entrance Systems		37,408
Assembly Architecture Inc		107,493
Associated Engineering (BC) Ltd		383,332
Associated Fire and Safety		187,936
Atelier Anonymous Landscape Consultancy		44,946
Atlas Power Sweeping Ltd		63,549
Atlas-Apex Roofing (BC) Inc		74,966
Avenue Machinery Corp		38,592
AVO Vehicle Outfitting Inc		69,658
Avolve Software Corporation		179,385
BA Blacktop Ltd		3,133,787
BARR Plastics Inc		30,063
Barry Hamel Equipment Ltd		49,630
BC Assessment*		5,978,794
BC Hardwood Floor Co Ltd		31,641

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
BC Housing Management Commission	44,800
BC Hydro	5,357,082
BC Life & Casualty*	910,828
BC Non-Profit Housing Association	45,583
BC Plant Health Care Inc	117,750
BCD Holdings Ltd	56,531
Belzona Molecular (BC) Ltd	201,557
Bigsteelbox Corporation	58,904
Blackmamba Tree Service Inc	49,660
Blackstone Consulting Group Inc	83,161
Bowden, Tony	42,881
Bradley Refrigeration	48,211
Brandt Tractor Ltd	43,410
Brenntag Canada Inc	74,476
Bridgeport Collision	40,689
Briere Production Group Inc	115,195
Britco Boxx Limited Partnership	182,754
Broadway Roofing	123,300
Brock White Canada	38,103
Busch Systems International Inc	42,334
Calco Equipment Ltd	31,296
CAM Management Solutions (Canada) Inc	28,550
Cambie Roofing & Drainage	63,523
Canada Post Corporation	281,386
Canada Revenue Agency*	35,799,909
Canadian Dewatering	44,197
Canadian Mattress Recycling Inc	55,496
Canadian National Railway Company	699,290
Canadian Red Cross*	32,250
Canadian Stainless Fasteners Inc	40,912
Canex Building Supplies Ltd	102,709
Canon Canada Inc	25,340
Cansel Survey Equipment	61,126
Casa Mia Projects Ltd	82,536
Cascadia Sport Systems Inc	126,449
CD/M2 Lightworks Group	73,988
CDW Canada	43,763
Cedar Crest Lands (BC) Ltd	1,887,014
Chase Paymentech	424,531

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
Chinese Informedia Consulting Group Inc	43,910
CIBC*	149,641
Cimco Refrigeration	114,085
Cintas Canada Limited	89,923
City Electric Supply	71,466
City of Port Moody	25,755
City of Vancouver	1,067,246
Civic Legal LLP	25,877
Claymore Clothes Ltd	33,151
Cleartech Industries Inc	86,281
Cobra Electric Ltd	2,089,363
Coencorp Consultant Corporation Inc	69,434
Cold Fire Canada Ltd	63,448
Columbia Chrysler	47,262
Commercial Aquatic Supplies	43,566
Commercial Lighting Products Ltd	245,467
Complytec Inc	64,673
Comprint Systems Inc - Datafix	63,665
Concept Controls Inc	35,390
Concerta Consulting Incorporated	32,817
Corix Utilities Inc	51,023
Corix Water Products Limited Partnership	103,717
Corrosion Service Company Ltd	38,500
Cover Star Structures Ltd	77,423
Creative Door Services Ltd	97,558
Crop Production Services (Canada) Inc	48,829
CSDC Systems Inc	70,828
Cullen Diesel Power Ltd	45,303
Cummings Sales and Rentals	32,127
CUPE 394*	603,719
CUPE 3966 Library*	105,151
CUPE 718*	843,600
CWMM Consulting Engineers Ltd	32,412
Dafco Filtration Group	53,473
Dams Ford Lincoln Sales Ltd	258,402
David Jacob Harder Art & Design	150,663
Davidson Bros Mechanical Contractors Ltd	264,051
Davies Park & Associates (Vancouver) Inc	297,877
Davies Transportation Consulting Inc	26,850

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
DB Perks & Associates	170,696
Dentons Canada LLP	38,768
DGBK Architects	47,350
Dialog BC Architecture Engineering	62,125
Diamond Head Consulting Ltd	84,286
Dillon Consulting	150,168
Direct Energy Marketing Ltd	277,150
Directional Mining & Drilling Ltd	80,000
DLA Piper (Canada) LLP	227,911
DLA Piper (Canada) LLP, In Trust	9,202,873
Dominion Blueprint & Reprographics Ltd	26,217
Don Dickey Supplies	32,950
Donald Luxton & Associates	37,275
Donnelly & Associates Event Marketing Inc	177,130
Dorset Realty Group	401,569
Double R Rentals	109,365
Dueck Chevrolet Buick Cadillac GMC Ltd	445,248
Dulux Paints	30,854
Dynamic Facility Services Ltd	27,121
Dynamic Specialty Vehicles Ltd	117,543
Dynopro Coatings Ltd	39,046
E B Horsman & Son Ltd	62,903
East Richmond Nurseries	50,681
EBB Environmental Consulting Inc	84,839
Eco Dash Services	45,617
E-Comm,Emergency Communications for BC	3,564,603
Econolite Canada Inc	796,178
Ecotainer Sales Inc	67,841
Ecowaste Industries Ltd	471,074
ECS Electrical Cable Supply Ltd	45,054
E-Factor Engineering	35,691
Election Systems & Software Canada	91,617
EMCO Corporation	72,282
Engineered Pipe Group	76,558
Envyrozone Inc	81,204
ERM Focus Services Inc	36,330
ESC Automation Inc	237,059
ESI Acquisition Inc	187,715
Esri Canada Ltd	181,756

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
Extreme Glass Ltd	32,964
Falcon Equipment Ltd	166,887
Family Services Employee Assistance Program	78,408
Fast First Aid & Survival Tech Limited	26,912
Federation of Canadian Municipalities	46,713
Finning (Canada)	979,044
Fireball Excavating & Transport Inc	45,763
Firestorm Enterprises Ltd	26,717
Fireworks Spectaculars Canada Ltd	28,890
Fitness Town	50,701
Flocor Inc	148,211
Foreseeson Technology Inc	77,798
Forgerock US, Inc	80,756
FortisBC - Natural Gas	454,528
Fraser River Pile and Dredge Ltd	188,753
Fraser Valley Equipment Ltd	72,918
Fraser/Spafford Ricci Art & Archival	138,270
Fred Surridge Ltd	3,852,604
G B Bobcat Service	211,546
Galinski Pension and Benefits Law Corp	49,696
Gardaworld Cash Services Canada Corp	31,121
GDI Services (Canada) LP	128,858
Genesis Security	46,744
Geographic Technologies Group	128,263
Germaine Koh Studio Ltd	82,701
GFL Environmental Inc	1,348,628
Glacier Media Group	120,803
Gladiuk Contracting Ltd	291,765
Global Knowledge Network (Canada) Inc	154,350
Global Risk Innovations	41,580
Golder Associates Ltd	850,240
Graham Construction and Engineering LP	837,352
Greater Vancouver Regional District*	30,093,654
Greater Vancouver Water District	24,813,294
Green Admiral Nature Restoration	109,769
Gregg Distributors Ltd	97,870
Groundwater Technology B.V.	116,484
Guillevin International Inc	317,345
Habitat Systems Inc	143,830

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
Hansen & Gannelli Inc	47,278
Hapa Collaborative	28,552
Harbour International Trucks	30,328
Harris & Company LLP	252,418
Harvest Fraser Richmond Organics Ltd	166,357
HCMA Architecture + Design	362,812
HDR/CEI Architecture Associates, Inc	232,818
Hemmera Envirochem	224,531
Heritage Office Furnishings Ltd	1,324,766
Hi-Cube Storage Products	44,666
Highroad Excavating & Trucking Ltd	54,630
Homan Roofing Ltd	130,075
Hooker Craig Lum Group Ltd	34,485
Hopkins, Dolly	26,388
Horseshoe Press Inc	63,508
HR Architects	42,565
Humphries Construction Group Ltd	149,644
Hunter Litigation Chambers Law Corp	73,926
Hunter McCorquodale	74,358
Hunter West Legal Recruitment	38,800
Huntsman, Patricia	27,802
Hutton Communications Canada Inc	40,338
Hyphen Communications	25,295
ICBC	31,798
ICE Development Ltd	244,404
Imperial Parking Canada Corporation	126,730
Infor Canada Ltd	144,624
Inland Kenworth	38,982
Insight Canada Inc	102,865
Integral Group	61,975
Interfaceflor Canada	35,105
International Crowd Management	27,184
International Web Express	34,143
Interprovincial Traffic Service Ltd	352,194
Ion United Inc	35,519
Iridia Medical Inc	33,188
ISCO Canada Inc	37,133
ISL Engineering and Land Services Ltd	33,282
Island Key Computer Ltd	253,770

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
Jaud'Arts	85,598
Jego, Miyouki	72,087
Johnston Ross & Cheng Ltd	32,603
Jordair Compressors Inc	88,947
JSP Enterprises	73,191
Kal Tire	193,645
Kaleidoscope Training and Consulting	29,997
Kasian Architecture Interior Design and Planning Ltd	59,289
Keg Restaurants Ltd	25,995
Kennedy Landscaping Ltd	36,171
Kerr Wood Leidal Associates Limited	847,246
Kindred Construction Ltd	249,903
Kinetic OHS Services	28,297
Kinsol Timber Systems Ltd	157,660
KL Security Solutions	34,028
KMS Tools and Equipment	27,242
Konica Minolta Business Solutions	96,025
Korn/Ferry International Futurestep	38,336
KPMG LLP	128,228
KSB Pumps Inc	311,991
Kutny's Richmond Soils	52,862
Lafarge Canada Inc	864,345
Lafarge Concrete Ltd	1,346,199
Lanarc Consulting Ltd	50,510
Land Titile & Survey Authority of BC	31,100
Landmark Sign Ltd	92,206
Landscape Forms Inc	68,904
Langley Concrete Group	43,097
Latoplast Limited	25,101
Layfield Canada Ltd	129,963
Lidstone & Company	31,828
LIT Aquatics Ltd	217,331
Livart Furniture Canada Co. Ltd	35,236
Lock-Block Ltd	102,215
Long View Systems	75,883
Lordco Parts Ltd	174,383
Lynne Werker Architect	35,595
M2K Construction Ltd	4,577,557
MA Eng-Tech Construction	114,473

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
Macaulay Trucking Ltd	286,981
Mainland Construction Materials ULC	832,729
Mainroad Lower Mainland Cont	130,221
Mainroad Maintenance Products	193,423
Mancorp Industrial Sales Ltd	49,744
Maple Leaf Disposal Ltd	70,039
Maple Ridge Chrysler	58,929
Marathon Surfaces Inc	110,886
Marine Roofing Repair & Maintenance	61,540
Matcon Excavation & Shoring Ltd	395,795
Maven Consulting Limited	121,106
Maydanyk Trucking Ltd	92,318
McAsphalt Industries Ltd	35,309
McElhanney Consulting Services Ltd	394,614
McRae's Environmental Services Ltd	2,257,753
MDT Technical Services Inc	51,715
Medical Services Plan*	855,113
Mercer (Canada) Ltd	106,746
Merletti Construction (1999) Ltd	1,456,281
Metro Motors Ltd	343,317
Metro Vancouver Regional District	5,976,324
Mickelson Consulting Inc	42,209
Millennium Tent & Party Rentals	43,391
Mills Printing & Stationery Co Ltd	489,836
Minister of Finance*	81,283
Minoru Seniors Society*	35,226
Mitchell Press	37,800
Modu-Loc Fence Rentals Ltd	44,752
Morrison Hershfield Limited	61,907
Muddy River Technologies Inc	49,488
Mundie Trucking	134,544
Municipal Finance Authority of BC*	27,306
Municipal Insurance Association of BC	748,694
Municipal Pension Plan*	22,216,486
Napa Auto Parts	74,693
ND Graphics Inc	45,884
Nedco	40,192
Neptune Technologie Group	77,250
Netex Canada Netting Inc	131,647

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
Nettraffic Technologies Consulting Inc	31,330
Network Consulting Services Inc	38,346
Novatech Analytical Solutions	36,777
Novax Industries Corp	26,335
Nucor Environmental Solutions Ltd	193,354
Nutech Facility Services Ltd	158,147
Nutrien Ag Solution	25,336
O4 Architecture Ltd	252,336
Ocean Marker Sport Surfaces (2014) Ltd	54,780
Ocean Pipe	117,697
Olympic International	87,278
Ono Work & Safety Ltd	36,864
Opacity Design Group Ltd	27,240
Open Green Building Society	41,165
Open Text Corporation	200,910
Opus International Consultants	596,883
Oracle Canada ULC	427,305
Organized Crime Agency of BC	93,684
P D Trucking	141,877
Pacific Blue Cross*	4,267,527
Pacific Cutting & Coring Ltd	303,171
Pacific Flow Control Ltd	52,734
Parkland Refining (BC) Ltd	1,953,859
Parsons Inc	64,605
Paul Sahota Trucking	150,551
Peel's Nurseries Ltd	50,213
Penta Builders Group	400,191
Perfectmind Inc	190,289
Performance Contracting Brighouse Ltd	81,919
Performance Contracting Ltd	2,567,044
Performance Objects Inc	96,525
Peterbilt Pacific Inc	208,720
Phoenix Tent and Events Rentals	83,591
Physio Control Canada	47,465
Pit Stop Portable Toilet Services Ltd	43,151
Pitneyworks	130,000
PJB Mechanical Plumbing	153,198
PJS Systems	69,920
Plan Group	39,598

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
Planet Clean	374,581
Platinum Pro-Claim	70,561
Point One Consulting	72,710
Polymetis Projects	40,000
Pottinger Gaherty Environmental	36,514
Prairiecoast Equipment	167,927
Premier Security Inc	176,540
Priority Consulting Group Inc	54,880
Prism Engineering Ltd	70,382
Proactive Resolutions Inc	53,985
Profire Emergency Equipment Inc	44,379
PS Traffic Pro Services (2012) Inc	224,153
PSE Equipment Ltd	43,260
PSL Par's Services Ltd	36,112
Purtech Service Group Inc	28,365
PWL Partnership Landscape Architects Inc	134,789
Qualichem Industrial Products	235,620
R F Binnie and Associates Ltd	509,176
Radical I/O Technology Inc	1,064,500
RAM Engineering Ltd	40,746
Ratio Architecture Interior Design	29,226
Raybern Erectors Ltd	62,185
RCR Technologies Inc	67,514
RDM Equipment Sales & Rentals	44,989
Read Jones Christoffersen Ltd	27,500
Real Canadian Superstore	30,870
Receiver General for Canada (RCMP)	52,822,132
Receiver General for Canada (Industry - Radio)	27,137
Rectec Industries Inc	52,924
Regehr Contracting Ltd	70,463
Regional Animal Protection Society	683,530
Rescue Tools Canada	122,997
Richmond Air Sweep Enterprises 1986 Inc	30,883
Richmond Art Gallery Association	39,484
Richmond Firefighter Assn RFFA Local 1286*	565,808
Richmond Fitness & Wellness Association	212,246
Richmond Gateway Theatre	50,135
Richmond Hotel Association*	688,506
Richmond Olympic Oval*	3,452,667

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
Richmond Sentinel News Inc	45,976
Richvan Holdings Ltd	283,870
Ricoh Canada Inc	266,875
River White Homes Ltd	4,360,617
Roadway Traffic Products	235,488
Robert Half Technology	42,487
Rocky Mountain Phoenix	67,483
Rogers Wireless Inc	25,635
Rollins Machinery Ltd	183,498
Rona	39,172
Royal Bank of Canada*	31,243
Royal City Fire Supplies Ltd	126,921
Rusty's Auto Towing	25,281
S.R. McEwen Architect	61,423
Safe & Sound Security Systems Ltd	312,979
Salmon's Transfer Ltd	33,240
Samaritan Technologies	26,269
Sanderson Concrete Inc	26,846
Sandhu, Dalip	155,336
Scalar Decisions Inc	73,724
School District 38 Richmond*	149,030,044
Scotia Bank	102,829
Scott Paragon Signs & Screenprinting Ltd	56,900
Scott Special Projects Ltd	147,557
SCP Distributors Canada Inc.	73,336
Select Art Advertising Inc	28,164
Sheppard, Emily	58,388
Sherine Industries Ltd	114,565
Shine Lighting Group Inc	43,262
Shy's Forest Products Ltd	101,519
Sidhoo Trucking Ltd	139,751
Sierra Waste Services Ltd	8,109,300
Simeio Solutions Canada Inc	230,900
Simson-Maxwell	309,565
Slip Tube Enterprises Ltd	26,148
Smart City ITS Sales Ltd	77,982
Smith Cameron Process Solutions	123,200
Smithrite Disposal Ltd	187,526
Softchoice LP	195,168

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
Solid General Contractors Inc	108,426
South Arm Excavating	326,703
Southridge Building Supplies Ltd	36,282
Specimen Trees Wholesale Nurseries Ltd	46,483
SSQ Insurance Company Inc*	47,714
STAK Fitness International Inc	39,425
Stellar Power & Control Solutions	80,118
Streamline Fencing & Contracting Ltd	32,893
Stryker Canada LP	51,154
Stuart Olson Construction Ltd	23,785,238
Sunbelt Rentals	137,493
Super Save Disposal Inc	157,697
Superior Propane Inc	27,645
T M Johnston Gradall Ltd	207,948
Target Products Ltd	32,848
Target Specialty Advertising	25,986
TD Canada Trust*	106,548
Technical Safety BC	41,461
Telus Communications Inc	1,152,329
Telus Mobility	385,647
Tempest Development Group Inc	175,956
Tervita Corporation	236,848
Tetra Tech Canada Inc	204,894
Textile Artcraft Inc	37,068
Textile Image Inc	33,571
The Active Network, Ltd	27,779
The Butler Did It Catering Co	117,701
The Driving Force Inc	48,923
The Feldman Agency	25,000
The Gordian Group Inc	36,915
The Home Depot	93,171
The Lazy Gourmet	34,809
The Sandmasters Inc	29,322
This Way Event Services	65,561
Thomas Trucking	197,033
Three Dimensional Services Inc	40,553
Tibco Software Ireland Ltd	75,859
Tiger Calcium Services Inc	33,664
Tinbox Energy Software	28,564

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
TK Graphics	38,263
TMP Worldwide Advertising & Communications Co	41,311
Topline Electric Motors	44,166
Torbram Electric Supply	29,997
Tourism Richmond*	4,454,809
Tower Fitness Equipment Services Inc	66,489
Trane Canada	31,419
TransLink*	37,701,365
Turning Point Technology Services Inc	150,995
Twining Short & Haakonson " In Trust "	50,000
Twining, Short & Haakonson, Barristers	44,056
Tybo Contracting Ltd	36,993
UCC Group Inc	225,750
Ulmer Contracting Ltd	950,161
Union of BC Municipalities*	115,097
United Rentals	146,013
United Way of the Lower Mainland*	35,561
Uno Digital Screen Press	25,756
Urban Agriculture Consulting Inc	38,723
Valmont West Coast Engineering	78,504
Vancouver Axle & Frame Ltd	25,153
Vancouver Coastal Health Authority	174,488
Vanport Enterprises Ltd	226,603
VDZ+A Consulting Inc	30,103
Ventana Construction Corporation	534,178
VFA	41,653
Victoria Mobile Radio Ltd	45,046
Vimar Equipment Ltd	168,699
Walker's Gradall Services Ltd	437,839
Watt Consulting Group	58,347
Wave Point Consulting Ltd	28,120
WDFalconer Consulting Services	26,950
Wesco Distribution Canada Inc	143,862
West Coast Electric Ltd	81,504
West Coast Elevator Ltd	53,403
Westburne	67,815
Westcoast Drainage & Contracting	368,957
Western Scale Co Ltd	42,539
Western Water and Gas Products Ltd	251,021

*Payment includes tax transfers and third party remittances

CITY OF RICHMOND
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name	Payment Amount
Western Weed Control Ltd	115,000
Westerra Equipment LP	115,101
Westview Sales Ltd	201,465
WFR Wholesale Fire & Rescue Ltd	3,579,902
Whitewater West Industries Ltd	31,622
Wilcor Industries	59,032
Will Creative Inc	35,628
Willis Canada Inc	1,794,267
Winvan Paving Ltd	92,654
Wong's Greenhouse & Nursery	37,842
Wood Environment & Infrastructure	26,121
Work Truck West	65,436
WorkSafe BC*	2,990,717
WSP Canada Group Limited	28,393
Wurth Canada - Web	43,899
X10 Networks	256,239
Xylem Canada Company	200,991
Young Anderson Barristers & Solicitors	74,924
Zeemac Vehicle Lease Ltd	192,564
Zena Simces & Associates Inc	52,940
Payments Over $25,000	**536,914,775**
Payments Under $25,000	**10,070,523**
Total Payments	**$ 546,985,298**

The City prepares the Schedule of Payments to Suppliers For Goods and Services based on actual cash disbursements processed through its financial system.

The total figure will vary from the expenditures shown in the consolidated financial statements which use the accrual method of accounting and various factors including:

- Timing differences between the cash basis and accrual method;
- There are disbursements that are not considered expenditures for other taxing authorities and employee payroll deductions;
- The Schedule of Payments excludes the payments made by the Richmond Public Library, Richmond Olympic Oval Corporation and Lulu Island Energy Company;
- There are payments that are externally recovered, these recoveries are recorded against expenditures or as revenue in the consolidated financial statements.

*Payment includes tax transfers and third party remittances

RICHMOND PUBLIC LIBRARY
Statement of Payments to Suppliers for Goods and Services
in Excess of $25,000 for 2018

Supplier Name		Payment Amount
BC Hydro	$	94,966
BC Libraries Cooperative		52,796
Bibliocommons Inc		25,603
Convergent Library Technologies Inc.		69,015
CVS Midwest Tape		193,898
Dorset Realty Group		83,341
Heritage Office Furnishings Ltd		48,796
Innovative Interfaces Global Limited		150,124
Ironwood Developments		188,141
Library Bound Inc.		812,361
Linkedin Ireland Unlimited Company		25,090
Ma Eng-Tech Construction		110,933
Master Care Janitorial		86,359
Mills Printing & Stationery Co Ltd		35,181
Municipal Pension Fund		1,030,935
Overdrive Inc.		225,572
Proquest LLC		27,862
Public Library Interlink		54,360
Receiver General of Canada		1,517,707
Ricoh Canada Inc		27,881
United Library Services Inc		27,467
Payments Over $25,000		**4,888,388**
Payments Under $25,000		**454,893**
Total Payments	**$**	**5,343,281**

Organization		Payment Amount
Amyotrophic Lateral Sclerosis Society	$	2,000
Big Brothers of Greater Vancouver		6,000
Big Sisters of BC Lower Mainland		6,000
Boys & Girls Clubs of South Coast BC		5,000
Canadian Mental Health Association		8,000
Canadian Red Cross Society		2,000
Canadian YC Chinese Orchestra		6,450
Child Care Training and Professional Development Society of Richmond		6,000
Children of the Street Society		5,000
Chimo Community Services		50,000
Cinevolution Media Arts Society		9,875
City Centre Community Association		45,288
Community Arts Council of Richmond		9,300
Community Mental Wellness Association		9,739
Delta Farmland & Wildlife Trust		10,000
East Richmond Community Association		950
Family Services of Greater Vancouver		48,007
Hamilton Community Association		10,204
Heart of Richmond Aids Society		11,500
Kajaks Track and Field Club		1,000
Kidsport Richmond		22,618
Little Wings Day Care Centre Society		5,297
Minoru Seniors Society		5,000
Multicultural Helping House Society		8,956
Pacific Post Partum Support Society		2,000
Parish of St. Alban's		15,000
Pathways Clubhouse		35,027
Philippine Cultural Arts Society of BC		3,700
Richmond Addiction Services Society		217,727
Richmond Agricultural & Industrial Society		28,500
Richmond Amateur Radio Club		1,646
Richmond Art Gallery Association		3,900
Richmond Arts Coalition		9,400
Richmond Bethel Mennonite Brethren		3,000
Richmond Centre For Disability		127,225
Richmond Chinese Community Society		1,850
Richmond Community Orchestra & Chorus		9,200
Richmond Community Services Advisory		11,000
Richmond Delta Youth Orchestra		9,875
Richmond Family Place Society		27,000

Organization		Payment Amount
Richmond Fitness & Wellness Association		12,618
Richmond Food Bank Society		5,000
Richmond Food Security Society		10,000
Richmond Gateway Theatre Society		1,306,968
Richmond Mental Health Consumer & Friends Society		5,000
Richmond Multicultural Community Services		12,000
Richmond Museum Society		1,550
Richmond Music School Society		9,200
Richmond Potters' Club		6,000
Richmond Singers		7,450
Richmond Society for Community Living		28,000
Richmond Therapeutic Riding Association		59,505
Richmond Women's Resource Centre		24,000
Richmond Youth Choral Society		9,659
Richmond Youth Service Agency		14,000
Sea Island Community Association		5,358
Sharing Farm Society		19,000
Society of Richmond Children's Centres		25,796
Steveston Community Society		27,500
Steveston Historical Society		12,900
Steveston Judo Club		7,000
Textile Arts Guild of Richmond		2,750
Tickle Me Pickle Theatre Sports		4,600
Touchstone Family Association		123,750
Turning Point Recovery Society		7,000
Vancouver Cantonese Opera		3,900
Vancouver Tagore Society		3,900
Volunteer Richmond Information Services		43,862
West Richmond Community Association		2,000
Wildresearch Society		2,000
Total Payments	**$**	**2,602,499**

City of Richmond

Bylaw 9813

Richmond Official Community Plan Bylaw 9000 and 7100 Amendment Bylaw 9813 (RZ 16-737146) 4360 Garry Street

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

1. Richmond Official Community Plan Bylaw 9000 is amended by repealing the existing land use designation in the 2041 OCP Land Use Map to Schedule 1 of the Official Community Plan thereof of the following area and by designating it "Apartment Residential".

   That area shown cross-hatched on "Schedule A attached to and forming part of Bylaw 9813"

2. Richmond Official Community Plan Bylaw 7100 is amended by repealing the existing land use designation in the Steveston Area Plan Land Use Map to Schedule 2.4 (Steveston Area Plan) thereof of the following area and by designating it "Multiple Family".

   That area shown cross-hatched on "Schedule A attached to and forming part of Bylaw 9813"

3. This Bylaw may be cited as **"Richmond Official Community Plan Bylaw 9000 and 7100, Amendment Bylaw 9813".**

FIRST READING	FEB 13 2018
PUBLIC HEARING	MAR 19 2018
SECOND READING	MAR 19 2018
THIRD READING	MAR 19 2018
OTHER CONDITIONS SATISFIED	JUN 12 2019
ADOPTED	

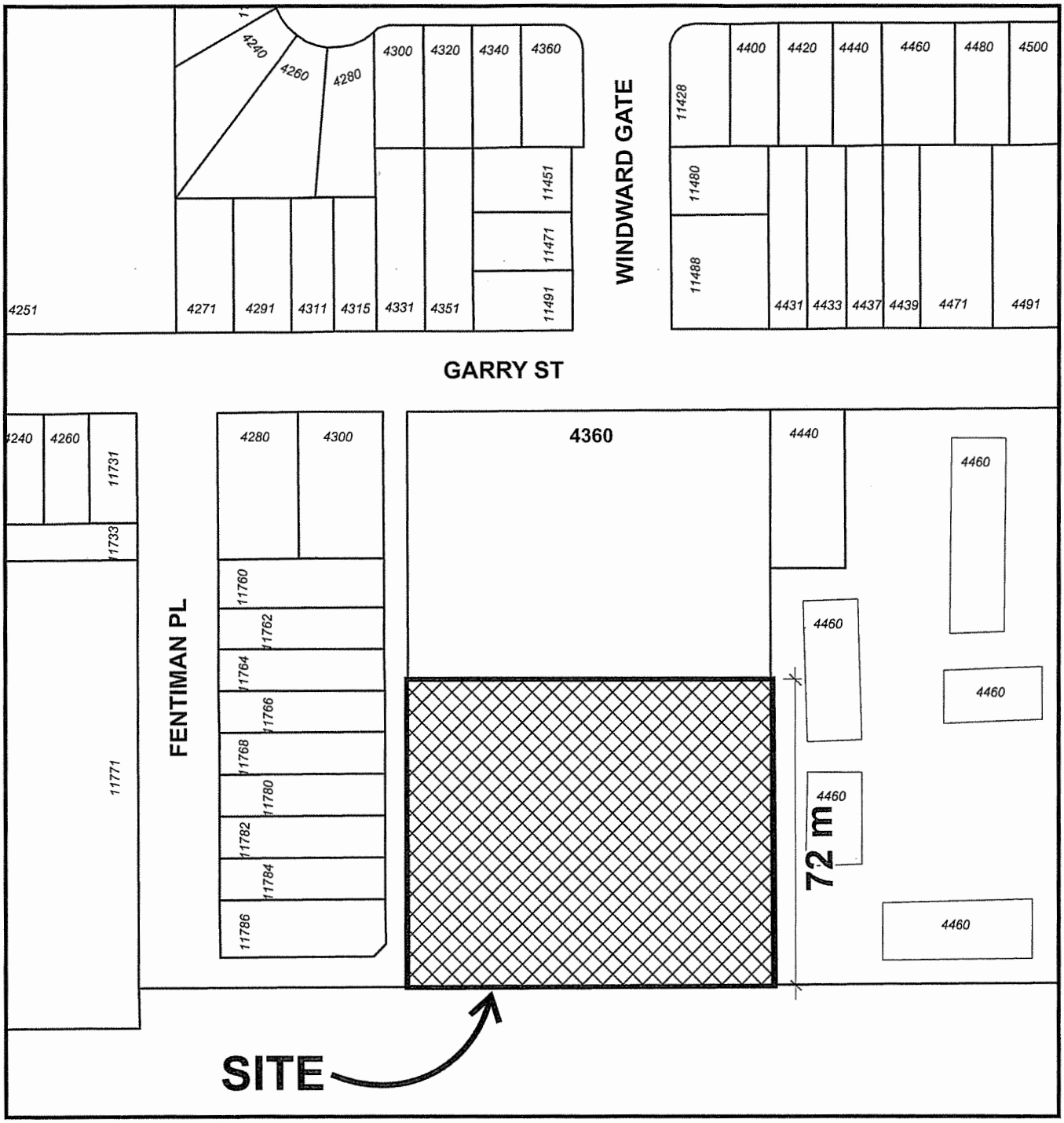
CITY OF RICHMOND
APPROVED by
YE
APPROVED by Manager or Solicitor
BK

MAYOR

CORPORATE OFFICER

Schedule A attached to and forming part of Bylaw 9813

City of Richmond



RZ 16-737146
OCP Bylaws 9000 & 7100,
Amendment Bylaw 9813

Original Date: 01/23/18

Revision Date: 01/24/18

Note: Dimensions are in METRES

City of Richmond

Bylaw 9814

Richmond Zoning Bylaw 8500 Amendment Bylaw 9814 (RZ 16-737146) 4360 Garry Street

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

1. Richmond Zoning Bylaw 8500 is amended by:

   a. Insert the following into Section 21 – Site Specific Residential (Other) Zones, in numerical order:

"21.12 **Assembly and Congregate Housing – Garry Street (Steveston)(ZR12)**

21.12.1 **Purpose**

The **zone** provides for **religious assembly**, **congregate housing** and other limited supporting and accessory **uses**.

21.12.2 **Permitted Uses**

- **religious assembly**
- **congregate housing**

21.12.3 **Secondary Uses**

- **childcare**
- **interment facility**
- **health service, minor**
- **residential security/operator unit**

21.12.4 **Permitted Density**

1. The maximum **floor area ratio** is 0.78.

2. Notwithstanding Section 21.12.4.1, the maximum **floor area ratio** for a **congregate housing** complex is 9,130 m^2 (0.7 **floor area ratio**).

3. For the purposes of this **zone** any covered unenclosed walkway is not included in the calculation of **floor area ratio**.

21.12.5 **Permitted Lot Coverage**

1. The maximum **lot coverage** is 40% for **buildings**.

21.12.6 **Yards & Setbacks**

1. For a **religious assembly building**:

   a) The minimum **front yard** is 20 m.

   b) The minimum **interior side yard** (east) is 7 m.

   c) The minimum **side yard** (west) is 30 m.

   d) The minimum **rear yard** is 80 m.

2. For a **congregate housing building**:

   a) The minimum **front yard** is 70 m.

   b) The minimum **interior side yard** (east) is 6 m.

   c) The minimum **side yard** (west) is 14.5 m.

   d) The minimum **rear yard** is 6 m.

21.12.7 **Permitted Heights**

1. The maximum **building height** for a **religious assembly building** and **accessory structure** is 12 m.

2. The maximum **building height** for a **congregate housing building** is 15 m.

21.12.8 **Subdivision Provisions/Minimum Lot Size**

1. The minimum **lot area** is 13,000 m^2.

21.12.9 **Landscaping & Screening**

1. **Landscaping** and **screening** shall be provided according to the provision of Section 6.0.

21.12.10 **On-Site Parking**

1. On-**site vehicle** and bicycle parking and loading shall be provided according to the standards set-out in Section 7.0.

21.12.11 **Other Regulations**

1. In addition to the regulations listed above, the General Development Regulations in Section 4.0 and the Specific Use Regulations in Section 5.0 apply."

2. The Zoning Map of the City of Richmond, which accompanies and forms part of Richmond Zoning Bylaw 8500, is amended by repealing the existing zoning designation of the following area and by designating it **"ASSEMBLY AND CONGREGATE HOUSING – GARRY STREET (STEVESTON)(ZR12)".**

P.I.D. 001-235-265
Lot 132 Except: Firstly: Part Road on Plan LMP20538, Secondly: Part Subdivided by Plan LMP25471, Section 2 Block 3 North Range 7 West New Westminster District Plan 40449

3. This Bylaw may be cited as **"Richmond Zoning Bylaw 8500, Amendment Bylaw 9814".**

FIRST READING	FEB 13 2018
A PUBLIC HEARING WAS HELD ON	MAR 19 2018
SECOND READING	MAR 19 2018
THIRD READING	MAR 19 2018
OTHER CONDITIONS SATISFIED	JUN 12 2019
ADOPTED	

CITY OF RICHMOND
APPROVED by
RE
APPROVED by Director or Solicitor
BC

MAYOR

CORPORATE OFFICER

City of Richmond

Minutes

Development Permit Panel
Wednesday, May 15, 2019

Time:	3:30 p.m.
Place:	Council Chambers Richmond City Hall
Present:	Cecilia Achiam, Chair John Irving, Acting General Manager, Engineering and Public Works Peter Russell, Senior Manager, Sustainability and District Energy

The meeting was called to order at 3:30 p.m.

Minutes

It was moved and seconded
That the minutes of the meeting of the Development Permit Panel held on April 10, 2019 be adopted.

CARRIED

1. DEVELOPMENT PERMIT 17-771214
(REDMS No. 6043764 v. 4)

APPLICANT: Christopher Bozyk Architects Ltd.

PROPERTY LOCATION: 12580 Vickers Way

INTENT OF PERMIT:

1. Permit the construction of a 3,379.9 m2 (36,382 ft2) industrial building at 12580 Vickers Way on a site zoned Industrial Retail (IR1); and
2. Vary the provisions of Richmond Zoning Bylaw 8500 to:
   (a) reduce the required number of required parking spaces from 136 to 66;
   (b) reduce the required number of loading spaces from two medium and one large loading space to two medium loading spaces; and
   (c) permit car parking spaces for employees to be provided in a tandem arrangement.

Applicant's Comments

Christopher Bozyk, Christopher Bozyk Architects Ltd., provided background information on the proposed development and highlighted the following:

- vehicular access to the proposed three-storey furniture retail store will be relocated from Vickers Way to Sweden Way;
- the proposed treatments to the north and south facades of the proposed building are intended to provide visual interest and revitalize the area;
- frontage improvements are proposed along Vickers Way and Sweden Way, including installation and improvement of curbs, sidewalks, boulevards, and road markings to enhance cyclists' safety at the Sweden Way entry/exit driveway; and
- traffic and parking concerns of neighbouring developments have been addressed by the applicant.

In addition, Mr. Bozyk briefed the Panel on the main landscaping features of the project, noting that (i) the proposed landscaping on Vickers Way will upgrade the frontage, (ii) trees will be installed along the east property line, (iii) permeable pavers, trees, and low plantings are proposed on the surface parking area, and (iv) a substantial lawn area is proposed on the southeast corner of the property.

In response to a query from the Panel, Wayne Craig, Director, Development, advised that the extensive lawn area on the southern end of the property was determined by a Kinder Morgan regulation prohibiting the planting of trees on their pipeline statutory-right-way (SRW) area.

Peter Joyce, Bunt & Associates Transportation Planning and Engineering, referenced the applicant's site-specific parking and loading study, noting that (i) the City's Zoning Bylaw parking requirement does not reflect the proposed use of the subject site, (ii) the peak parking demand for the proposed furniture retail store is from 20 to 30 parking spaces, (iii) the applicant is requesting a reduction of the required 136 parking spaces as the proposed 66 spaces is more than adequate, and (iv) the development's potential traffic impact into the area would be modest as the peak traffic generation in the subject site is approximately 20 to 30 vehicles per hour.

In response to queries from the Panel, Mr. Joyce advised that (i) in response to neighbouring developments' traffic concerns and in consultation with City staff, the applicant agreed that ingress and egress to/from the site's driveway would be right-in and right-out only, (ii) left-turn out from the site's driveway is restricted; however, a left turn entry is permitted, and (iii) the applicant's parking study considered existing traffic volume in the subject site and other furniture stores across the region,

Oren Samuel, owner of Paramount Furniture, noted that the proposed furniture retail store is high-end in terms of retail price compared to other low to medium-end furniture stores in the area and as such, potential traffic increase to the subject site is not expected to be significant in the long term.

In response to a query from the Panel, Mr. Craig acknowledged that the proposed number of parking stalls for the subject development could accommodate the parking needs of other types of furniture stores.

In response to a query from the Panel, Mr. Bozyk noted that a low level entry sign, not a pylon sign, will be installed on the proposed development.

Gallery Comments

A property owner of 12520 Vickers Way spoke in favour of the proposed development, noting that (i) the proposed high-end furniture retail store will revitalize the neighbourhood, (ii) Vickers Way needs improvements in terms of paving treatment and provision of sidewalks to enhance pedestrian circulation in the area, and (iii) an early approval of the subject development permit application would be appreciated.

Correspondence

Ben and Ingrid Gauer, 12660 Bridgeport Road (alternate address: 12651 Vickers Way) (Schedule 1)

In response to the issues raised in the correspondence, Mr. Craig noted that (i) the applicant had met with the property owners to address their concerns, and (ii) parking on Vickers Way is regulated by the City's Traffic Bylaw and enforced by the Bylaws Department.

In addition, Mr. Craig confirmed that the proposed Sweden Way driveway is limited to right-in and right-out only; however, a left-in entry is permitted.

Staff Comments

Mr. Craig advised that (i) there is a Servicing Agreement associated with the project for frontage works on Vickers Way and Sweden Way, (ii) the 10 parking spaces in tandem arrangement are subject to a legal agreement restricting their use to employees, (iii) the applicant is providing significant Traffic Demand Management (TDM) measures including one one-site electric vehicle (EV) charging station available for public use, end-of-trip cycling facilities within the building, a $50,000 cash contribution to the City for a future crosswalk on Sweden Way, and a $15,000 contribution towards public art.

Panel Discussion

The Panel expressed support for the project, noting that (i) the project is a welcome addition to the area, (ii) the building facades are well articulated, (iii) positive improvements are proposed on Vicker's Way, and (iii) neighbours' concerns regarding site access have been addressed by the applicant.

Panel Decision

It was moved and seconded
That a Development Permit be issued which would:

1. *Permit the construction of a 3,379.9 m^2 (36,382 ft^2) industrial building at 12580 Vickers Way on a site zoned Industrial Retail (IR1); and*
2. *Vary the provisions of Richmond Zoning Bylaw 8500 to:*
   (a) *Reduce the required number of required parking spaces from 136 to 66;*
   (b) *Reduce the required number of loading spaces from two medium and one large loading space to two medium loading spaces; and*
   (c) *Permit car parking spaces for employees to be provided in a tandem arrangement.*

CARRIED

2. DEVELOPMENT PERMIT 17-778295
(REDMS No. 6164058)

APPLICANT: Dagneault Planning Consultants Ltd.

PROPERTY LOCATION: 7341 and 7351 No. 5 Road

INTENT OF PERMIT:

To issue an Environmentally Sensitive Area (ESA) Development Permit at 7341 and 7351 No. 5 Road, in order to allow a subdivision application for a lot line adjustment.

Applicant's Comments

Brian Dagneault, Dagneault Planning Consultants Ltd., introduced the subject development permit application and noted that the intent of the subject application is to re-shape the on-site Environmentally Sensitive Area (ESA) on the subject properties in order to adjust the shared property line between the two properties and create two equal parcels and facilitate the construction of a single-family home on each parcel.

Bruce McTavish and Taisha Mitchell, McTavish Resources and Management Consultants, with the aid of a video presentation (attached to and forming part of these Minutes as Schedule 2) reviewed the results of the ESA environmental inventory and assessment conducted on the site and the applicant's proposed ESA compensation scheme.

In addition, Ms. Mitchell stated that the (i) all existing trees on-site are proposed to be retained and protected, and (ii) a Qualified Environmental Professional (QEP) will monitor ESA enhancements for three years and provide an annual report.

In response to a query from the Panel, Ms. Mitchell acknowledged that as part of the ESA compensation planting, four conifer species and two deciduous trees are proposed to be planted.

Gallery Comments

None.

Correspondence

None.

Panel Decision

It was moved and seconded
That an Environmentally Sensitive Area (ESA) Development Permit be issued at 7341 and 7351 No. 5 Road, in order to allow a subdivision application for a lot line adjustment.

CARRIED

3. DEVELOPMENT PERMIT 17-792077
(REDMS No. 6155885)

APPLICANT: Konic Development

PROPERTY LOCATION: 9851, 9891 Steveston Highway and 10931 Southgate Road

INTENT OF PERMIT:

1. Permit the construction of 11 townhouses at 9851, 9891 Steveston Highway and 10931 Southgate Road on a site zoned "Low Density Townhouses (RTL4)"; and
2. Vary the provisions of Richmond Zoning Bylaw 8500 to:
   (a) allow seven resident vehicle parking spaces to be small-sized; and
   (b) reduce the minimum front yard on Southgate Road and the exterior side yard on Steveston Highway from 6.0 m to 5.0 m.

Applicant's Comments

Jiang Zhu, Imperial Architecture, provided background information on the proposed development, and highlighted the following:

- the two three-storey townhouse buildings facing Steveston Highway have been stepped down to two-storeys at the west and east ends to provide an appropriate interface with the single-family neighbourhood;
- a Tudor architectural style is proposed and six different types of unit lay-outs are provided;
- the proposed development includes one convertible unit; and
- the project has been designed to achieve an EnerGuide rating of 82.

In reply to a query from the Panel, Mr. Zhu reviewed the rationale and history of the proposed building setback variances for the project.

Meredith Mitchell, M2 Landscape Architecture, briefed the Panel on the main landscaping features of the project, noting that protection and retention of two existing trees (one off-site and one on-site), provision of significant on-site pedestrian circulation areas, and accessibility to the site were important considerations in the landscape design for the project.

In addition, Ms. Mitchell further noted that (i) permeable paving treatment is proposed for the internal drive aisle on pedestrian circulation areas and at the drive aisle entry up to the entrance to the outdoor amenity area, (ii) a variety of plant materials are proposed along the Steveston Highway frontage to provide an active street frontage, (iii) there is a significant amount of natural surveillance on-site, (iv) the outdoor amenity area provides active and passive play opportunities, (v) individual rear yard spaces of two-storey rear units are larger due to the proposed reduction in building setback from the south property line, and (vi) the applicant will make a cash-in-lieu contribution to the City's Tree Compensation Fund for replacement trees that cannot be accommodated on-site.

Staff Comments

Mr. Craig advised that (i) the two proposed variances were identified at rezoning stage and no concerns were noted from the public, (ii) the proposed setback variance along Steveston Highway allows an increase in rear yard spaces of rear units and provides greater separation from single-family units to the north, (iii) the distance between the curb of Steveston Highway and Southgate Road and the building face is between 9.0 to 9.5 meters, (iv) the applicant has submitted an acoustical and thermal report and noise mitigation is factored in the design of the buildings to ensure that they meet Canadian Mortgage and Housing Corporation (CMHC) standards, (v) there will be frontage improvements along both Steveston Highway and Southgate Road through a Servicing Agreement, and (vi) a cash-in-lieu contribution for affordable housing is included in the rezoning considerations for the subject development.

In response to a query from the Panel, Mr. Craig confirmed that a future bicycle lane could be accommodated along the Steveston Highway frontage.

In response to queries from the Panel, Ms. Mitchell acknowledged that (i) the proposed landscaping along the Southgate Road frontage matches the existing single-family character of the neighbourhood, and (ii) the pad mounted transformer (PMT) at the northeast corner is accessible from the internal drive aisle and screened from the street frontage on Southgate Road.

Panel Discussion

In response to queries from the Panel, the design team acknowledged that (i) a solid wood fence provides separation between the subject development and the adjacent property to the northeast, (ii) the PMT at the northeast corner will be screened and set back from the north property line, (iii) an air source heat pump will be provided for each unit and will be screened, and (iv) there is no clear delineation of the paving treatment for pedestrian and vehicular circulation at the site entry on Steveston Highway as the intended main pedestrian access to the site is at the pedestrian entry point off Southgate Road.

Gallery Comments

None.

Correspondence

None.

Panel Discussion

The Panel expressed support for the project, noting that the proposed setback variance along Steveston Highway will benefit the project and the adjacent single-family homes to the north.

Panel Decision

It was moved and seconded
That a Development Permit be issued which would:

1. ***Permit the construction of 11 townhouses at 9851, 9891 Steveston Highway and 10931 Southgate Road on a site zoned "Low Density Townhouses (RTL4)"; and***
2. ***Vary the provisions of Richmond Zoning Bylaw 8500 to:***
   - ***(a) allow seven resident vehicle parking spaces to be small-sized; and***
   - ***(b) reduce the minimum front yard on Southgate Road and the exterior side yard on Steveston Highway from 6.0 m to 5.0 m.***

CARRIED

4. DEVELOPMENT PERMIT 18-816029, HERITAGE ALTERATION PERMIT 18-840922, ENVIRONMENTALLY SENSITIVE AREA DEVELOPMENT PERMIT 18-840993

(REDMS No. 6151211 v. 6)

APPLICANT: Oval 8 Holdings Ltd. Inc. No. 0805724

PROPERTY LOCATION: A Development Permit (DP) at 6811 Pearson Way, a Heritage

Alteration Permit (HA) at 6900 River Road, and an Environmentally Sensitive Area (ESA) DP at 6900 River Road and portions of 6899 Pearson Way and 6811 Pearson Way

INTENT OF PERMIT:

1. Issue a Development Permit (DP 18-816029) to:

   (a) permit the construction of 3 residential towers consisting of approximately 459 units at 6811 Pearson Way on a site zoned "High Rise Apartment and Olympic Oval (ZMU4) – Oval Village (City Centre)"; and

   (b) vary the provisions of Richmond Zoning Bylaw 8500 to:

      (i) waive the requirement for on-site large size loading spaces; and

      (ii) increase the maximum permitted building projection into the Pearson Way public road setback from 1 m up to 2.5 m for proposed Tower F and G balconies;

2. Issue a Heritage Alteration Permit (HA 18-840992) to permit the construction of an elevated public walkway and installation of heritage interpretative panels at 6900 River Road; and

3. Issue an Environmentally Sensitive Area Development Permit (ESA DP 18-840993) to permit construction of a public walkway and to introduce ecological enhancements at 6900 River Road and portions of 6899 Pearson Way and 6811 Pearson Way.

Applicant's Comments

Gwyn Vose, IBI Group Architects Inc., with the aid of a video presentation (attached to and forming part of these Minutes as Schedule 3) provided background information on the proposed development and highlighted the following:

- the three buildings have been arranged to maximize views from the site and create as much open spaces as possible;
- Building H is angled to the side to open up a new public open space to the west;
- the new driveway to the south of Tower F is intended to provide access to loading and garbage for the tower and the entire development and the new driveway to the north provides access to the underground parkade;
- the building massing is controlled by the new flight approach slope determined by the Vancouver Airport Authority (VAA);
- high quality building materials are proposed throughout the development, including dark and light stones, metal panels, and energy efficient glazing with low-e coating;
- vertical bands of stone cladding and glass strips between the balcony rows provide a vertical expression to the proposed towers;

- one to four-bedroom residential units are proposed in the project;
- the three towers are connected by a low-rise indoor amenity structure and common areas;
- the project has been designed to achieve LEED Silver equivalency and be connected to a District Energy Utility (DEU) system; and
- provision for electric vehicle (EV) charging is proposed for each parking stall in the parkade and a charging infrastructure for the secured bicycle storage areas.

Chris Phillips, PFS Studio, with the aid of a video presentation (attached to and forming part of these Minutes as Schedule 3), noted that (i) the project's open space concept consists of the continuous riverfront, park system and dike trail and a series of open spaces that connect to these, (ii) the Middle Arm experiential walk tells the natural and cultural history of the Middle Arm, (iii) open spaces for the site includes a large public open space, a riverfront natural park, a natural area on Lot 14 and a north-south greenway along the east side, and semi-private courtyards, among others, (iv) there is a strong network of walking and cycling throughout the site, and (v) a wayfinding plan is provided for the site.

In addition, Mr. Phillips reviewed (i) the proposed landscaping for the public open space to the west, (ii) the landscape elements along the riverfront park and proposed improvements which include increase the dike elevation, (iii) the landscaping for the courtyard, (iv) the role of the Gilbert Greenway to the east and proposed landscaping including the construction of an elevated walkway, (v) the heritage landscape and interpretation including the heritage plan for the site and its key components, and (vi) the heritage interpretation panel design.

Keven Goodearle, PGL Environmental Consultants, with the aid of a video presentation (attached to and forming part of these Minutes as Schedule 3), reviewed the boundary for the current ESA within the site established in 2012, noting that three different ESAs had been established through rezoning. Mr. Goodearle clarified that the boardwalk encroachment into the ESA is actually only approximately 200 square meters, as the 516 square meters indicated in the presentation had not been updated.

Mr. Goodearle further noted that (i) mitigation of ESA encroachment and impacts to the site include creation of new ESA over parkade within the Riparian Management Area (RMA) on Lot 17, (ii) a modified natural successional approach will be used to compensate for ESA and RMA impacts, and (iii) the proposed ESA compensation and enhancement scheme will result in a net gain of 726 square meters of ESA.

In addition, Mr. Goodearle reviewed (i) the areas where native planting will be incorporated into the landscaping, (ii) the ESA existing conditions, and (iii) the habitat compensation plan.

Staff Comments

Mr. Craig noted that (i) the heritage aspects of the proposal were reviewed and supported by the Richmond Heritage Commission, (ii) the Transportation Demand Management (TDM) measures strategy associated with the project includes three bicycle maintenance areas within the development as well as access to the private Aspac shuttle service, (iii) the project has been designed to achieve aircraft noise standards, and (iv) a five-year ESA enhancement monitoring period is proposed which exceeds the typical three-year period based on the type of planting proposed and the public access into the area.

In response to a query from the Panel, Mr. Craig confirmed that (i) the City-owned child care facility on Lot 13 will be subject to a separate process, and (ii) legal agreements secured to date require the child care facility to be delivered prior to occupancy of the development site.

Gallery Comments

None.

Correspondence

None.

Panel Discussion

The Panel expressed support for the project, noting that (i) the applicant has put a lot of thought and effort into the project, (ii) the dike improvements are an important addition to the island's overall dike system, (iii) controlled access to the greenway and ESA are well done, and (iv) the large public open space area is well designed and a significant addition to the neighbourhood.

Panel Decision

It was moved and seconded

1. That a Development Permit (DP 18-816029) be issued, which would:

(a) permit construction of 3 residential towers consisting of approximately 459 units at 6811 Pearson Way on a site zoned "High Rise Apartment and Olympic Oval (ZMU4) – Oval Village (City Centre)"; and

(b) vary the provisions of Richmond Zoning Bylaw 8500 to:

(i) waive the requirement for on-site large size loading spaces; and

(ii) increase the maximum permitted building projection into the Pearson Way public road setback from 1 m up to 2.5 m for proposed Tower F and G balconies;

2. *That a Heritage Alteration Permit (HA 18-840992) be issued to permit construction of an elevated public walkway and installation of heritage interpretative panels at 6900 River Road; and*

3. *That an Environmentally Sensitive Area Development Permit (ESA DP 18-840993) be issued to permit construction of a public walkway and to introduce ecological enhancements at 6900 River Road and portions of 6899 Pearson Way and 6811 Pearson Way.*

CARRIED

5. DEVELOPMENT PERMIT 18-829286

(REDMS No. 6154118 v. 5)

APPLICANT: Oris Developments (Hamilton) Corp.

PROPERTY LOCATION: 23200 Gilley Road

INTENT OF PERMIT:

Permit the construction of a four-storey, mixed-use development with a partially below-grade parkade with 2,345 m2 (25,239 ft2) of commercial/retail space and 223 units at 23200 Gilley Road on a site zoned "Residential / Limited Commercial (ZMU35) – Neighbourhood Village Centre (Hamilton)".

Applicant's Comments

Dana Westermark, Oris Consulting Ltd, introduced the project, noting that (i) the proposed development is a continuation of the development across Gilley Road currently under construction, (ii) affordable housing units in a mix of unit types including three-bedroom units are proposed, and (iii) the project's energy and sustainability features include a geo-exchange heating and cooling system and a variable refrigerant flow (VRF) system.

Bryce Rositch, Rositch Hemphill Architects, provided background information on the proposed development and highlighted the following:

- the project is part of a larger development in four parcels;
- the U-shaped and L-shaped buildings provide a street wall along Gilley Road, reduces the impact to the properties to the south, and allows the provision of south-facing landscaped courtyards;
- retail spaces are proposed along Gilley Road, including a large retail space in the east building, which is intended to accommodate a grocery store;
- the proposed north-south mews at mid-block is a continuation of the mews across Gilley Road, and includes surface parking, access to loading area, an outdoor plaza area; and
- the proposed architecture is vibrant and colourful.

Michael Patterson, P+A Landscape Architecture, briefed the Panel on the main landscaping features of the project, noting that (i) the south-facing courtyards allow good sunlight exposure, (ii) ground floor units facing to the courtyards are provided with generous patios and have direct access to the courtyards, (iii) the courtyards provide play areas, covered barbeque areas, spaces for social gatherings and connectivity to on-site and off-site pedestrian circulation areas, (iv) the mews provide pedestrian connectivity to the pathway along the southern edge of the site and the community centre and elementary school to the east, (v) potential locations have been identified for public art, and (vi) some existing trees will be retained and the number of replacement trees exceeds City requirements.

In addition, Mr. Patterson reviewed the proposed landscaping for the mews, particularly its paving treatment, noting that the mews is intended for shared pedestrian and vehicular use.

In reply to a query from the Panel, Mr. Rositch confirmed that a loading area is provided for the large retail space in Building A.

Staff Comments

Mr. Craig noted that (i) there is a Servicing Agreement associated with the project for frontage improvements along Gilley Road and Smith Drive as well as linear trail and RMA enhancements within Queens Canal adjacent to the site, (ii) 133 Basic Universal Housing (BUH) units are included in the project, (iii) the applicant has submitted acoustical reports to demonstrate that the project will meet CHMC noise standards, and (iv) 14 affordable housing units are included in the project and a housing agreement for these units have been adopted by Council.

Gallery Comments

None.

Correspondence

None.

Panel Discussion

In response to queries from the Panel, the project's design team noted that (i) an elevated crosswalk will be installed across Smith Drive to provide safe pedestrian connection from the proposed development to Hamilton Community Centre and Hamilton Elementary School, (ii) a median boulevard will be installed along portions of Smith Drive and no vehicular access to the mews from Smith Drive will reduce vehicular circulation and enhance pedestrian safety on Smith Drive, and (iii) level pedestrian access to retail spaces along Gilley Road are limited to the mid-block portion.

In response to a query from the Panel, Mr. Westermark reviewed the proposed construction works on Gilley Road and provided a timeline for expected completion of surface works, noting that there will be traffic disruptions during road construction.

In response to further queries from the Panel, Mr. Westermark noted that (i) the applicant had conducted two neighbourhood information and consultation sessions, (ii) the surface parking stalls on the mews is primarily intended for commercial parking during daytime, (iii) the residential units along the mews are all single level, and (iv) limited business use, e.g. an accountant's office, is allowed in the residential units.

It was noted that delineation between the mews and the public street through installing adequate signage to avoid parking complaints should be done, and staff was directed to take the matter under advisement.

Panel Discussion

The Panel expressed support for the project, noting that the project is well thought out and a welcome addition to the area.

In addition, the Chair advised the applicant to be mindful of reported security issues in the area during pre-construction activities.

Panel Decision

It was moved and seconded
That a Development Permit be issued which would permit the construction of a four-storey, mixed-use development with a partially below-grade parkade with 2,345 m^2 (25,239 ft^2) of commercial/retail space and 223 units at 23200 Gilley Road on a site zoned "Residential / Limited Commercial (ZMU35) – Neighbourhood Village Centre (Hamilton)".

CARRIED

6. Date of Next Meeting: May 29, 2019

7. Adjournment

It was moved and seconded
That the meeting be adjourned at 5:41 p.m.

CARRIED

Certified a true and correct copy of the Minutes of the meeting of the Development Permit Panel of the Council of the City of Richmond held on Wednesday, May 15, 2019.

Cecilia Achiam
Chair

Rustico Agawin
Committee Clerk

Schedule 1 to the Minutes of the Development Permit Panel meeting held on Wednesday, May 15, 2019.

ANCHOR PACIFIC PROPERTIES LTD.

David Weber,
6911 No. 3 Road
Richmond, BC V6Y 2C1

May 3, 2019

Dear David Weber,

Re: DP 17-771214 Notice of Application for DP
12580 Vickers Way, Richmond, BC

We are the owners of 12660 Bridgeport Rd (alternate address: 12651 Vickers Way), Richmond, located directly across the street from the subject property. Due to lack of parking in the neighbourhood, neighbouring tenants park on the Vickers Way road allowance fronting our property. This has been a long-standing irritant and results in severely limited parking for our tenants and is the cause of losing many prospective tenants for our space. We have no problem with the DP 17-771214 and the huge parking relaxation provided there is a covenant registered on 12580 Vickers Way in favour of 12660 Bridgeport Rd. that no occupant or tenant or invitee or customer of 12580 Vickers Way can park on the road allowance fronting 12660 Bridgeport Rd, (alternate address of 12651 Vickers Way), Richmond.

Sincerely,

Ben and Ingrid Gauer
Anchor Pacific Properties Ltd.

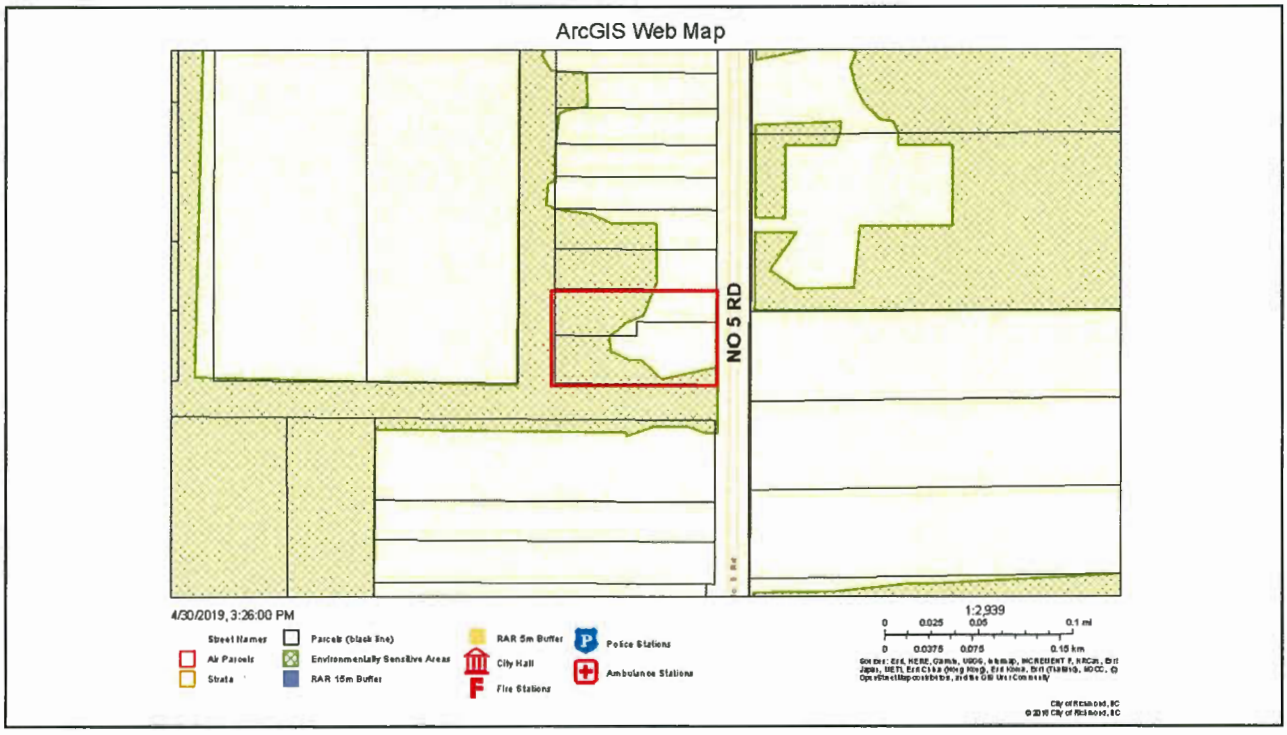
CITY OF RICHMOND
DATE
MAY 08 2019
RECEIVED
CITY CLERK'S OFFICE

16554 77A Ave.
Surrey, BC
V4N 0L4
Canada

PHONE 604-644-0273
FAX 604-574-3886
EMAIL ben@bengauer.com

Environmentally Sensitive Area (ESA)

- 2596 m^2 (54%) of the study area (7341 & 7351 no 5 Rd) is mapped as ESA
- Designated as Freshwater Wetland
- Site characteristics do align with the Freshwater Wetland designation in part (forested area in historic bog habitat).
- McTavish notes the site vegetation is characteristic of typical conditions described for the Upland Forest designation
  - Description of Upland Forest includes "Birch, red alder, and black cottonwood with lesser amounts of western hemlock and western red cedar"

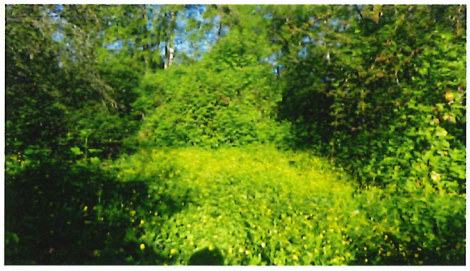

ArcGIS Web Map
NO 5 RD
4/30/2019, 3:26:00 PM
Street Names
Air Parcels
Strata
Parcels (black line)
Environmentally Sensitive Areas
RAR 15m Buffer
RAR 5m Buffer
City Hall
Fire Stations
Police Stations
Ambulance Stations
1:2,939
0 0.025 0.05 0.1 mi
0 0.0375 0.075 0.15 km
City of Richmond, BC

Vegetation

- **Tree layer**: Birch (decaying) and shore pine
- **Shrub layer**: salal, agricultural blueberry, hardhack
- **Herbaceous layer**: Few herbaceous species.

Invasive Species

- Blackberry dominates forest/yard interface (~850 m^2 of blackberry on property)
- Some creeping buttercup, lamium and reed canarygrass



Wildlife

- No large mammals detected
- Provides habitat for birds

Soils & Hydrology

- Historic bog
- Deep organic soils
- Mapped as Triggs soil series
- Dry within ~80 cm of surface during sampling in March and November of 2016
- Hydrology altered over time due to agricultural and municipal drainage in area
- Cyclical wetting and drying
- No mapped watercourses on or adjacent site
- Agricultural drainage swale to south of property line

ESA Impact

- ESA will be impacted within 1000 m^2 home plates
- Impact to ESA ~247 m^2 (9.5% of ESA on site)
- ESA will remain contiguous with surrounding ESA
- ESA will continue to support wildlife

Item	Area (m^2)		
Parcel address	7341 No 5 Rd	7351 No 5 Rd	Combined
Parcel size	2,023.00	2,748.00	4,771.00
Current ESA	1,231.95	1,364.50	2,596.45
ESA encroachment	11.00	263.30	247.30
ESA compensation	170.40	255.90	426.30
Final ESA	1, 391.35	1,384.10	2,775.45
ESA enhancement (blackberry removal)			850

ESA Compensation

- ESA encroachment will be compensated for
- Total compensation ~426 m^2
- **Net gain in ESA** (+179 m^2)
- Invasive species will be removed with a focus on Himalayan blackberry (creeping buttercup and Reedcanary grass also on site)
- Any felled or failed trees to be bucked into manageable lengths and remain within the forested ESA area as coarse woody debris (CWD). In travelled or high use areas, CWD will be slashed to the ground to minimize the potential for injury from suspended logs.

Item	Area (m^2)		
Parcel address	7341 No 5 Rd	7351 No 5 Rd	Combined
Parcel size	2,023.00	2,748.00	4,771.00
Current ESA	1,231.95	1,364.50	2,596.45
ESA encroachment	11.00	263.30	247.30
ESA compensation	170.40	255.90	426.30
Final ESA	1, 391.35	1,384.10	2,775.45
ESA enhancement (blackberry removal)			850

ESA Compensation

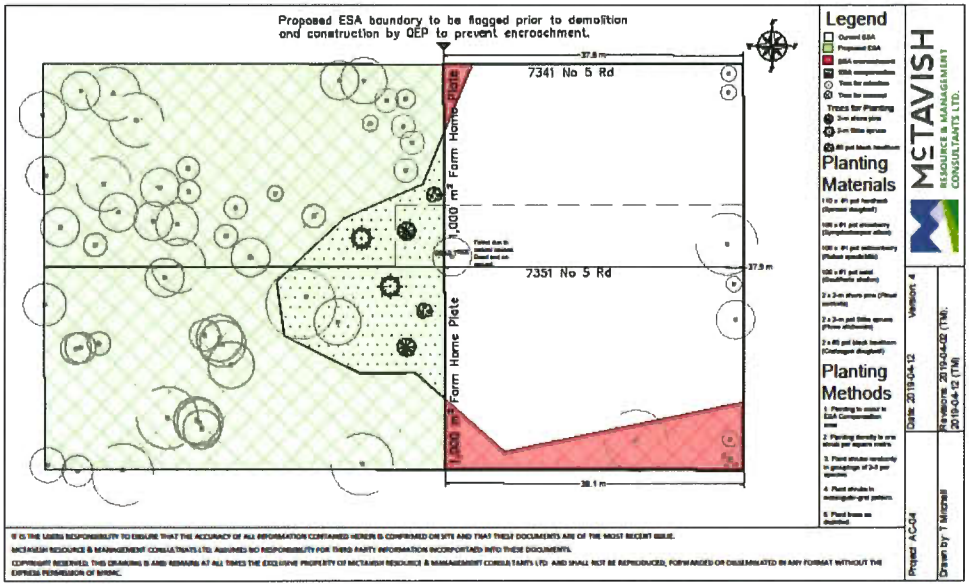
- Total species to plant within ESA compensation area:
  - 6 trees (Sitka spruce/lodge pole pine/black hawthorn)
  - 410 shrubs (snowberry, salmonberry, hardhack, salal)
- ESA to be flagged and inspected prior to demolition and construction







Site Plan


Proposed ESA boundary to be flagged prior to demolition and construction by QEP to prevent encroachment.
7341 No 5 Rd
7351 No 5 Rd
Farm Home Plate
1,000 m²
1,300 m²
37.8 m
37.9 m
38.1 m
Legend
Planting Materials
Planting Methods
MCTAVISH
RESOURCE & MANAGEMENT CONSULTANTS LTD.
Version: 4
Date: 2019-04-12
Revisions: 2019-04-02 (TM); 2019-04-12 (TM)
Project: AC-04
Drawn by: T Mitchell

ESA Maintenance and Monitoring

- Maintenance:
  - Occasional weeding and hand watering until establishment
- Monitoring
  - Inspection after substantial completion and following three years
  - Review installation
  - Ensure 80% survival
  - Ensure removal of Himalayan blackberry

QEP Services

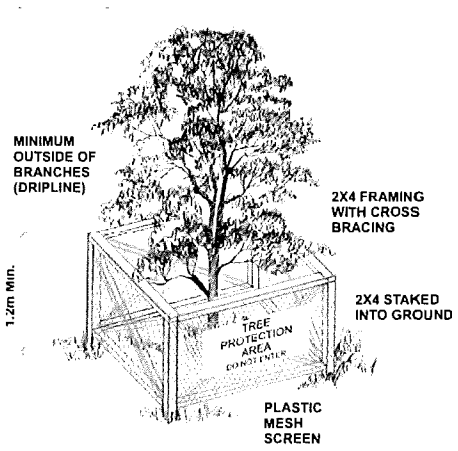
- Delineation of south drainage channel and inspection of ESC Measures
- Flagging of ESA Boundary
- Bird nest survey(s) as required
- Wildlife survey if any species at risk detected

Trees on site

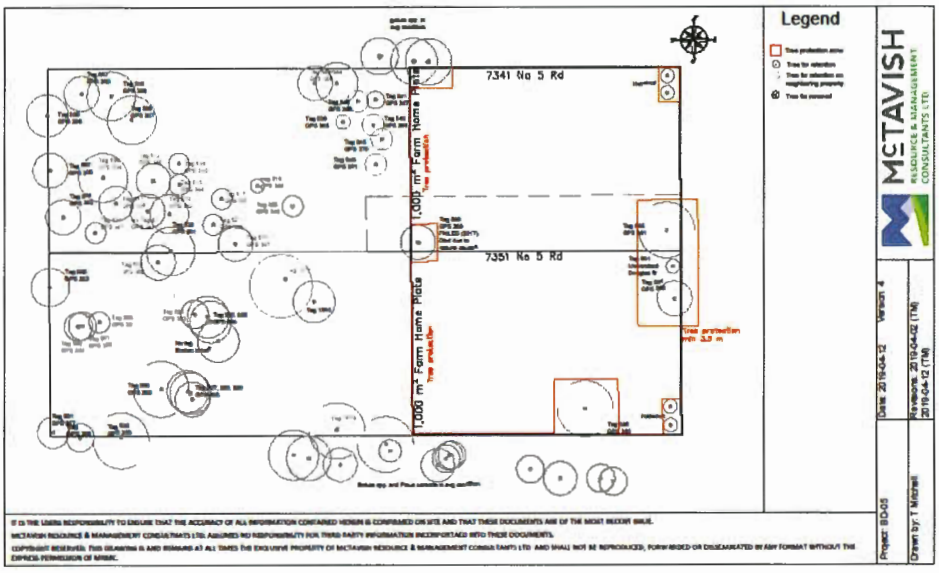
- 47 trees inventoried on site
- Composed of birch, shore pine, Douglas fir, black cottonwood, cherry
- All trees retained and protected (Including tree has died due to natural causes and has fallen over)

Tree Protection

- Tree Protection Zone (TPZ) to be established before demolition and construction works and to remain in place until works complete
- TPZ fencing to be installed with signage



Tree Protection



Arborist Monitoring

- Regular monitoring during construction
- TPZ monitoring
- Note any deficiencies
- Health and condition of trees
- Any damage
- Recommendations and confirmation of recommended mitigation measures
- Factors that may affect tree health

Schedule 3 to the Minutes of the Development Permit Panel meeting held on Wednesday, May 15, 2019.

River Green **Lot 17**

City of Richmond Development Permit Panel

Oval 8 Holdings Ltd.

IBI

PFS STUDIO
PLANNING + URBAN DESIGN + LANDSCAPE ARCHITECTURE

May 15, 2019

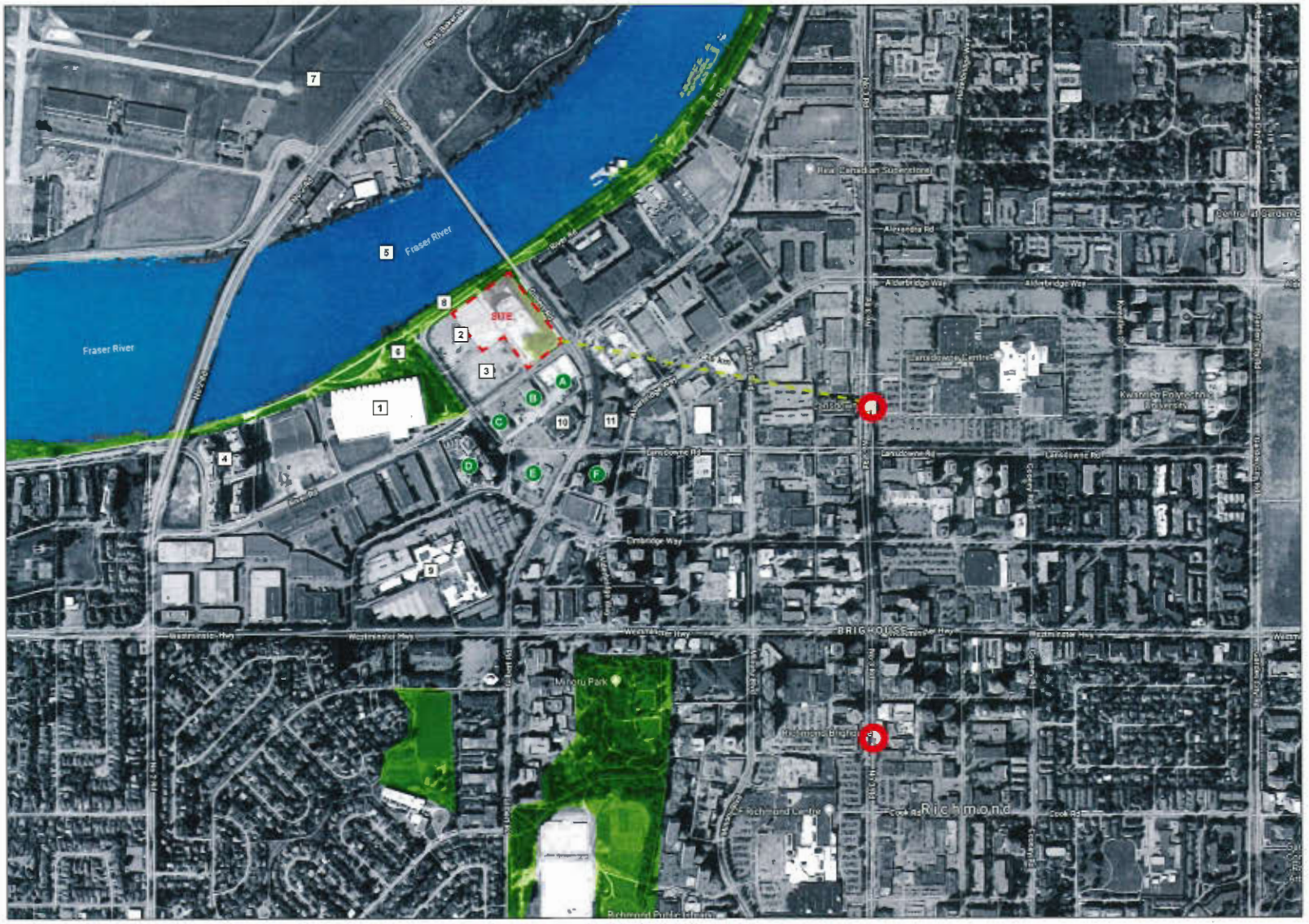
Context Plan

LEGEND

1. Olympic Oval
2. River Green Lot 9
3. River Green Lot 12
4. River Green Lot 2
5. Fraser River
6. Sales Centre
7. Airport
8. Water Front Park Space
9. WorkSafeBC
10. Richmond Curling Club
11. RIVA

- A River Park Place 1
- B River Park Place 2
- C River Park Place 3
- D ORA
- E Cadence
- F Ocean Walk

SkyTrain Station



Bridge to Bridge Site Plan

River Green Buildings

River Green Lot 12

River Green Parcel 9 – 24-hour Concierge

River Green Parcel 9 – 25-meter Swimming Pool and Whirlpool

River Green Parcel 2

River Green Parcel 9 – Feature stairway

River Green Parcel 9 – Water Gardens

River Green Parcel 9

Existing Site

Aerial

View of the Site in 1959 (City of Richmond Archives 1994-9-1)

View of the Site in 1981 (City of Richmond Archives 2005-49-2)

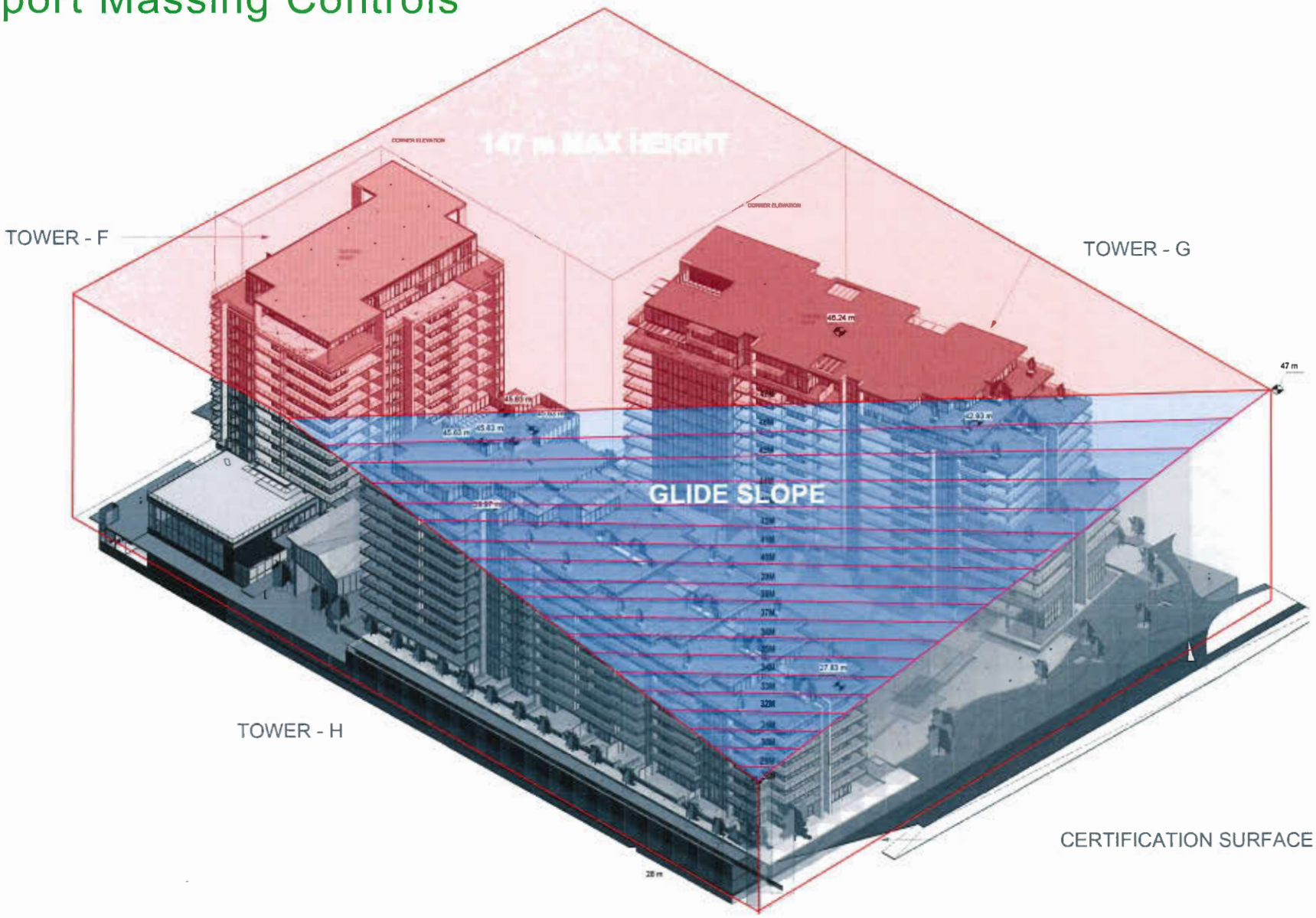
Existing Site

Site Plan

Site Plan
Pedestrian Route
Drive Ways
Open Space & Forest
Parking Access Point

CNCL - 882

Airport Massing Controls



CNCL - 883

Inspiration

Industrial Heritage

Riperian Environment

Project Rendering – Aerial Views

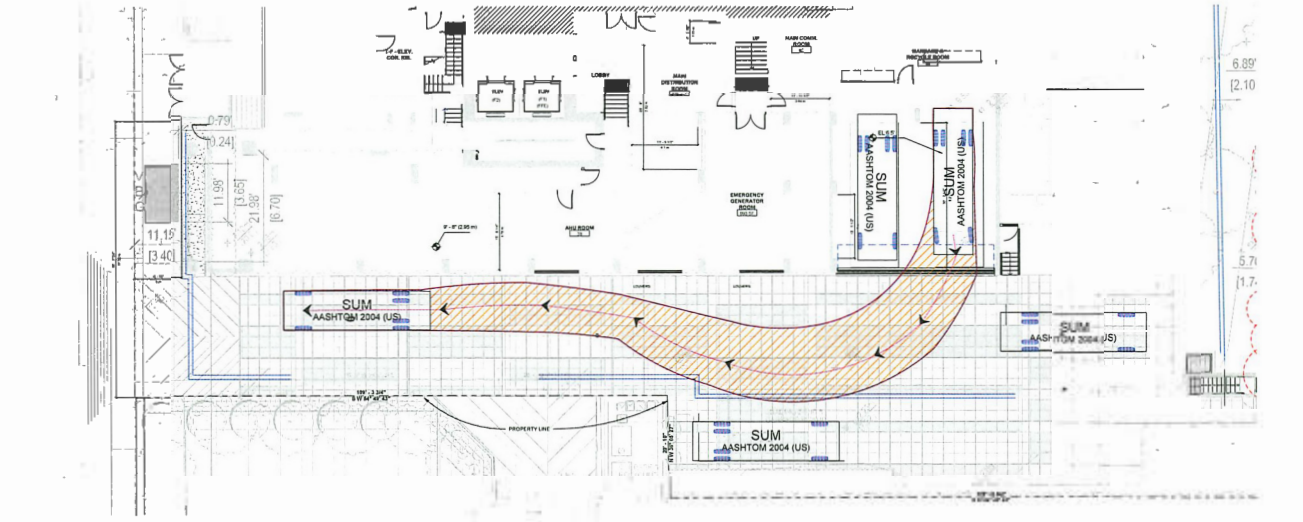
Project Rendering – At Grade View From Pearson Way

Project Rendering – View From Gilbert Road & Bridge

Project Rendering – View Of Amenity

Below Grade Parking

Garbage & Loading concealed



2 LEVEL P1 -LOADING BAY 02 OUT

CNCL - 890

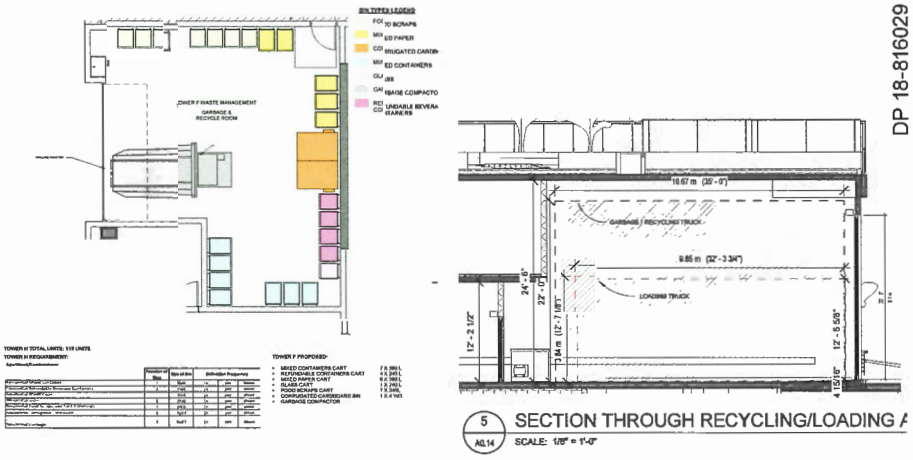
ASPAC World Class Communities | IBI | PFS STUDIO PLANNING + URBAN DESIGN + LANDSCAPE ARCHITECTURE

Submitted to City of Richmond
By IBI Group (Canada) Inc. on behalf of Oval 8 Holdings Ltd.
April 22, 2019

River Green Lot 17
Development Permit

PRJ. N N

LOADING ZONE LEVEL P1 BAY 02



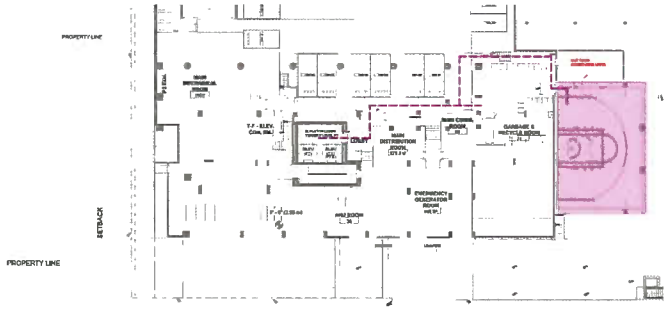
DP 18-816029

5 A0.14 SECTION THROUGH RECYCLING/LOADING A

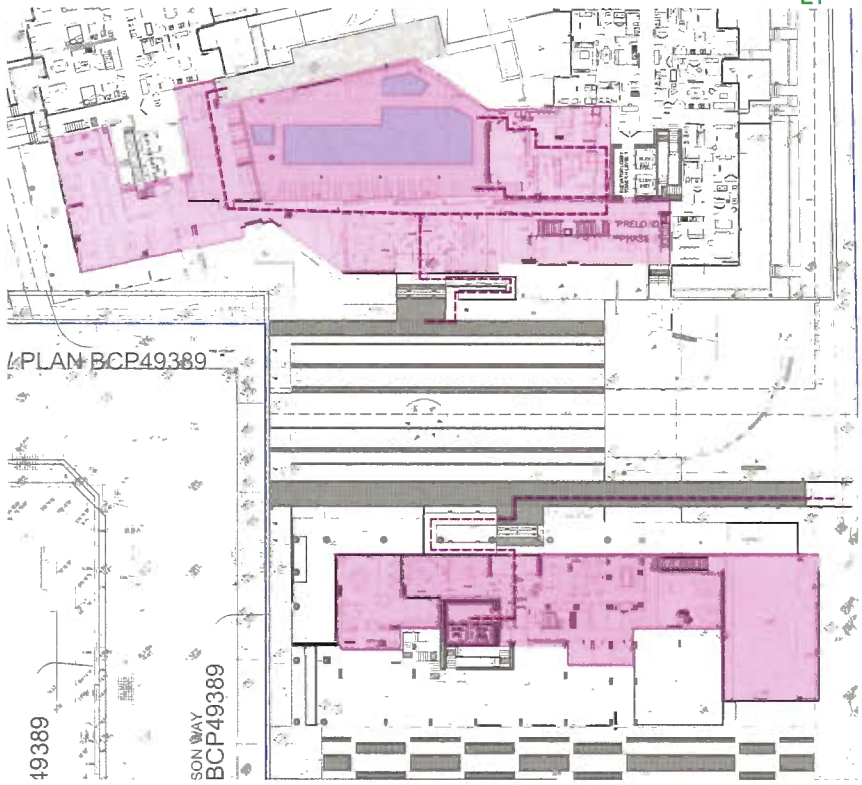
SCALE: 1/8" = 1'-0"

Amenity

P1



L1

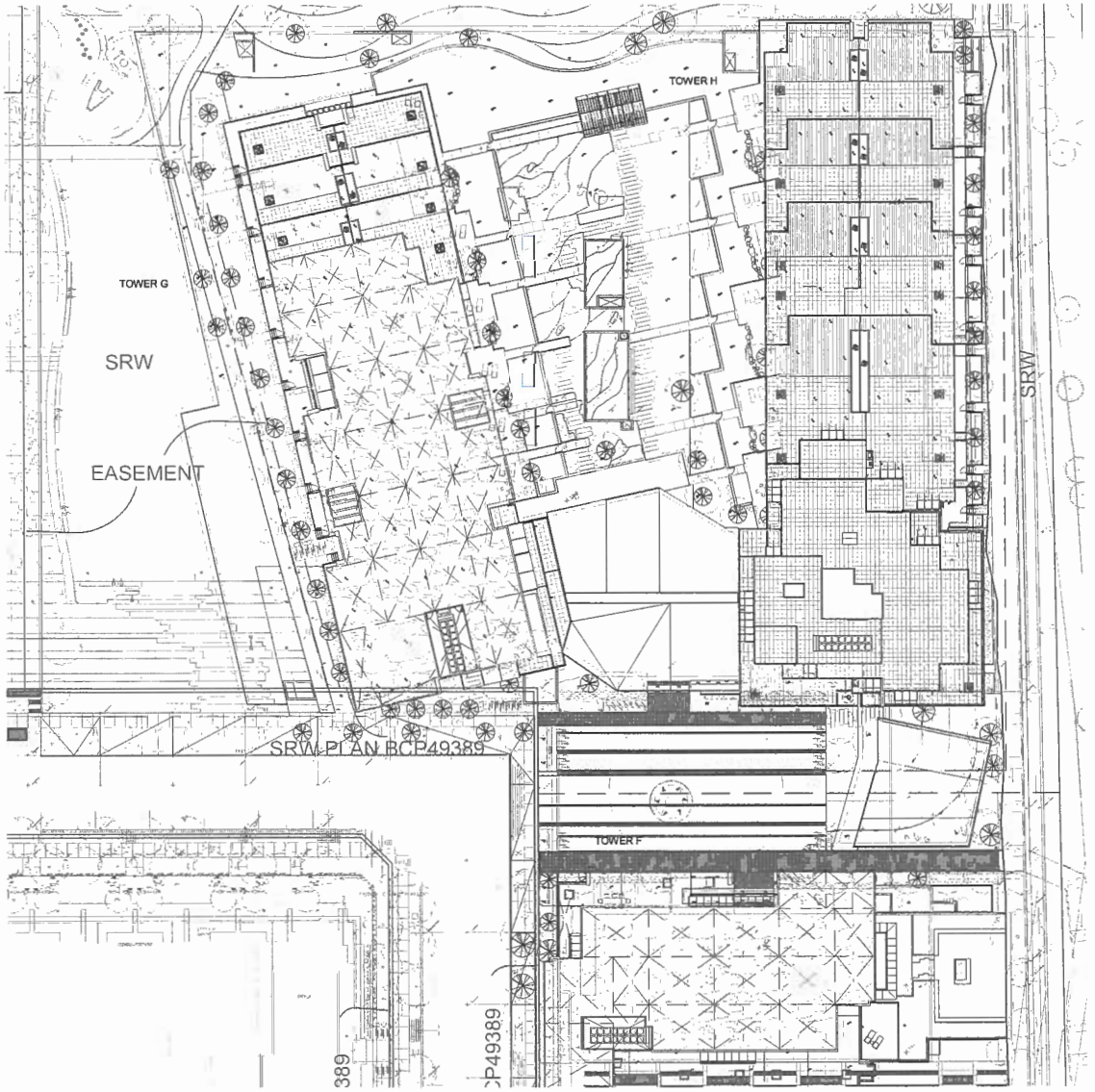


L2

CNCL - 891

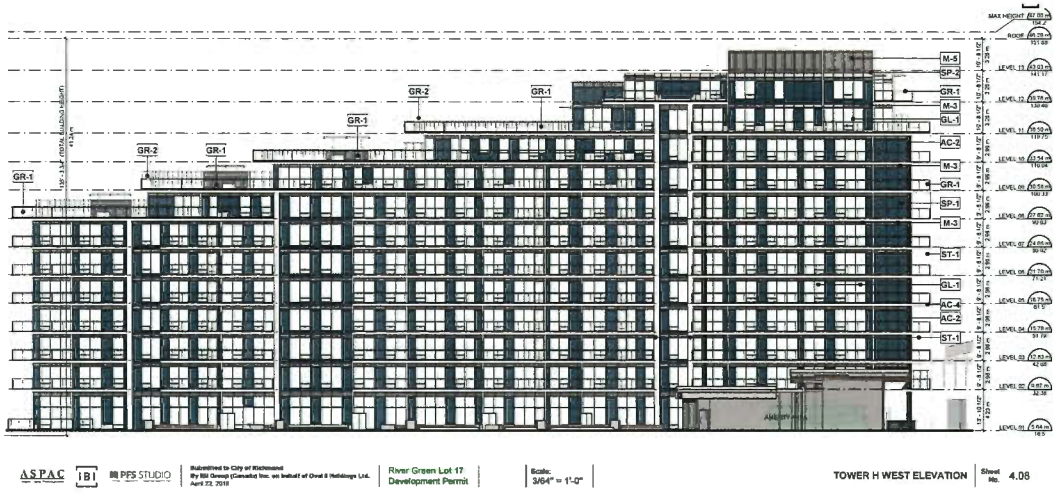
Plans

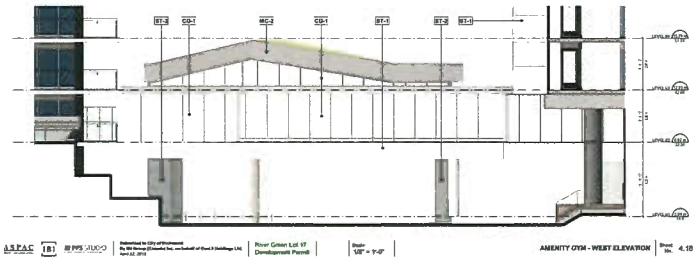
Roof Plan

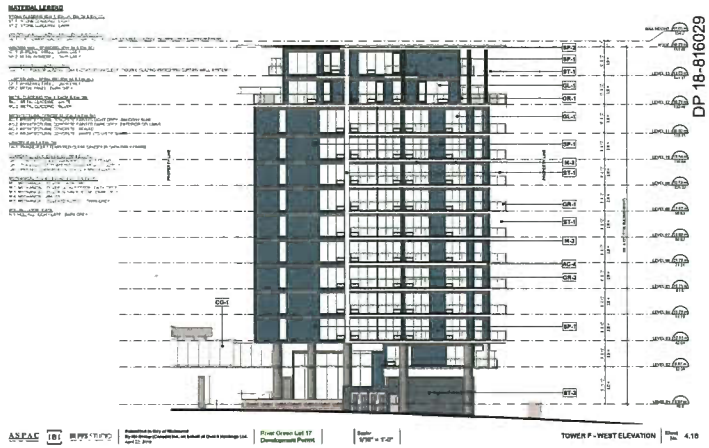


CNCL - 893

Elevations







DP 18-816029

CNCL - 894

High Quality Materials

RIVER GREEN - LOT 17

CP-2/SP2
CHARCOL GREY
ALUMINUM

AC-2
CONCRETE (PAINTED DARK)
BENJAMIN MOORE 2127-30

AC-1
CONCRETE (PAINTED LIGHT)
BENJAMIN MOORE 2119-70

CNCL - 895

GL-1/CG-1
CLEAR GLASS WITH LOW-E COATING

MC-2
METAL CLADDING -SILVER

MC-1
METAL CLADDING-WHITE

SP-1/CP-1
SPANDREL GLASS

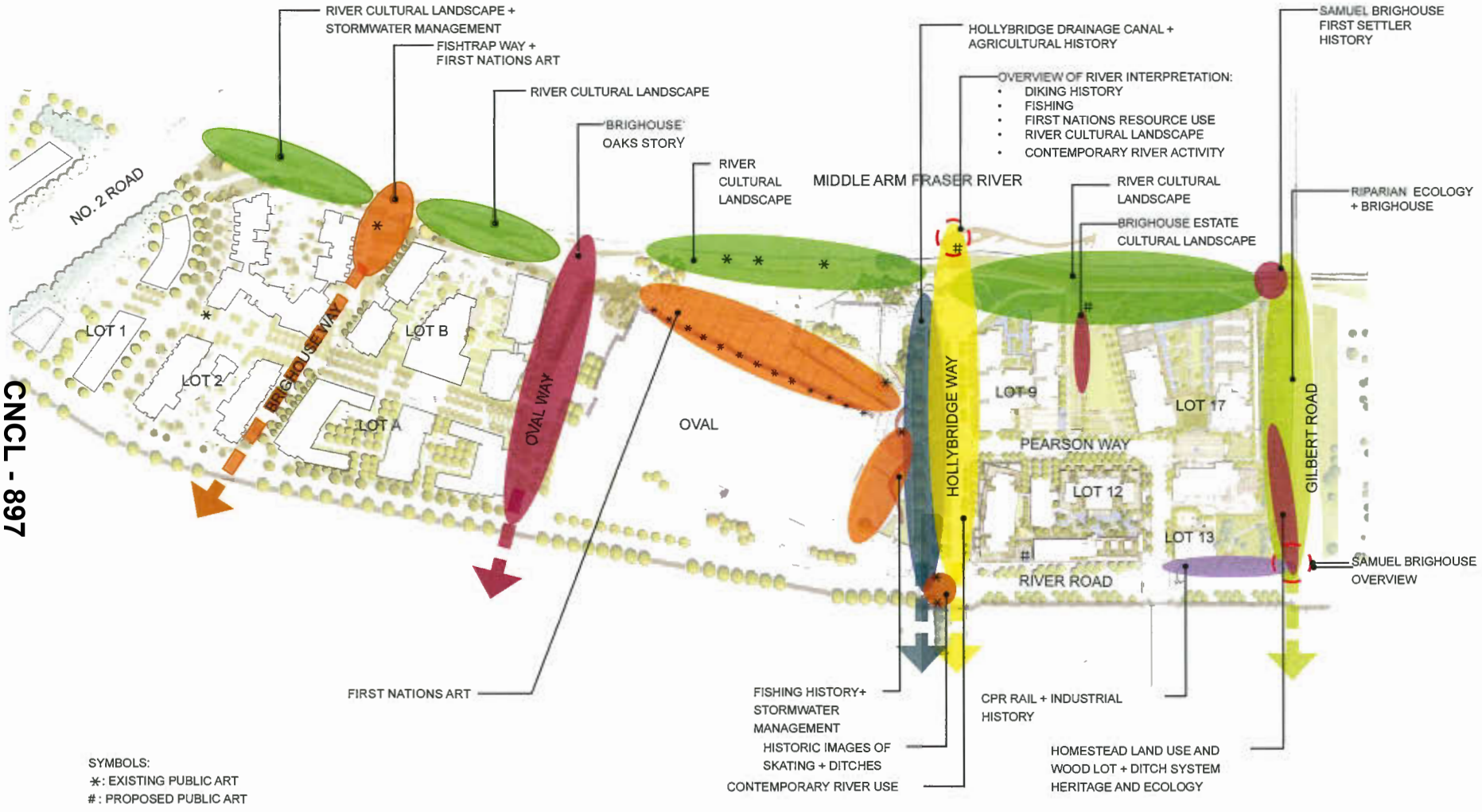
ST-1
STONE WHITE

ST-2
STONE DARK

Bridge to Bridge Site Plan

CNCL - 896

Context Plan - Middle Arm Experiential Walk



Site Plan

Zones, Circulation, and Wayfinding

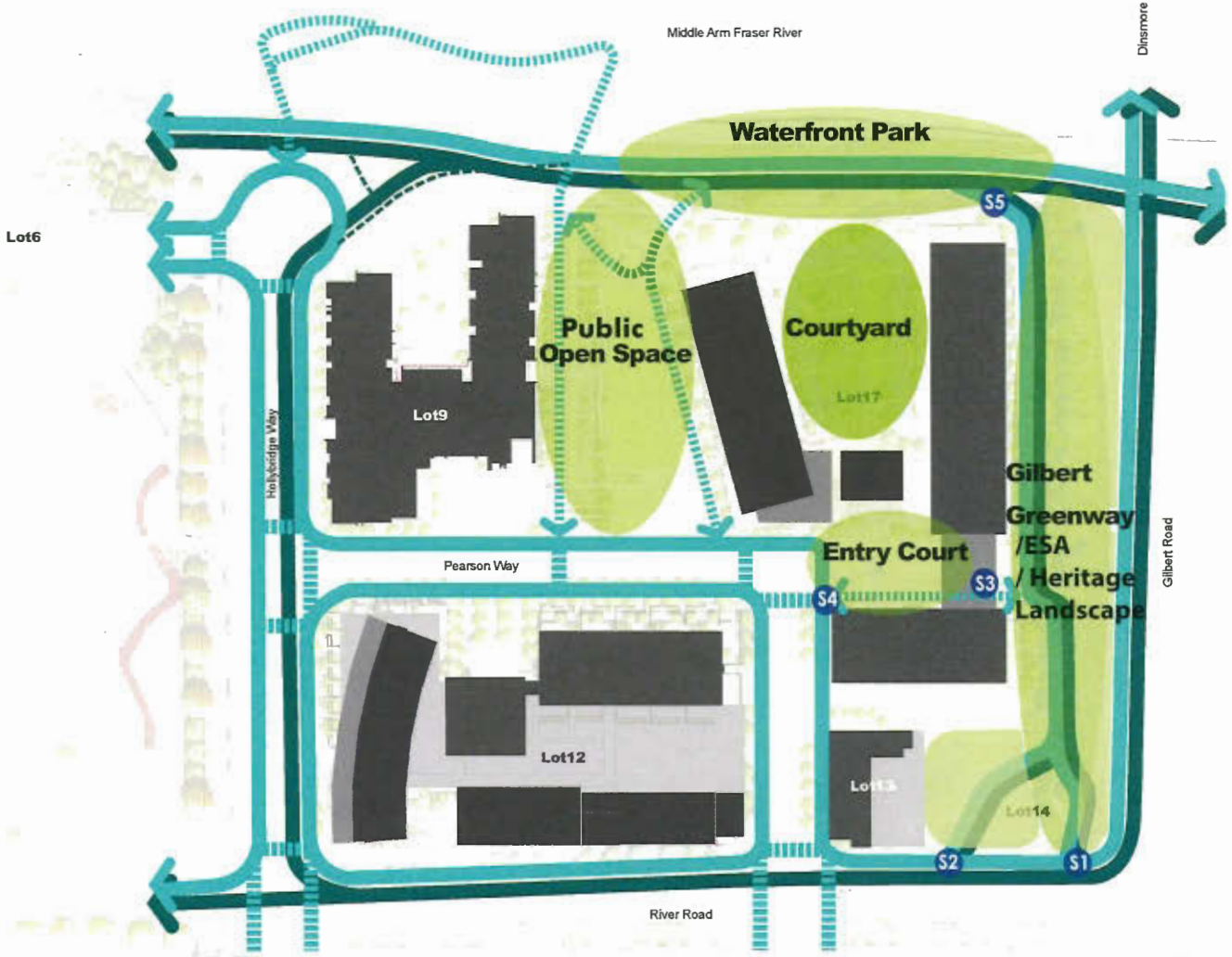
Wayfinding Signage Locations:

S1 Boardwalk entry at Gilbert Rd
S2 Boardwalk entry at River Rd
S3 Intersection of building F and Lot 14
S4 Intersection of Lot 17 and Pearson Way
S5 Intersection of dike and boardwalk

S1

S2 S5

S3 S4

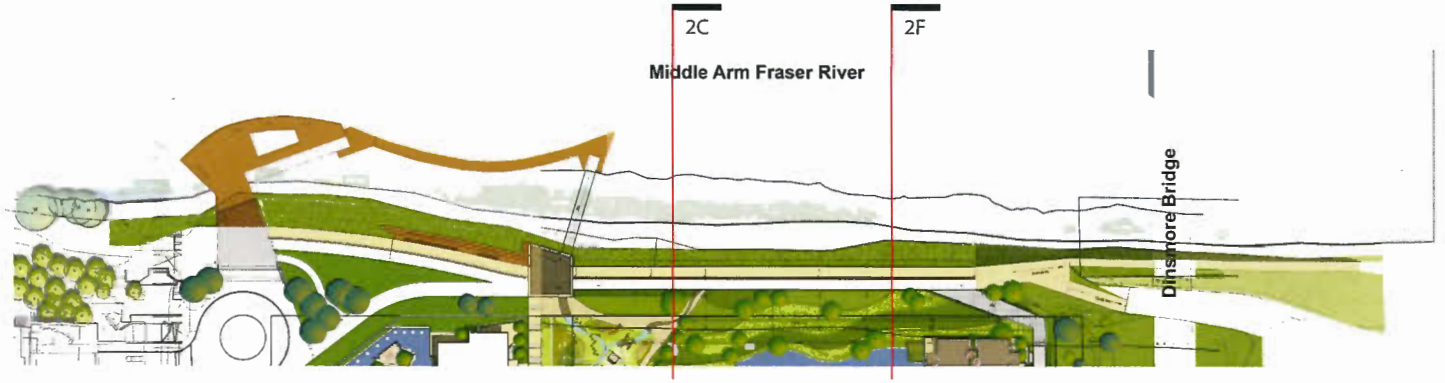


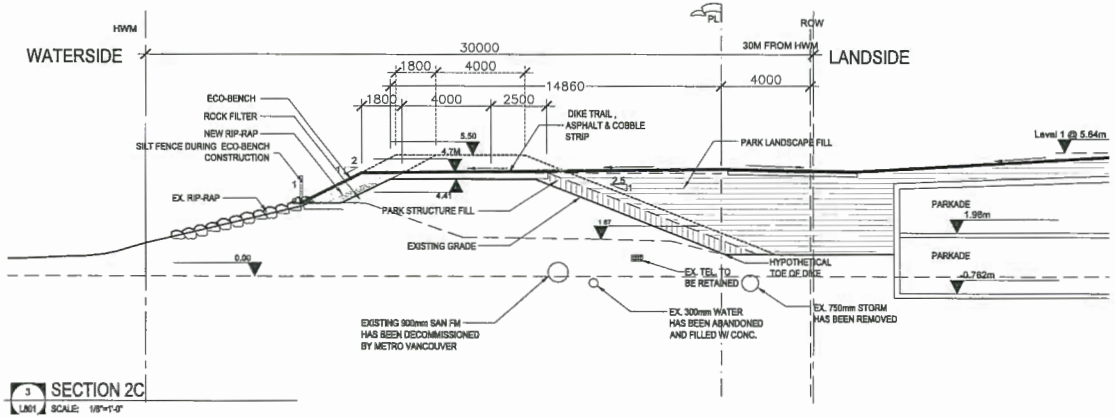
- Primary Public Pedestrian Route
- Secondary Public Pedestrian Crossing
- Minor Public Pedestrian Route
- Public Bicycle Route
- Combined Bicycle & Pedestrian Route
- Barrier-free Path

Public Open Space

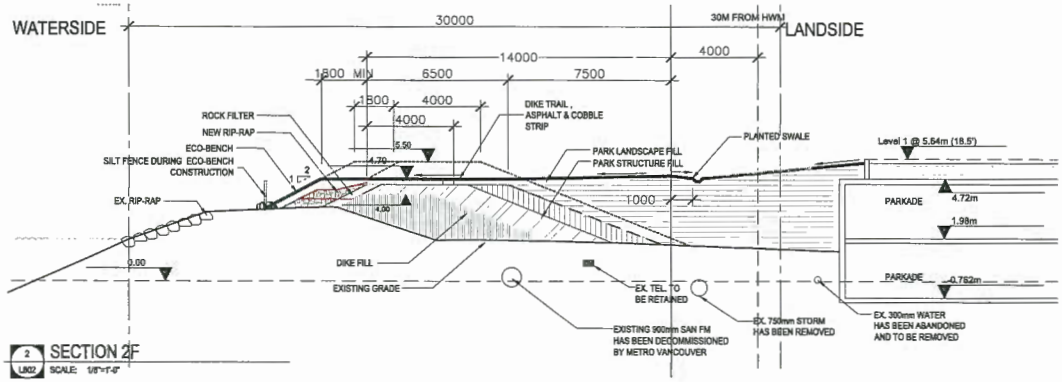
Waterfront Park

Waterfront Park





3 SECTION 2C
SCALE: 1/8"=1'-0"



2 SECTION 2F
SCALE: 1/8"=1'-0"

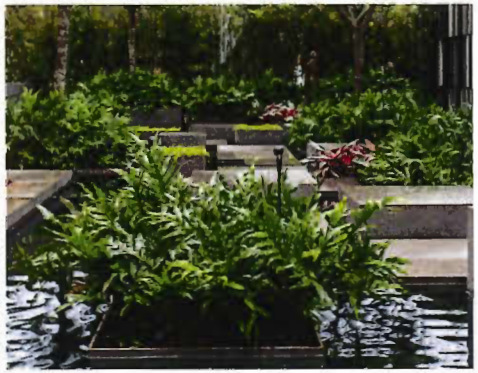
Precedent image - dike path

Precedent image - footbridge

CNCL - 902

Central Courtyard

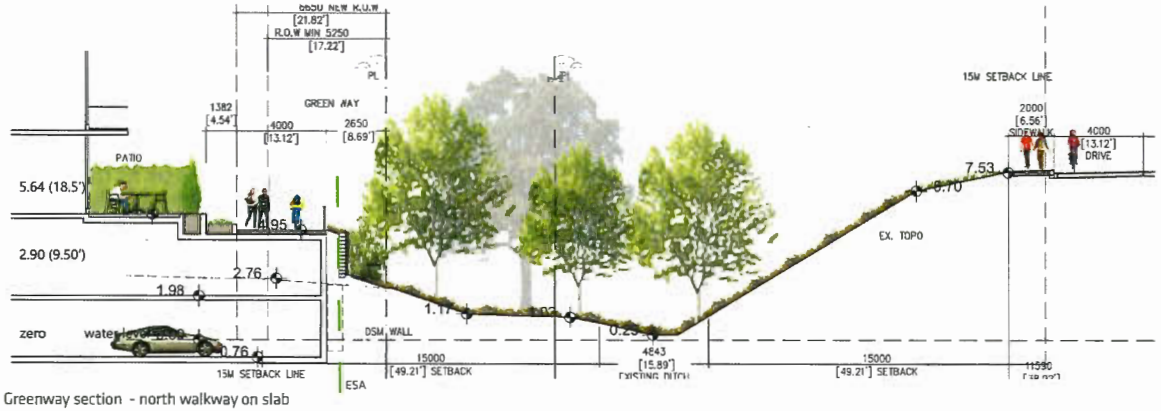
Precedent image - water channel



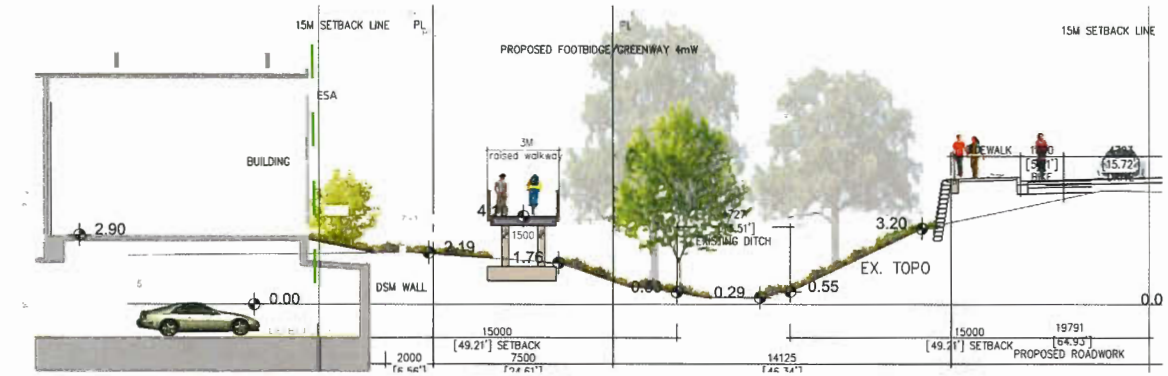
Precedent image - central planting

Precedent image - water feature natural edge

Gilbert Greenway/ ESA/ Heritage Landscape



Greenway section - north walkway on slab



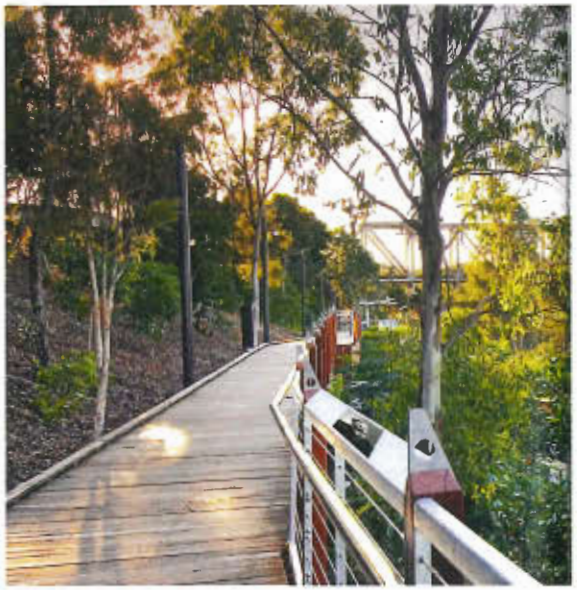
Greenway section - south raised walkway on grade

ESA area plan

CNCL - 904

Gilbert Greenway/ ESA/ Heritage Landscape

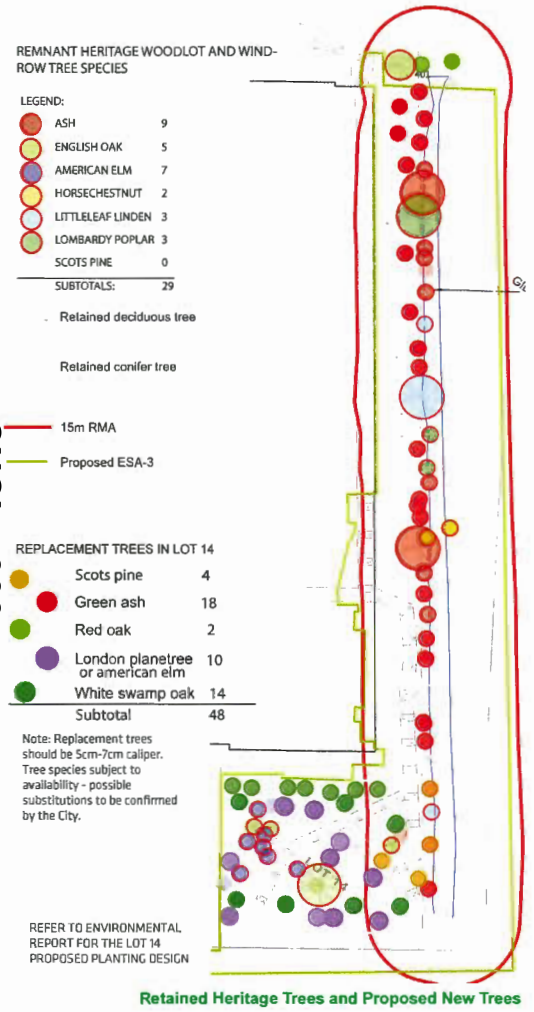
Existing site photo - view from River Road to the ESA



Precedent image - walkway through the woodlot

Rendered image - view from River Road sidewalk to the ESA

Gilbert Greenway/ ESA/ Heritage Landscape



Retained Heritage Trees and Proposed New Trees

Existing site photo -view from the intersection to the ESA

Remnant Heritage Trees Summary

Species	Samuel Brighouse Trees: Retain	Samuel Brighouse Trees: Remove	Brighouse Descendant Trees: Retain	Brighouse Descendant Trees: Remove/ Convert to wildlife stem	Subtotals
American elm	1	0	6	2	9
English oak	4	0	1	0	5
Green ash	0	0	9	4	13
Horse chestnut	0	0	2	0	2
Little-leaved Linden	0	0	3	3	6
Lombardy poplar	0	0	3	0	3
Scots pine	0	0	0	7	7
	5	0	24	16 *	45

(* Including tree #386 that has failed and has been converted to wildlife stem)

Heritage trees to be retained:

Tag# 353 - American Elm, 35 cm
Tag# 376 - American Elm, 35 cm
Tag# 378 - American Elm, 22 cm
Tag# 380 - American Elm, 90 cm
Tag# 381 - American Elm, 51 cm
Tag# 383 - American Elm, 45 cm
Tag# 385 - American Elm, 48 cm

Tag# 315- Linden, 65 cm
Tag# 318- Linden, 58 cm
Tag# 884- Linden, 36 cm

Tag# 310- Poplar, 90 cm
Tag# 320- Poplar, 80 cm
Tag# 321- Poplar, 100 cm

Tag# 338- English Oak, 90 cm
Tag# 352- English Oak, 110 cm
Tag# 382- English Oak, 95 cm
Tag# 384- English Oak, 45 cm
Tag# 401- English Oak, 51 cm

Tag# 304- Ash, 44 cm
Tag# 306- Ash, 46 cm
Tag# 311- Ash, 43 cm
Tag# 312- Ash, 47 cm
Tag# 314- Ash, 45 cm
Tag# 322- Ash, 38 cm
Tag# 324- Ash, 35 cm
Tag# 325- Ash,31 cm
Tag# 326- Ash, 50 cm

Tag# 323- Horse Chesnut, 65 cm
Tag# 391- Horse Chesnut, 38 cm

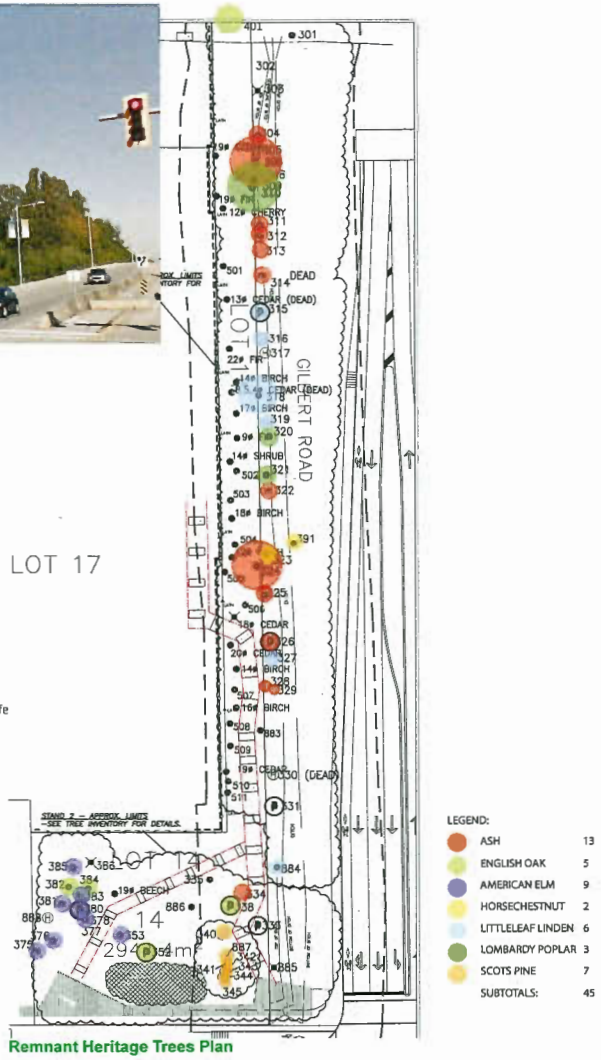
Heritage trees to be removed or converted to wildlife:

Tag# 375 - American Elm, 35 cm, to be converted to wildlife
Tag# 386 - American Elm, 55 cm, converted to wildlife

Tag# 313- Ash, 40 cm, to be converted to wildlife
Tag# 328- Ash, 40 cm, to be converted to wildlife
Tag# 329- Ash,28 cm, to be converted to wildlife
Tag# 334- Ash, 25cm, to be converted to wildlife

Tag# 316- Linden, 67 cm, to be converted to wildlife
Tag# 319- Linden, 35 cm, to be converted to wildlife
Tag# 327- Linden, 42 cm, to be removed

Tag# 340- Scots Pine, 45cm, to be converted to wildlife
Tag# 341- Scots Pine, 21cm, to be converted to wildlife
Tag# 342- Scots Pine, 28cm, to be converted to wildlife
Tag# 343- Scots Pine, 30cm, to be converted to wildlife
Tag# 344- Scots Pine, 32cm, to be converted to wildlife
Tag# 345- Scots Pine, 34cm, to be converted to wildlife
Tag# 887- Scots Pine, 23cm, to be converted to wildlife



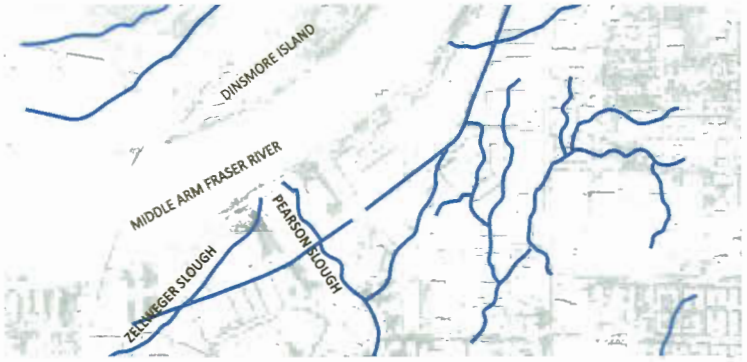
Remnant Heritage Trees Plan

Heritage Interpretation

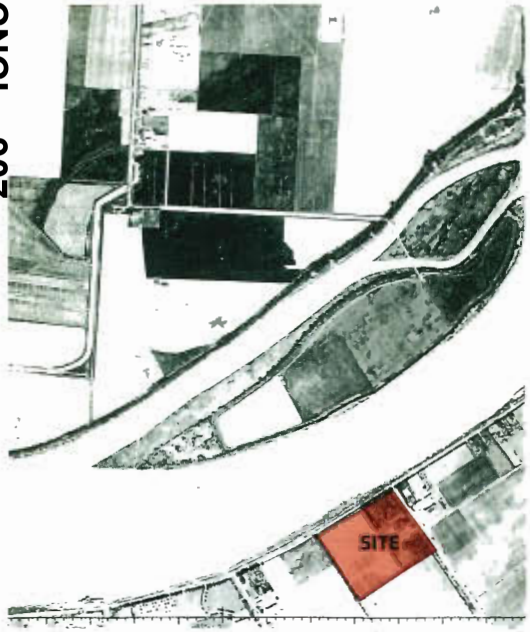
- Brighouse homestead site - 6900 River Road
- Fraser River foreshore and slough complexes
- Canadian Pacific Railway right-of-way
- Dike and ditch system.

The Three Greenhorns: John Morton, William Hailstone and Sam Brighouse (standing)

Samuel Brighouse



Historic sloughs prior to the Brighouse estate changes on a current aerial photograph

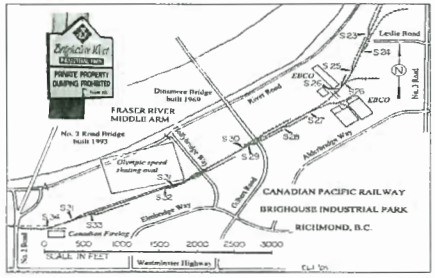


River Green Village site on an historic aerial photograph from 1938

River Green Village site on an aerial of the time of the rezoning application in 2009

View of the site in 1959 (City of Richmond Archives 1994-9-1)

Map showing the location of the CPR spur that serviced the Brighouse Industrial Park. All track west of Gilbert Road was removed by January 2006, leaving Ebco Industries as the only customer. (Sandhouse: Journal of the CRHA Pacific Coast Division. Map by Eric L. Johnson)



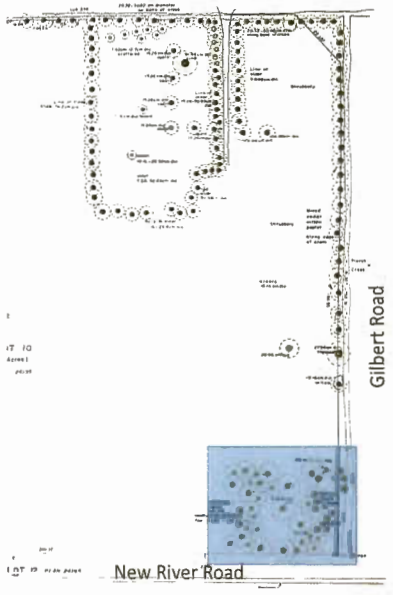
Heritage Interpretation

- River Cultural Landscape at Dike
  - Ecobench
  - Bioswale
- River Cultural Landscape at Children's Play
  - Slough Pattern
  - Riparian Planting
  - Fishing Heritage
- Brighouse Estate Cultural Landscape
  - Contemporary Interpretation of agricultural, orchard and residential display garden components
- Public Art featuring Canadian Pacific Railway
  - Daycare fence with railway theme
  - Daycare play structures with railway theme

- Samuel Brighouse Summary (4)
- Riparian Ecology Interpretation (5)
- Samuel Brighouse Overview (1)
- Homestead Land Use Pattern and Woodlot (2)
- Ditch System Heritage and Ecology (3)

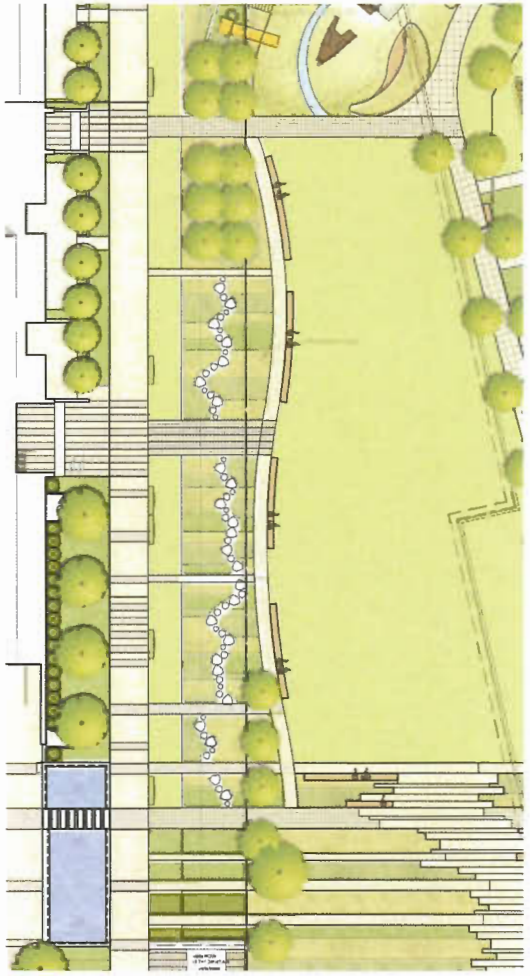
Heritage Interpretation

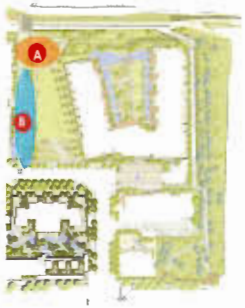
B Location B:
Orchard and Agricultural Land Use Pattern



Tree survey of the Brighouse estate, 1985, with the woodlot highlighted

Precedent Images - Orchard and agricultural land use pattern





Children's play area plan

CNCL - 909

Heritage Interpretation Panel Design

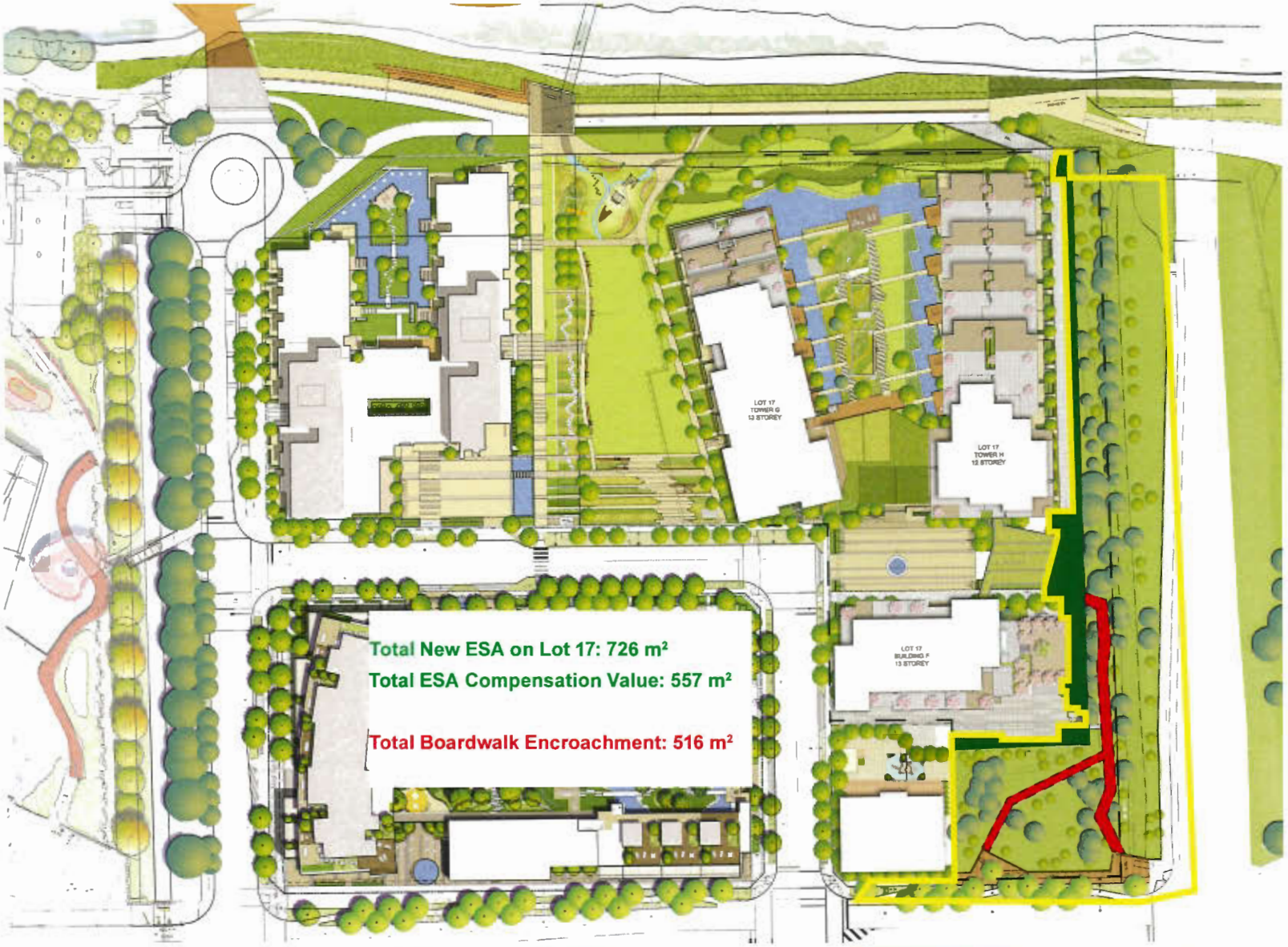
1 Location 1:
Large Panel at Corner of Gilbert and River Roads

Topic:
Evolution of the Middle Arm and the Brighouse Estate

LOCATION 1: 12"X48" PANEL

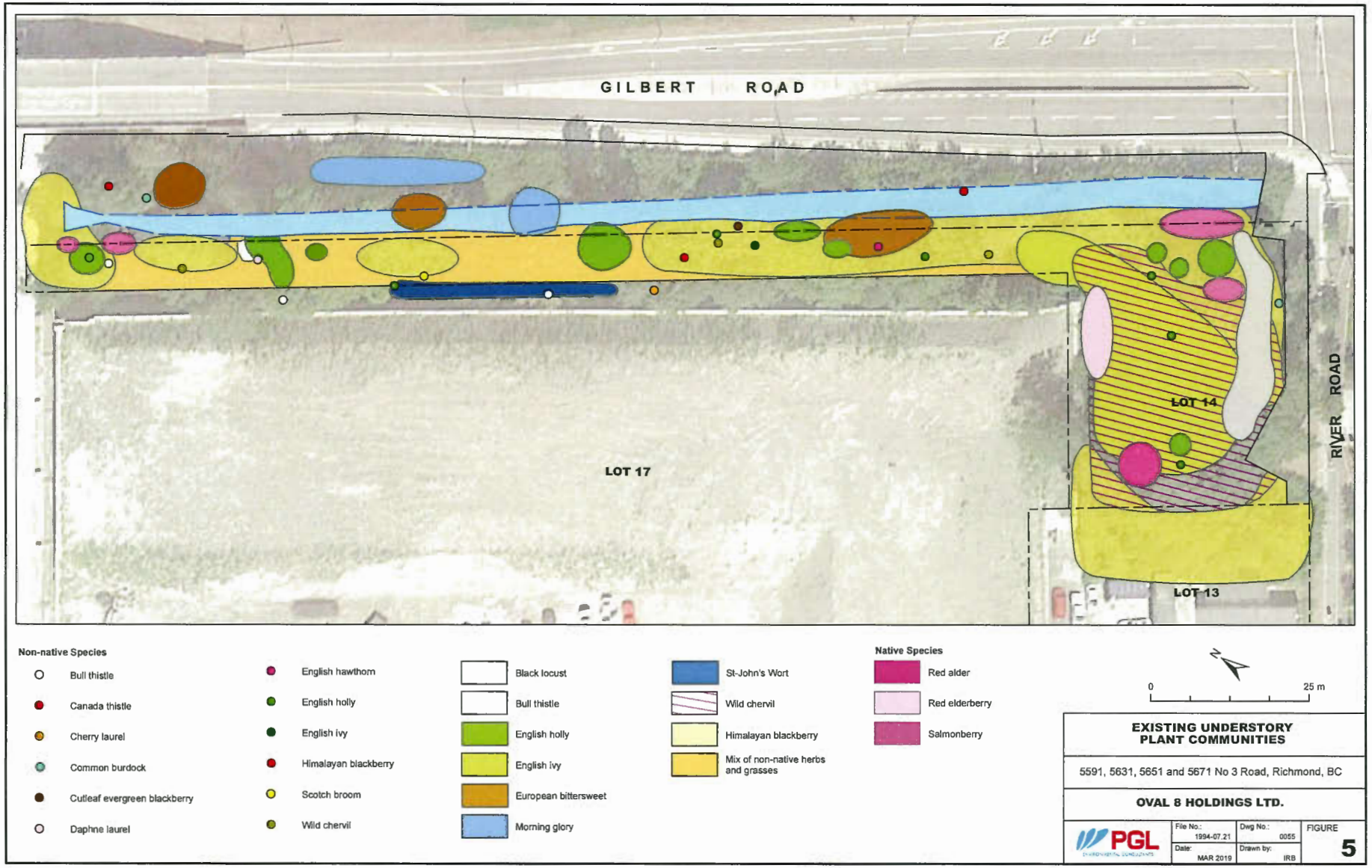
2012 ESA-3 Boundary

Proposed ESA-3 Habitat Balance

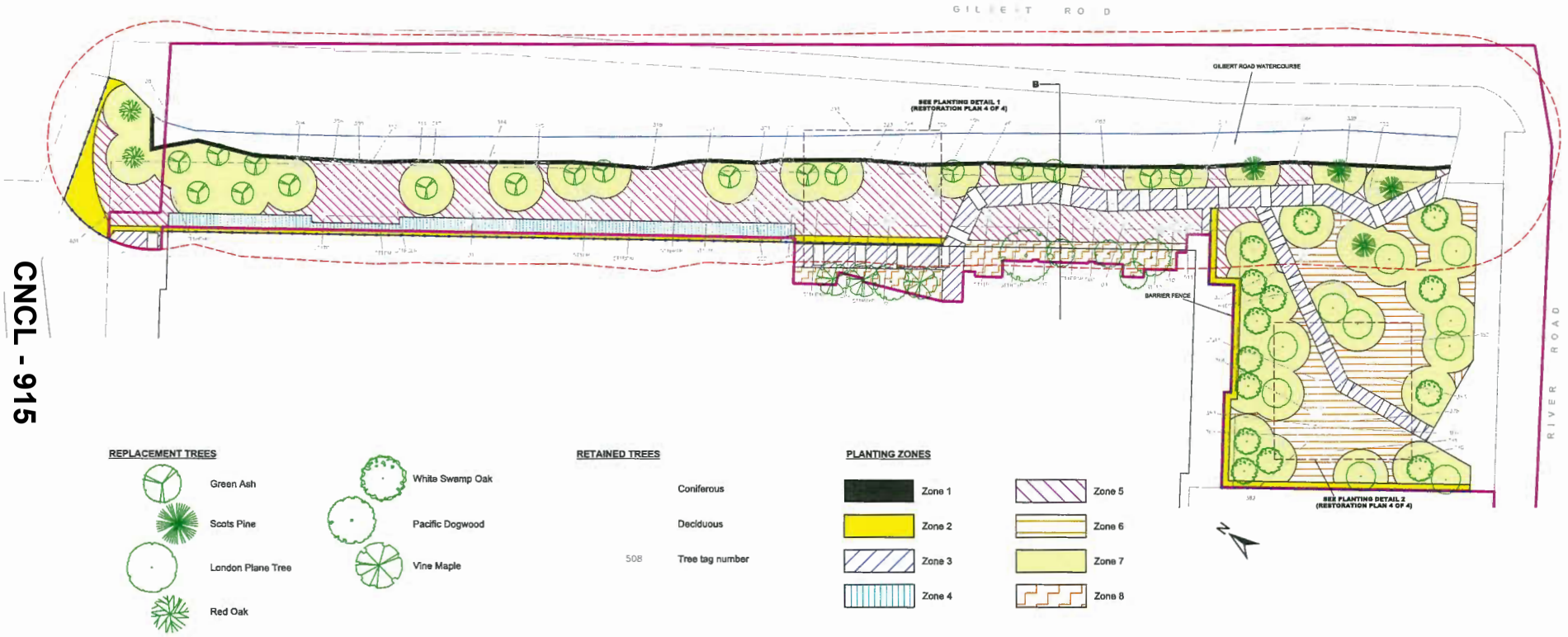


Lot 17 Native Planting

ESA Existing Conditions



Habitat Restoration Plan



CNCL - 915

City of Richmond

Minutes

Development Permit Panel
Wednesday, May 29, 2019

Time:	3:30 p.m.
Place:	Council Chambers Richmond City Hall
Present:	Joe Erceg, Chair Cecilia Achiam, General Manager, Community Safety John Irving, Acting General Manager, Engineering and Public Works

The meeting was called to order at 3:30 p.m.

Minutes

It was moved and seconded
That the minutes of the meeting of the Development Permit Panel held on May 15, 2019 be adopted.

CARRIED

1. DEVELOPMENT PERMIT 17-776441
(REDMS No. 6148359)

APPLICANT: Bismark Consulting Ltd.

PROPERTY LOCATION: 7000/7002, 7020 Williams Road & 10060 Gilbert Road

INTENT OF PERMIT:

1. Permit the construction of 15 townhouse units with two secondary suites at 7000/7002, 7020 Williams Road & 10060 Gilbert Road on a site zoned "Medium Density Townhouses (RTM3)"; and
2. Vary the provisions of Richmond Zoning Bylaw 8500 to reduce the minimum exterior side yard setback to Gilbert Road from 6.0 m to 4.5 m.

Applicant's Comments

Stanford Siu, Bismark Consulting Ltd., accompanied by Xuedong Zhao, Zhao XD Architect Ltd., and Denitsa Dimitrova, PMG Landscape Architects, and with the aid of a video presentation (attached to and forming part of these Minutes as Schedule 1) provided background information on the proposed development including the project's site context, proposed number of townhouse and secondary units, rezoning, servicing agreements, site plan and urban design, and the proposed setback variance.

Mr. Zhao reviewed the project's form and character, noting that (i) the architectural style has been changed from traditional to modern, (ii) the townhouse project complies with Official Community Plan (OCP) guidelines, (iii) the retention of an existing tree in the outdoor amenity area is an important feature of the project, (iv) rooftop decks are provided on townhouse units, (v) the proposed materials and colours have been simplified, and (vi) a variety of colours are proposed for the entry doors of townhouse units.

Ms. Dimitrova briefed the Panel on the main landscaping features of the project, noting that (i) a wood deck structure will be constructed around the retained Norway Maple tree over existing grade in the outdoor amenity area, (ii) all units along the rear will be provided with a private yard with a patio and a lawn area, (iii) the overall landscape design is consistent with the modern architectural style of the townhouse buildings, (iv) a pedestrian-oriented landscaping is proposed along street frontages, (v) the outdoor amenity area provides different play opportunities for children and includes a table, seating area, and an open space that could be used by adults, (vi) permeable pavers in different colours are proposed on the driveway entrance, ends of drive-aisles, and surface parking areas, and (vii) bicycle racks and address signage will be installed on the site.

In closing, Mr. Siu reviewed the project's proposed sustainability features.

Panel Discussion

In reply to a query from the Panel, Ms. Dimitrova reviewed the design and landscaping for the outdoor amenity area, noting that (i) the wood deck structure around the retained tree is wheelchair accessible, (ii) a playhouse equipment and natural play elements are provided in the children's play area, and (iii) landscaping in the outdoor amenity area has been enhanced in response to comments from the Advisory Design Panel.

In reply to further queries from the Panel, the design team noted that (i) irrigation is provided for the whole site, (ii) the setback variance was requested due to the required two-meter wide road dedication along Gilbert Road, (iii) the setback variance was identified at rezoning, (iv) electric vehicle charging will be provided for all residential parking stalls, and (v) the two secondary suites located within the two convertible units are also convertible.

Staff Comments

Wayne Craig, Director, Development, noted that (i) the proposed setback variance is a function of the two-meter wide road dedication along Gilbert Road, (ii) the distance between the building face and the back of curb on Gilbert Road is 8.8 meters, and (iii) the proposed setback variance was identified at the rezoning stage and no concerns from the public were noted.

In reply to queries from the Panel, Mr. Craig acknowledged that (i) the redesign of the project's architectural style occurred after the Public Hearing, (ii) the new project design proposed by the applicant complies with City guidelines, (iii) the rooftop decks are part of the redesign of the project and are designed to minimize overlook to adjacent properties, and (iv) the height of the rooftop decks' access hatches has been minimized and complies with BC Building Code requirements.

Gallery Comments

None.

Correspondence

None.

Panel Discussion

The Panel expressed support for the project, noting that (i) the project is attractive and well thought out, and (ii) the retention of the existing tree in the outdoor amenity area is a positive feature of the project.

Panel Decision

It was moved and seconded
That a Development Permit be issued which would:

1. ***permit the construction of 15 townhouse units with two secondary suites at 7000/7002, 7020 Williams Road & 10060 Gilbert Road on a site zoned "Medium Density Townhouses (RTM3)"; and***
2. ***vary the provisions of Richmond Zoning Bylaw 8500 to reduce the minimum exterior side yard setback to Gilbert Road from 6.0 m to 4.5 m.***

CARRIED

2. DEVELOPMENT PERMIT 17-768248

(REDMS No. 6157036 v. 3)

APPLICANT: GBL Architects

PROPERTY LOCATION: 6551 No.3 Road

INTENT OF PERMIT:

1. Permit the development of a two-phase, high rise, mixed use development at 6551 No. 3 Road and the construction of the development's first phase including the removal and replacement of part of the existing CF Richmond Centre shopping mall with a combination of mall- and street-oriented commercial uses, 1,166 dwellings (including 79 affordable housing units), and new streets and public open space on a site zoned "Downtown Commercial (CDT1)"; and

2. Vary the provisions of Richmond Zoning Bylaw 8500 to:

   (a) reduce the minimum permitted front yard setbacks for Phase 1:

      (i) for balconies adjacent to the Minoru Boulevard/Murdoch Avenue comer from 2.0 m to 1.2 mat Levels 3 to 14;

      (ii) for towers adjacent to the proposed City street at the site's south edge from 3.0 m to 2.0 m at Level l and from 3.0 m to 0.5 m at Levels 2 to 14; and

      (iii) for parking located below finished grade from 3.0 m to 0.0 m along the site's Minoru Boulevard frontage and the proposed City street at the site's south edge.

   (b) reduce the minimum parking requirements inclusive of transportation demand management parking reductions:

      (i) for Phase 1, for affordable housing residents from 64 spaces to 30 spaces; and

      (ii) for Phase 2, for affordable housing residents from 0.81 spaces per unit to 0.375 spaces per unit and market rental housing residents from 0.72 spaces per unit to 0.6 spaces per unit.

Staff Comments

In reply to a query from the Panel regarding the proposed variances for the subject development, Mr. Craig noted that (i) there is a setback variance for balconies on levels 3 through 14 at the corner of Minoru Boulevard and Murdoch Avenue that will not impact pedestrian circulation on the site, (ii) there are different setback variances proposed at Level 1 and at Levels 2 to 14 of the affordable and market housing towers adjacent to the proposed East-West City street on the south edge of the subject development, (iii) the proposed setback variances for the parking structure located below finished grade along the site's Minoru Boulevard frontage and the proposed City street are consistent with the standard approach to City Centre development where parking is provided below finished grade, and (iv) the two proposed parking variances for Phases 1 and 2 affordable housing and market rental housing residents are supported by a traffic impact assessment submitted by the applicant and are consistent with the information provided during the Official Community Plan (OCP) amendment process.

Applicant's Comments

Joey Stevens, GBL Architects, accompanied by David Chamness, Callison RTKL Inc, Kris Snider, HEWITT, and Christopher Mramor, PFS Studios, and with the aid of a video presentation (attached to and forming part of these Minutes as Schedule 2) provided background information on the proposed development and highlighted the following:

- the existing parkade, the vacant portion of the South Mall and most of the surface parking area will be demolished to allow the construction of the proposed mixed-use development which will be done in two phases;
- new streets and pedestrian linkages are proposed to provide vehicular and pedestrian connections from No. 3 Road to Minoru Boulevard;
- the subject development permit application includes the proposed development for Phase 1 and a conceptual design for Phase 2;
- Phases 1 and 2 will each have a stand-alone affordable housing building;
- parking to be provided for the project is mostly underground, except for Building 1A which provides above grade parking; and
- street frontages include the Park Road "high street", "green streets", gateways and family-friendly outdoor and indoor amenity spaces which are part of the development permit guidelines developed through the OCP amendment process.

Mr. Snider provided an overview of the streetscapes within and surrounding the subject site, noting that each streetscape is designed differently to respond to its context and use. In addition, Mr. Snider reviewed the design and landscaping for the Park Road Plaza, noting that key characteristics of a successful urban plaza, i.e. accessible, well activated and animated, able to accommodate users, provision for a variety of spaces, and well programmed spaces are incorporated into the central plaza's design.

Mr. Chamness reviewed the function, design, services and public amenities provided in the Phase 1 Mobility Hub, noting that (i) it is centrally located adjacent to the Park Road Plaza, (ii) it serves as a point of connection for customers, residents, and visitors for various modes of transportation, including car-share and bike share facilities, ride-hail/taxi drop-off and pick-up, and waiting areas for community shuttle services, (iii) it provides public services and related public amenities including secured bicycle storage, electric vehicle charging stations, weather protection, escalators, customer lounge, seating areas, and signage, and (iv) its modern and transparent structure allows open sightlines, visibility to multi-modal connections and daylight penetration into the structure.

In addition, Mr. Chamness reviewed the Park Road "high street" frontage treatment, noting that it is well activated and pedestrian-friendly. He further noted that the "high street" frontage provides variation in building facades, incorporates public art, and allows retail spaces to spill out onto the sidewalk areas.

Mr. Stevens reviewed the "green street" architectural frontages along Minoru Road and the new East-West Road, noting that these consist predominantly of residential lobbies, townhouses, terrace gardens and amenity spaces. In addition, Mr. Stevens provided an overview of the Minoru Gate, Murdoch Avenue and North-South Road gateways, noting that residential towers sited at the gateways are generally slim, stepped and widely spaced.

Mr. Mramor reviewed the proposed outdoor amenity spaces in Phase 1 buildings, noting that (i) the outdoor amenity spaces are located on various levels and are family-oriented in character, (ii) programming of outdoor spaces provides opportunities for children's play, exercise, socializing, relaxing, outdoor dining, and gardening, among others, (iii) the outdoor amenity spaces are well connected to each other and are located close to indoor amenity areas, and (iv) an inaccessible green roof is provided on Building 1A.

Panel Discussion

In reply to a query from the Panel regarding the features of the affordable housing units in Phase 1, the project's design team reviewed the vehicular and pedestrian routes to access the stand-alone affordable housing building, location of dedicated parking and exclusive indoor amenity space for affordable housing residents, and access to the adjacent shared outdoor amenity space which could be used by affordable housing residents.

In reply to further queries from the Panel, the design team noted that (i) the exclusive indoor and shared outdoor amenity spaces that affordable housing occupants could use include outdoor play spaces and provision for indoor play opportunities for children, (ii) the applicant is coordinating with the non-profit affordable housing operator regarding programming for the dedicated indoor amenity space for affordable housing residents, (iii) the shared outdoor amenity space adjacent to the exclusive indoor amenity space for affordable housing occupants is family-oriented and includes a games terrace and a children's play area, and (iv) the proposed parking variance for affordable housing units was reviewed and supported by the affordable housing operator based on their experience managing affordable housing projects in the Lower Mainland.

In reply to queries from the Panel regarding the proposed low carbon energy plants to be constructed in the proposed development, the design team advised that (i) three low carbon energy plants will be located in different rooftop locations within the proposed development, (ii) the energy plants will be transferred to the City to facilitate the development's future connection to a City District Energy Utility (DEU) facility, (iii) a solid and louvered roof and a visually permeable decorative screen are proposed to provide screening and acoustic barrier for rooftop mechanical equipment on Building 1C, and (iv) some improvements to the roof of the existing mall will be done to enhance views from surrounding towers.

In reply to further queries from the Panel, the design team acknowledged that (i) the public artworks on the north leg of Park Road which provide screening to parking uses will be subject to a separate application process, (ii) the retail spaces surrounding the Park Road plaza, the Mobility Hub, the water feature and year-round events will activate and animate the Park Road plaza, and (iii) exhaust vents for restaurants will be located away from residential units.

In reply to queries from the Panel regarding the proposed sustainability features for the project, the design team confirmed that (i) the project has been designed to achieve LEED Silver equivalency and a 50 percent window-to-wall ratio, (ii) significant landscaping is proposed for upper level outdoor amenity spaces, (iii) existing surface parking will be replaced with landscaped areas and permeable surfaces, (iv) electric vehicle charging will be provided for all residential and two percent of commercial parking stalls, and (v) the Mobility Hub provides integrated mobility services and connectivity to various modes of transportation.

In reply to a query from the Panel, Mr. Craig noted that the layby provided adjacent to the park plaza could accommodate Translink mini-bus shuttle service.

In reply to further queries from the Panel, the design team advised that solar panels are not proposed for the project and an inaccessible green roof is provided on Building 1A.

Staff Comments

Mr. Craig advised that the extensive Servicing Agreement associated with the Phase 1 development includes (i) frontage works along Minoru Boulevard, (ii) the construction of the west half of the new East-West Road, the new north-south connector road, and the Minoru Gate and Murdoch Avenue extensions, and (iii) sidewalk improvements along the west side of No. 3 Road near the Brighouse Canada Line Station to enhance the pedestrian connection through the mall galleria.

In addition, Mr. Craig noted that the proposed comprehensive Transportation Demand Management (TDM) measures for the subject development permit application include (i) the proposed Phase 1 Mobility Hub and its associated transportation-related public amenities, (ii) participation and funds provided by the applicant for bike-share and car-share membership for affordable housing tenants, and (iii) a comprehensive transit pass program for occupants of affordable and market housing as well as for commercial tenants.

Mr. Craig further noted that (i) 20 percent of market units and 100 percent of affordable housing units are designed to achieve Basic Universal Housing (BUH) standards, (ii) 50 percent of the units in Phase 1 have two to three bedrooms, (iii) the project has been designed to achieve the City's aircraft noise standards, and (iv) there will be no driveway access to the parkade from No. 3 Road to Minoru Boulevard on the new Park Road and Minoru Gate extensions through the site.

Gallery Comments

Rahim Janmohamed, 9924 Ashwood Drive, owner and operator of Shoppers Drug Mart at CF Richmond Centre, spoke in support of the project, noting that it will be a welcome addition to the community.

Correspondence

Ronald Pope (on behalf of Pope Estates Inc.), 6651 Minoru Boulevard (Schedule 3)

Jaime Pestano, 7388 Gollner Avenue (Schedule 4)

Mr. Craig noted that Mr. Pope's letter expresses concerns related to the setback variance for the below grade parking structure and the two parking relaxations for the affordable housing units and the market rental units.

In reply to a query from the Panel, Mr. Craig confirmed that the proposed parking variance was supported by a parking study submitted by the applicant and consistent with information provided during the OCP amendment process.

Mr. Craig further noted that the letter from Mr. Pestano indicates a desire to see a multi-purpose arena constructed as part of the proposed development.

Panel Discussion

The Panel expressed support for the project, noting that (i) the applicant had worked with staff for an extensive period of time for the large and extensive project, (ii) the project is well thought out and a great addition to the community, (iii) the amendment to the OCP was well used by the applicant in coordination with City staff, (iv) and the east-west connections through the project, including pedestrian linkages from the shopping centre to the Brighouse Canada Line Station are a significant feature of the project.

Panel Decision

It was moved and seconded
That a Development Permit be issued which would:

1. ***permit the development of a two-phase, high rise, mixed use development at 6551 No. 3 Road and the construction of the development's first phase including the removal and replacement of part of the existing CF Richmond Centre shopping mall with a combination of mall- and street-oriented commercial uses, 1,166 dwellings (including 79 affordable housing units), and new streets and public open space on a site zoned "Downtown Commercial (CDT1)"; and***

2. ***vary the provisions of Richmond Zoning Bylaw 8500 to:***

    (a) reduce the minimum permitted front yard setbacks for Phase 1:

        (i) for balconies adjacent to the Minoru Boulevard/Murdoch Avenue comer from 2.0 m to 1.2 m at Levels 3 to 14;

        (ii) for towers adjacent to the proposed City street at the site's south edge from 3.0 m to 2.0 m at Level l and from 3.0 m to 0.5 m at Levels 2 to 14; and

        (iii) for parking located below finished grade from 3.0 m to 0.0 m along the site's Minoru Boulevard frontage and the proposed City street at the site's south edge.

    (b) reduce the minimum parking requirements inclusive of transportation demand management parking reductions:

        (i) for Phase 1, for affordable housing residents from 64 spaces to 30 spaces; and

        (ii) for Phase 2, for affordable housing residents from 0.81 spaces per unit to 0.375 spaces per unit and market rental housing residents from 0.72 spaces per unit to 0.6 spaces per unit.

CARRIED

3. Date of Next Meeting: June 12, 2019

4. Adjournment

It was moved and seconded
That the meeting be adjourned at 5:20 p.m.

CARRIED

Certified a true and correct copy of the Minutes of the meeting of the Development Permit Panel of the Council of the City of Richmond held on Wednesday, May 29, 2019.

Joe Erceg
Chair

Rustico Agawin
Committee Clerk

Schedule 1 to the Minutes of the Development Permit Panel meeting held on Wednesday, May 29, 2019.

WILBERT

DEVELOPMENT PERMIT PANEL

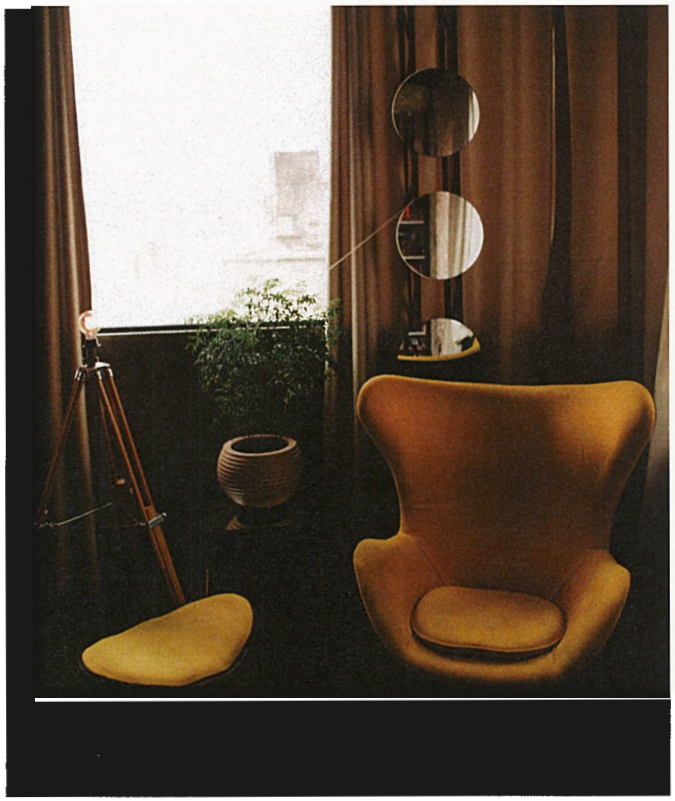
May 29, 2019

CNCL - 926

DP- 17776441
7000 Williams Road

AGENDA

WILBERT



1. Project Description
2. Site Plan + Urban Design
3. Adjacency
4. Form + Character
5. Landscape
6. Sustainability

DP-17776441

PROJECT DESCRIPTION

WILBERT

CNCL - 928

1. 15 Townhouses + 2 Secondary Suites
2. Rezoning from Two Family Dwelling (RD1) + Single Detached (RS1/E) => Medium Density Townhouses (RTM3)

PROJECT DESCRIPTION

WILBERT

3. Service Agreement

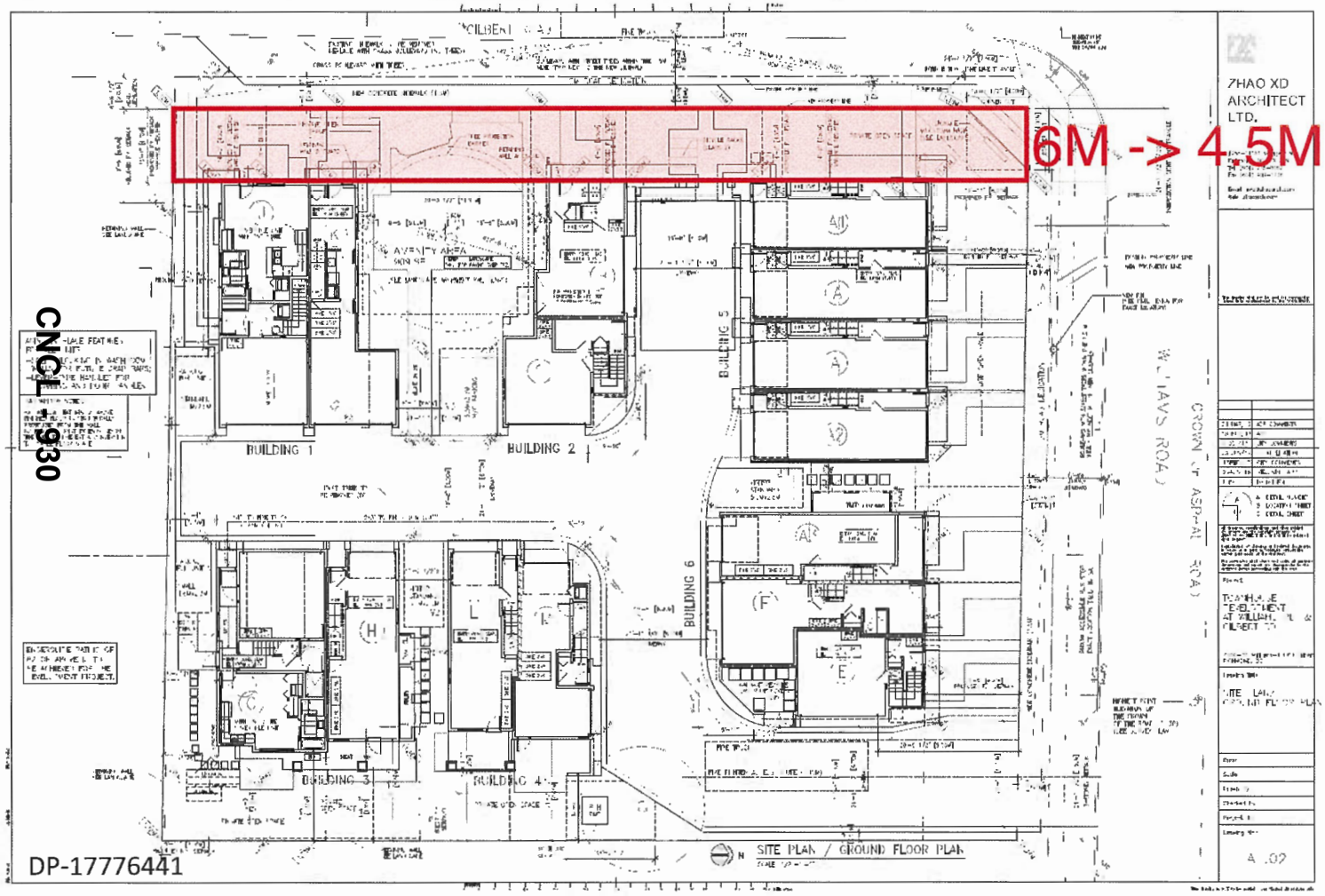
A. Storm sewer upgrades along the Williams Road Frontage

B. New concrete sidewalk – Grassed and treed Boulevard along Williams Road + Gilbert Road frontage

C. New concrete bus pad at the existing eastbound bus stop on Williams Road

SITE PLAN + URBAN DESIGN

WILBERT



CNCL - 930

DP-17776441

Request to reduce the minimum exterior side yard setback from Gilbert Road from 6M to 4.5M

ADJACENCY

NORTH – VIEW 4
9 Unit Townhouse, Access from Williams Road

EAST – VIEW 5
34 Unit Townhouse, Access from Williams Road

SOUTH – VIEW 1
Single Family, Zoned for Townhouses

WEST – VIEW 10
Single Family, Zoned for Townhouses

DP-17776441

FORM + CHARACTER

WILBERT

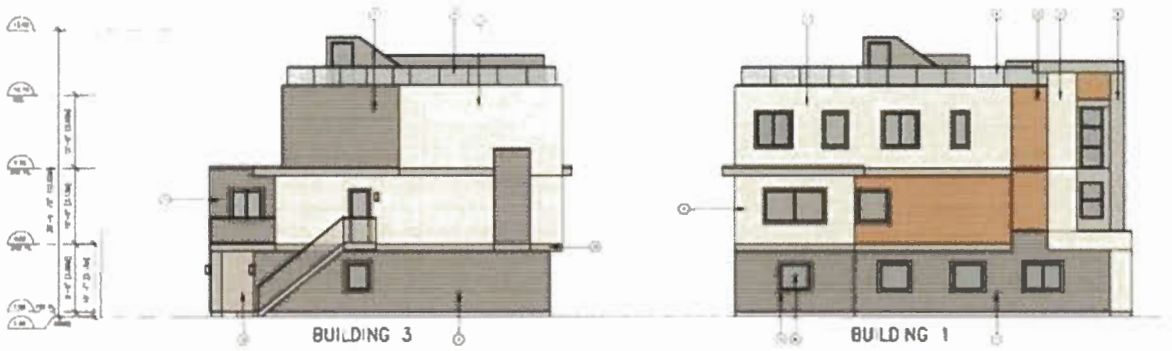
1. Modern Architecture
2. Materials – Hardie Panel, Cement Board Siding (Paint + Stained) and Cultured Stone
3. Colours – grey, white and wood tones

ROOFTOP RENDERING

ROOFTOP ACCESS

WILBERT

BEFORE



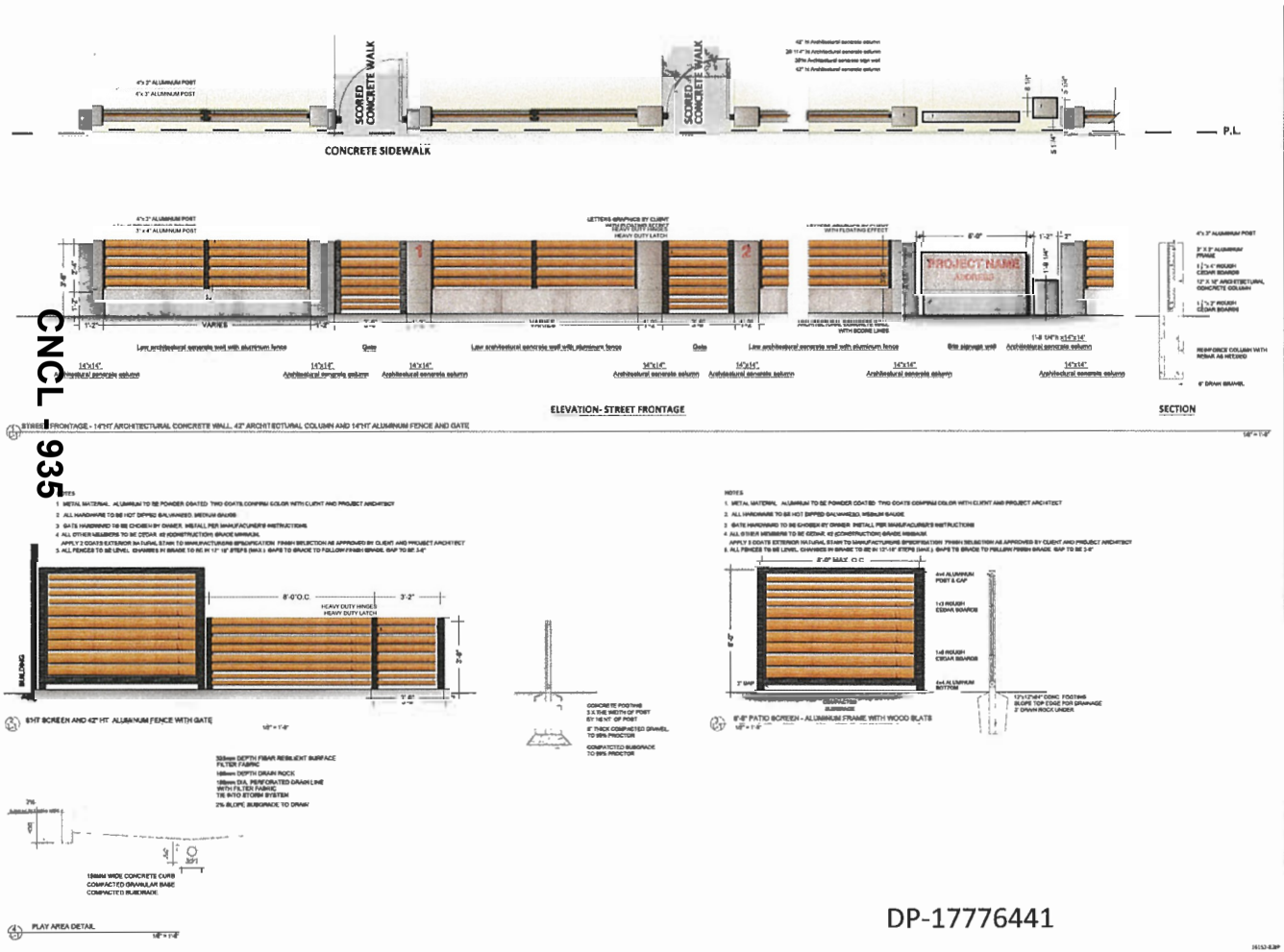
REDUCED VISUAL IMPACT

AFTER

CNCL - 934

DP-17776441

LANDSCAPE



CNCL - 935

DP-17776441

Architectural concrete with wood fence

WILBERT

pmg LANDSCAPE ARCHITECTS

PROJECT
15 UNIT TOWNHOUSE DEVELOPMENT
7000-20 WILLIAMS ROAD
RICHMOND

LANDSCAPE PLAN

DRAWING NUMBER 10
OF 13
629000-18-18
16-153

CNCL - 936

AMENITY AREA

Natural wood deck

Children's play area with natural elements

Sitting area with tables

SUSTAINABILITY

WILBERT

1. Energuide rating of 82
2. Low flow water fixtures
3. Low energy lighting
4. High insulation and energy star windows
5. High energy efficient appliances
6. Durable + Long lasting materials to reduce building maintenance
7. Permeable ground cover + planting to absorb rainwater runoff
8. Interior paint with low VOC content

DP-17776441

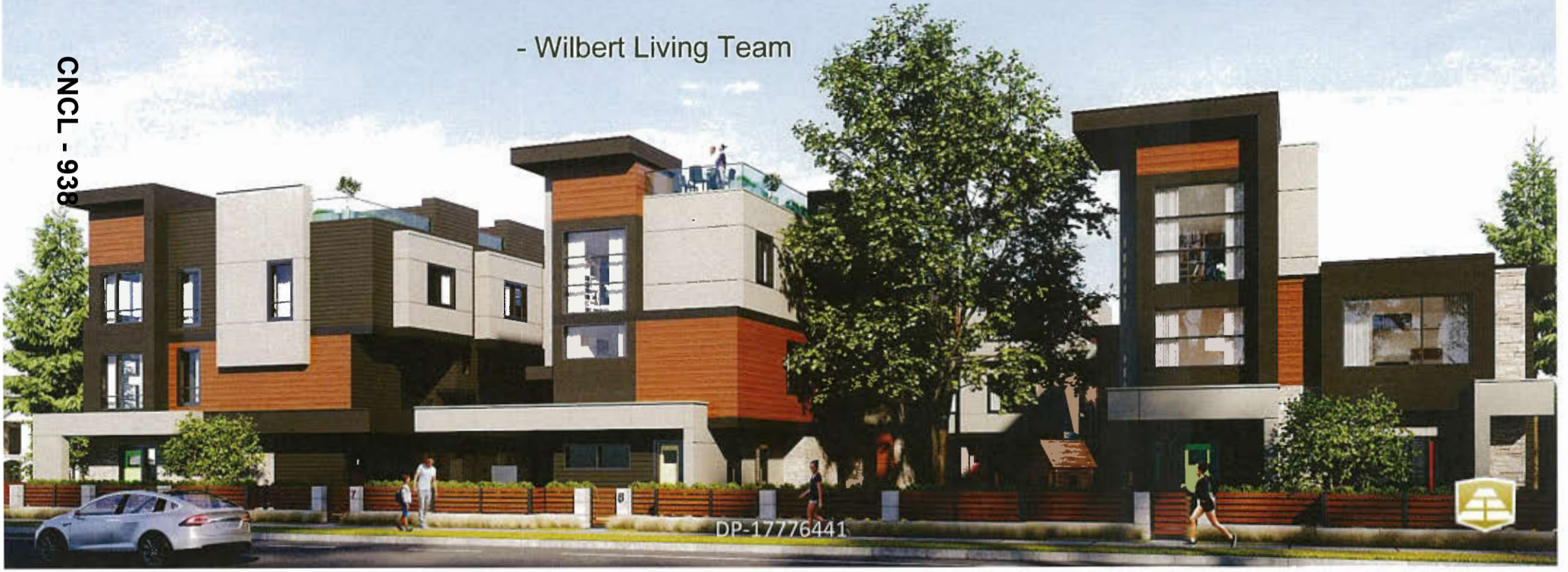
THANK YOU

FOR JOINING US TODAY

WILBERT

For further questions, please call us at (604) 227-7475

- Wilbert Living Team



gbl

CALLISONRTKL

HEWITT

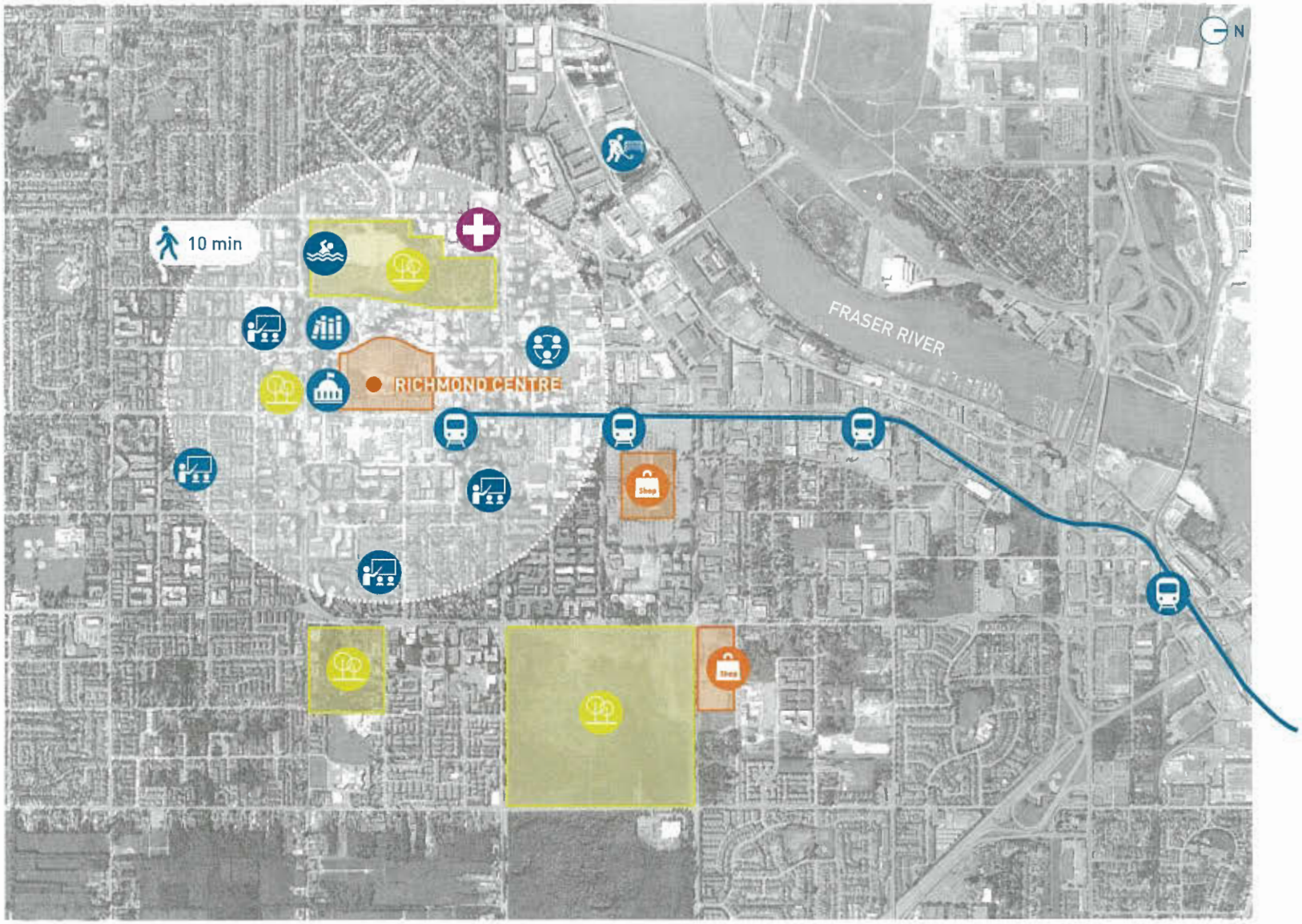
PFS

RICHMOND CENTRE **PHASE 1**

DEVELOPMENT PERMIT PANEL

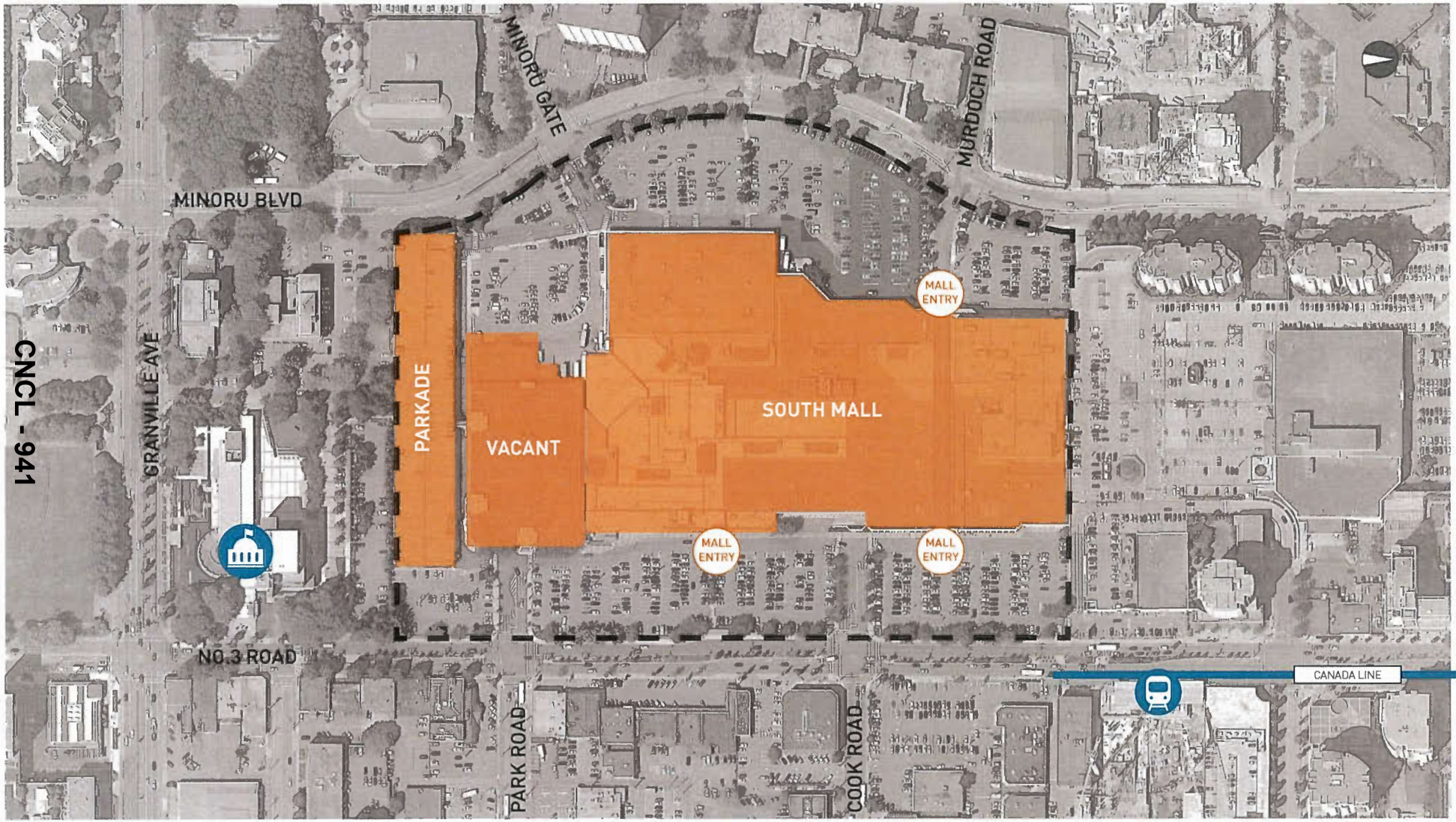
MAY 29, 2019

SITE CONTEXT

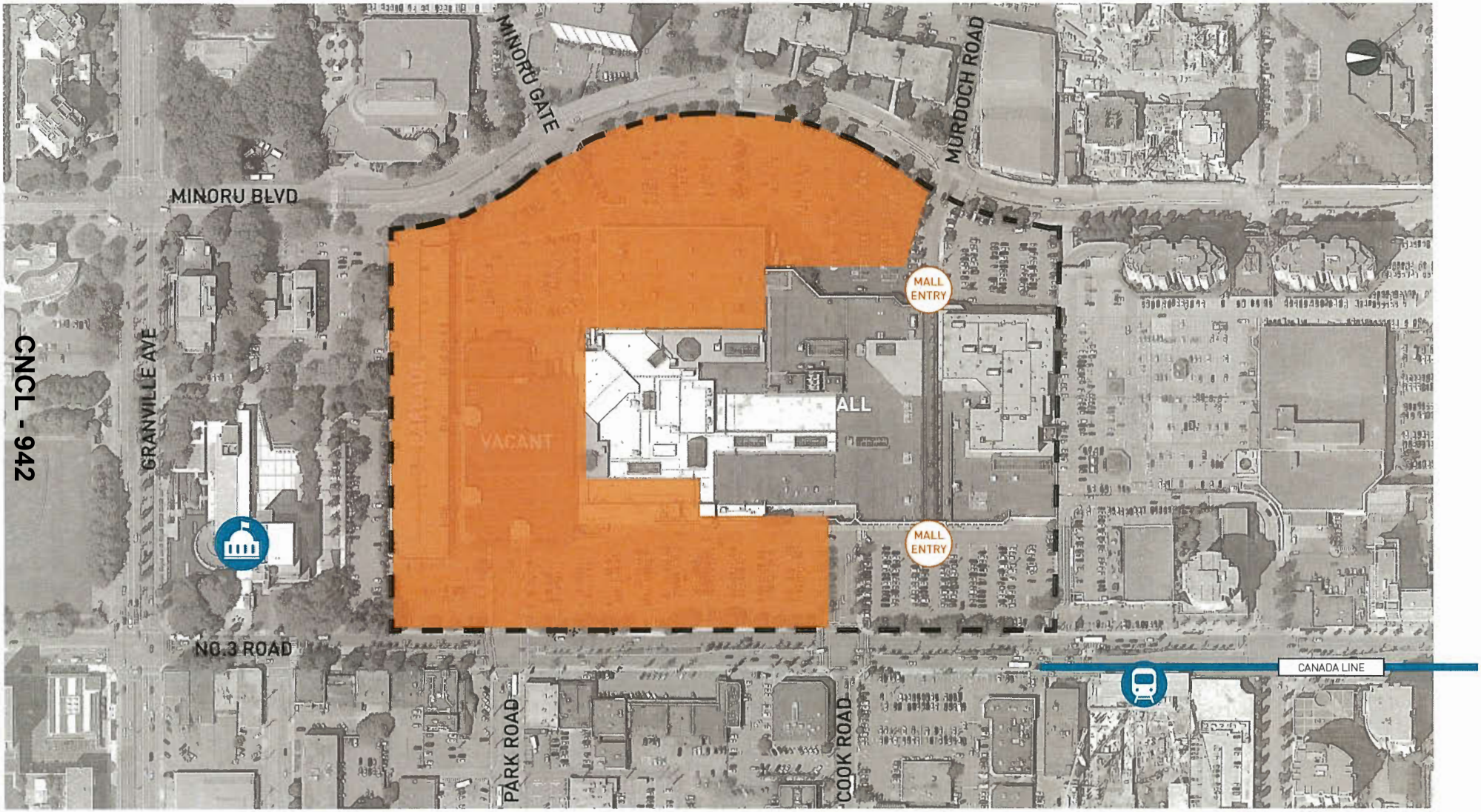


- The Oval
- Richmond Library & Cultural Centre
- Richmond City Hall
- City Centre Community Centre
- Canada Line Station
- Minoru Centre for Active Living
- School
- Shopping Centre
- Park
- Hospital

EXISTING SITE

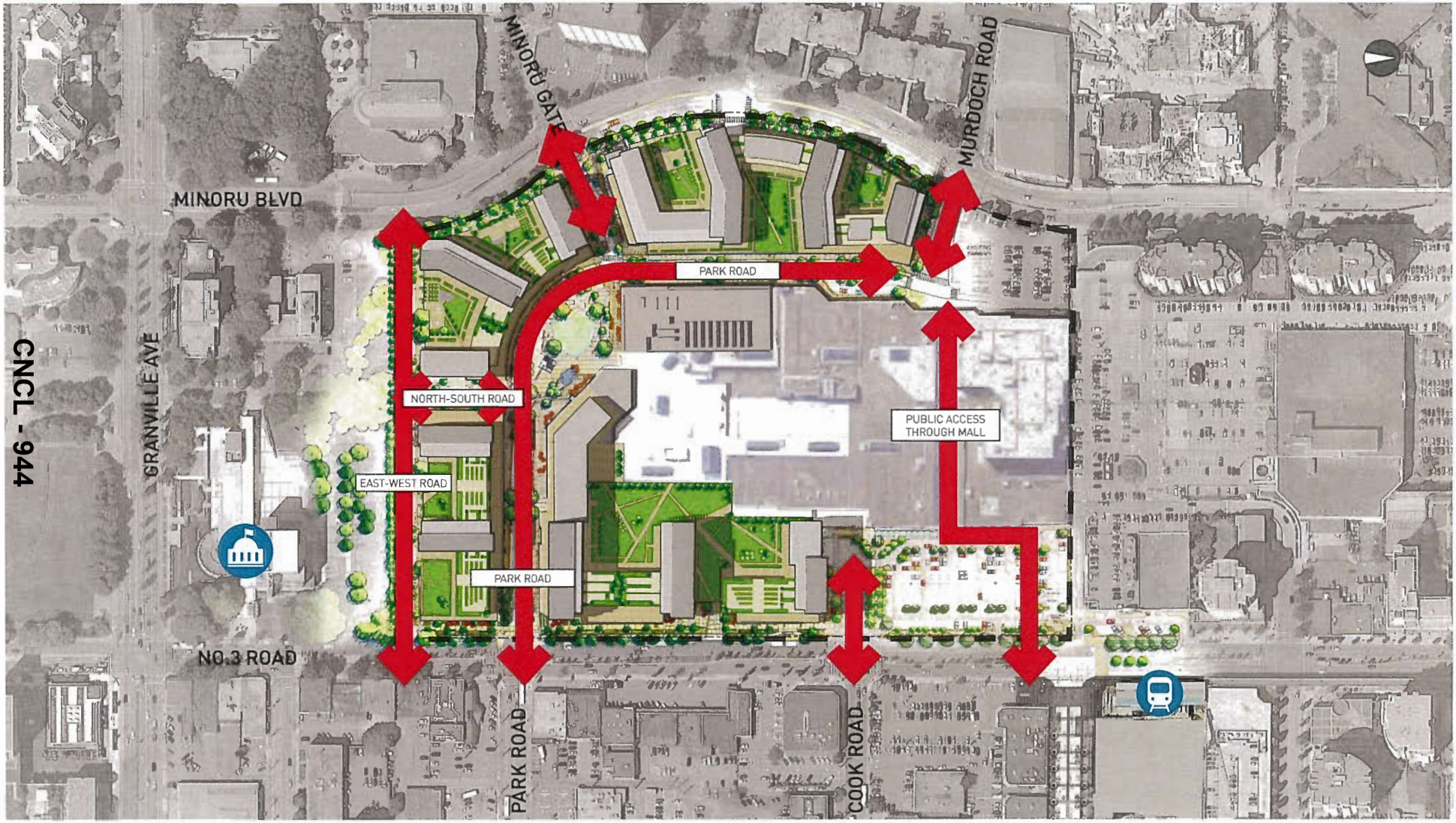


DEVELOPMENT AREA



SITE PLAN

SITE PLAN - CONNECTIONS



SITE PLAN - PHASE 1

AFFORDABLE HOUSING
5% OF PHASE 1 RESIDENTIAL FAR AREA;
DETAILED DESIGN IN THIS DP APPLICATION

PHASE 1 DEVELOPMENT

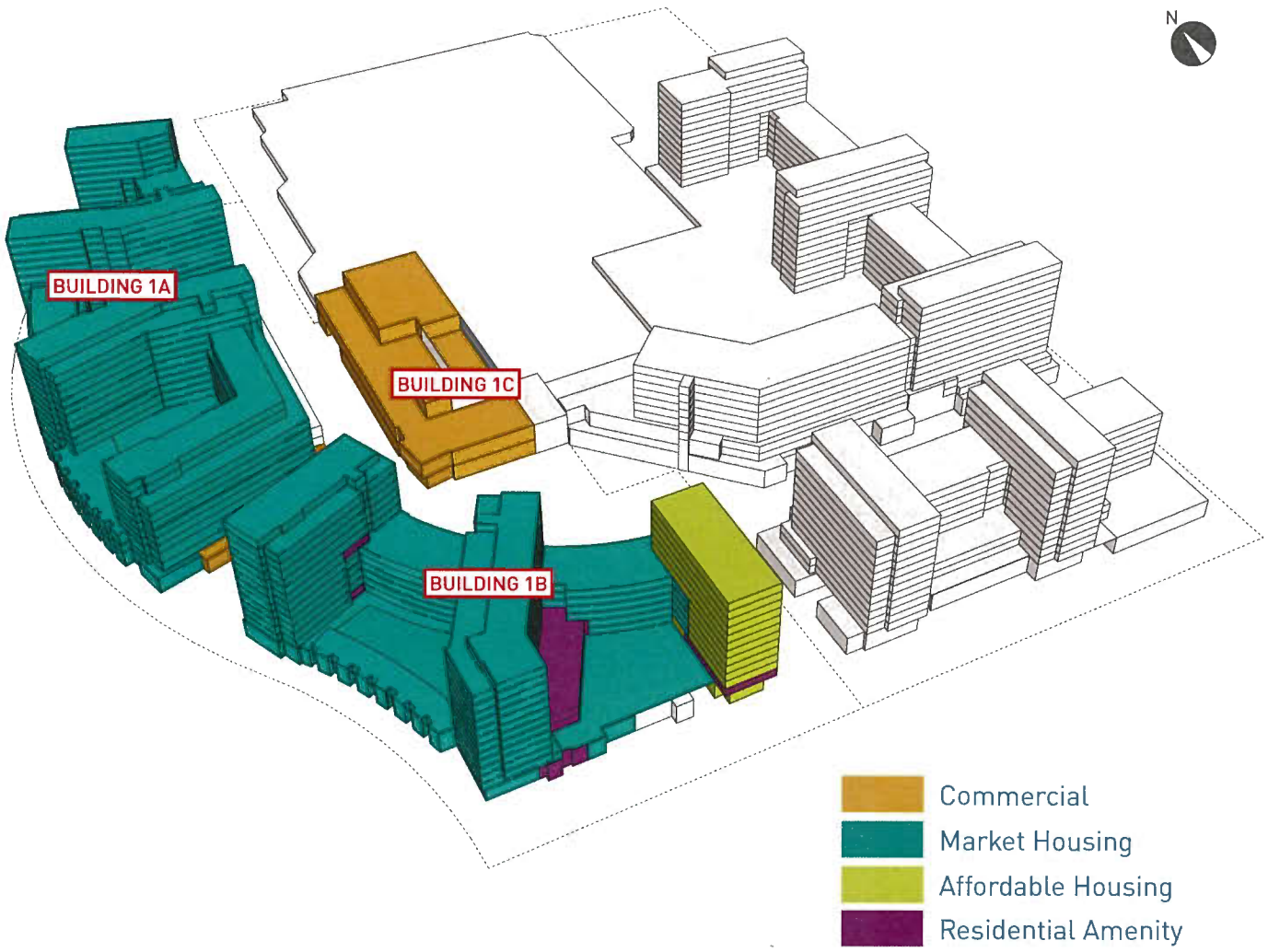
Commercial Area
160,000 sf

Residential Area
965,000 sf

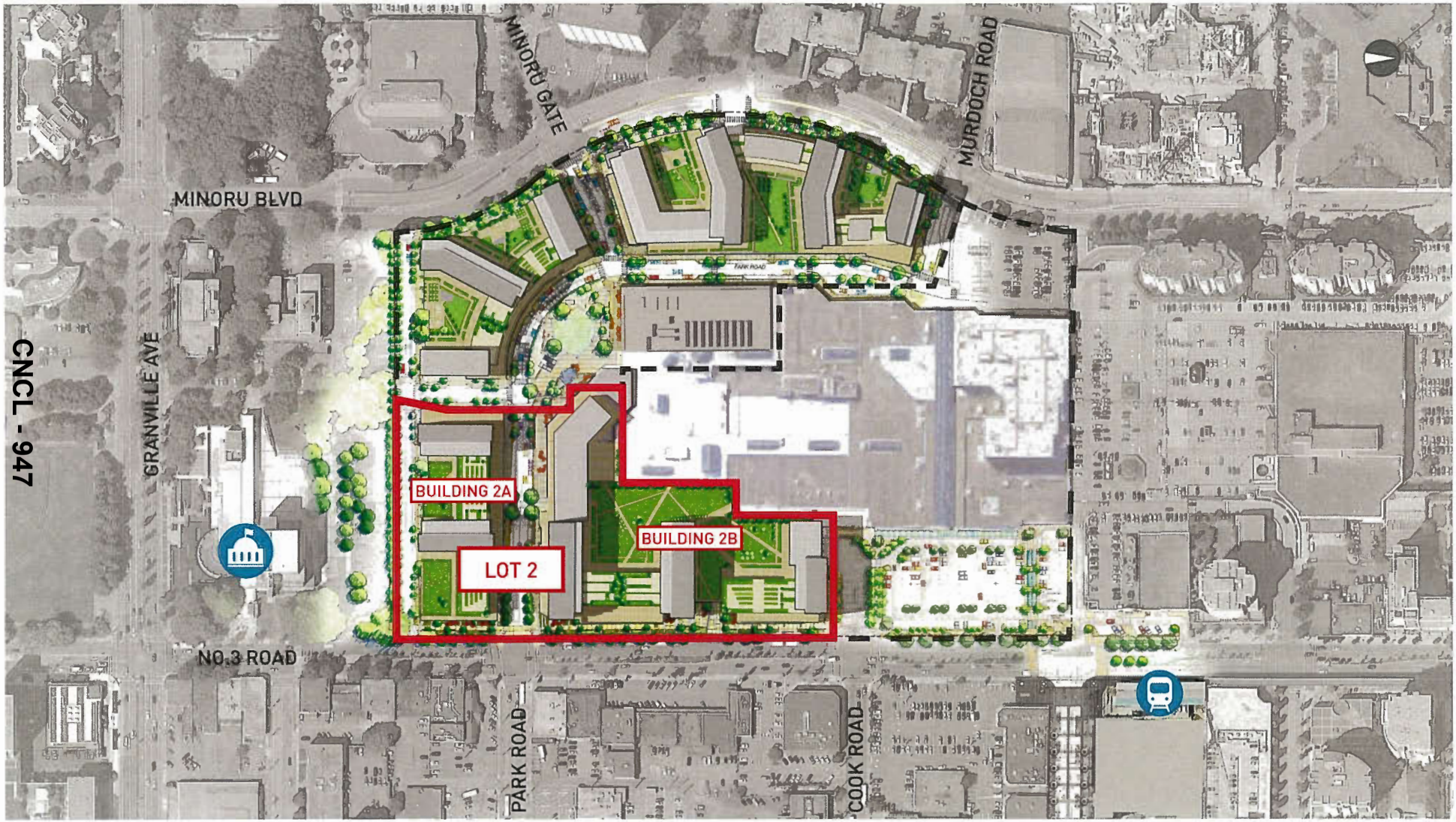
FAR
1.56

Affordable Housing Units
79

Market Units
1,087



SITE PLAN - PHASE 2



PHASE 2 DEVELOPMENT

Commercial Area
200,000 sf

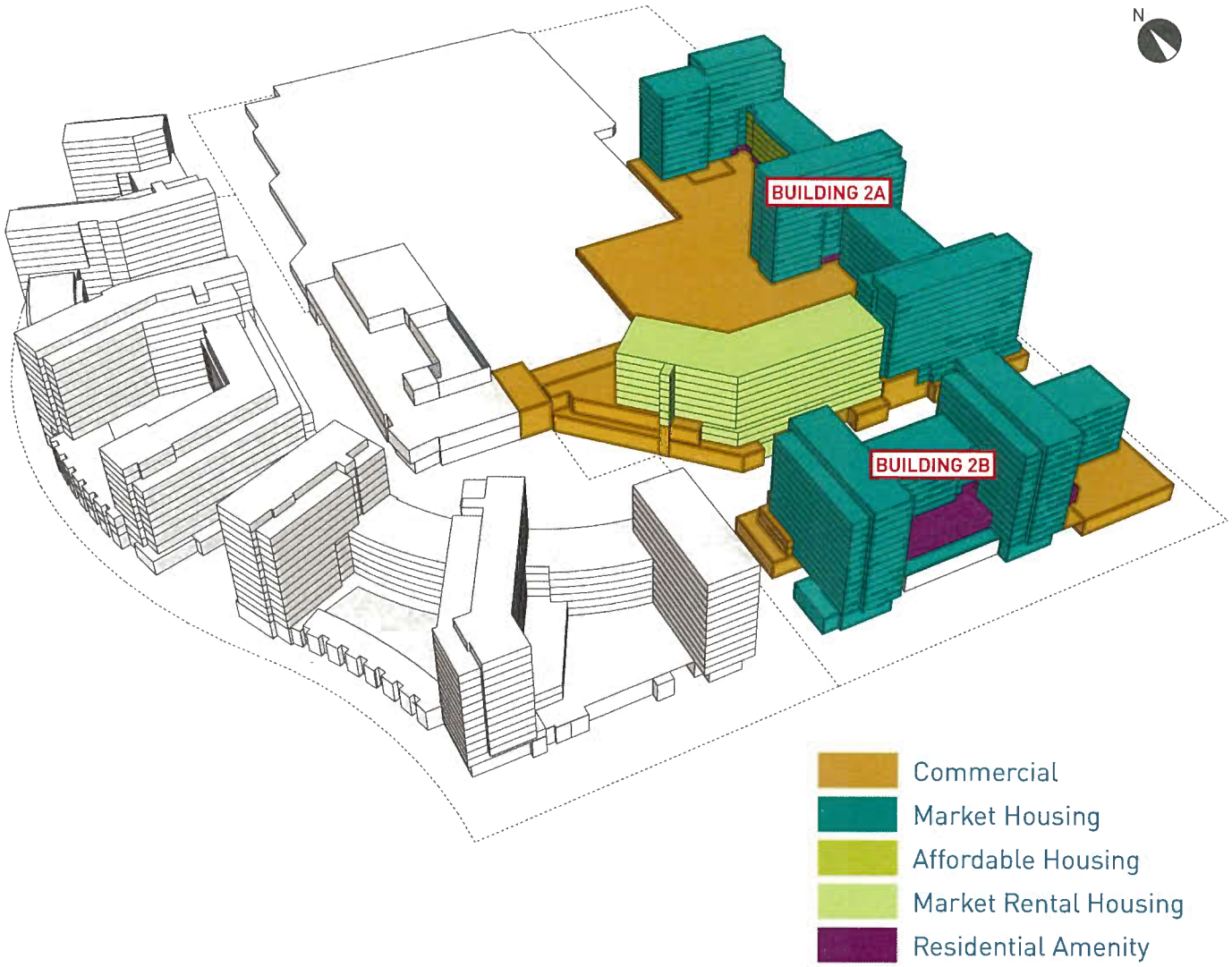
Residential Area
950,000 sf

FAR
1.59

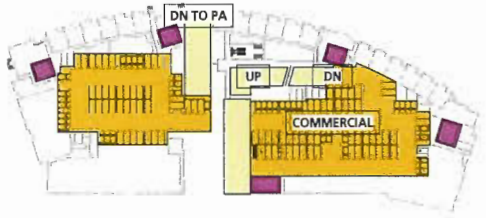
Affordable Housing Units
62

Market Rental Units
200

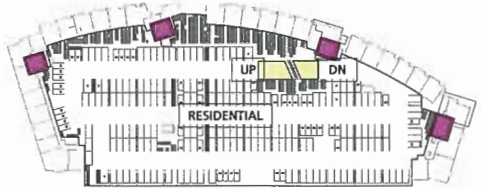
Market Units
869



PARKING



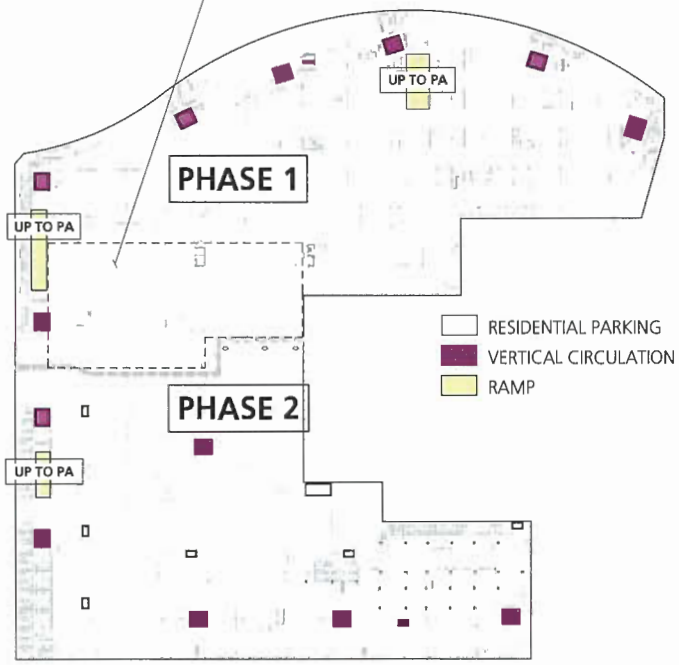
1 BUILDING 1A - LEVEL 1
1/64" = 1'-0"



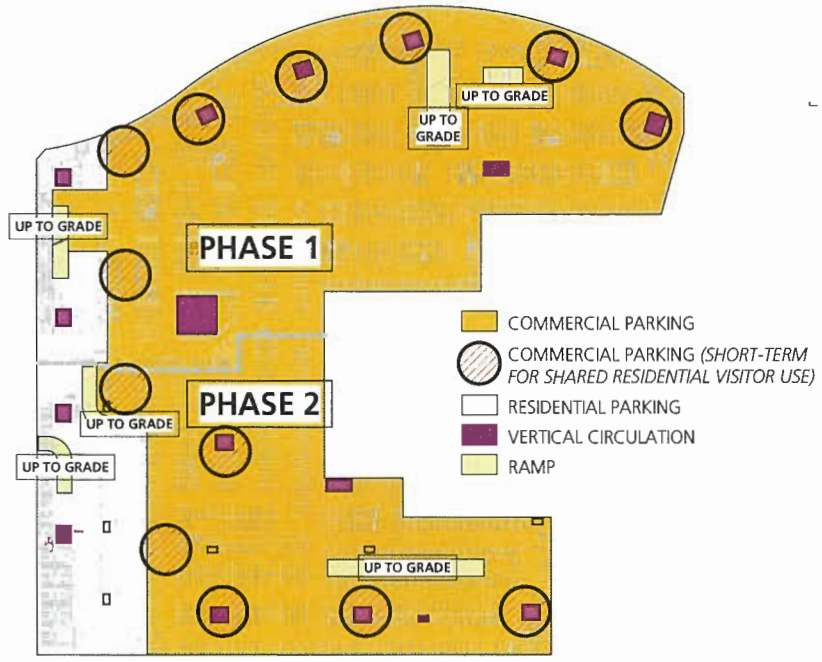
2 BUILDING 1A - LEVEL 2
1/64" = 1'-0"

3 BUILDING 1A - LEVEL 3
1/64" = 1'-0"

PORTION OF UNDERGROUND PARKING IN PHASE 1 ON LOT 1 IS SURPLUS TO THE NEEDS OF PHASE 1 AND IS INTENDED FOR THE FUTURE USE OF PHASE 2

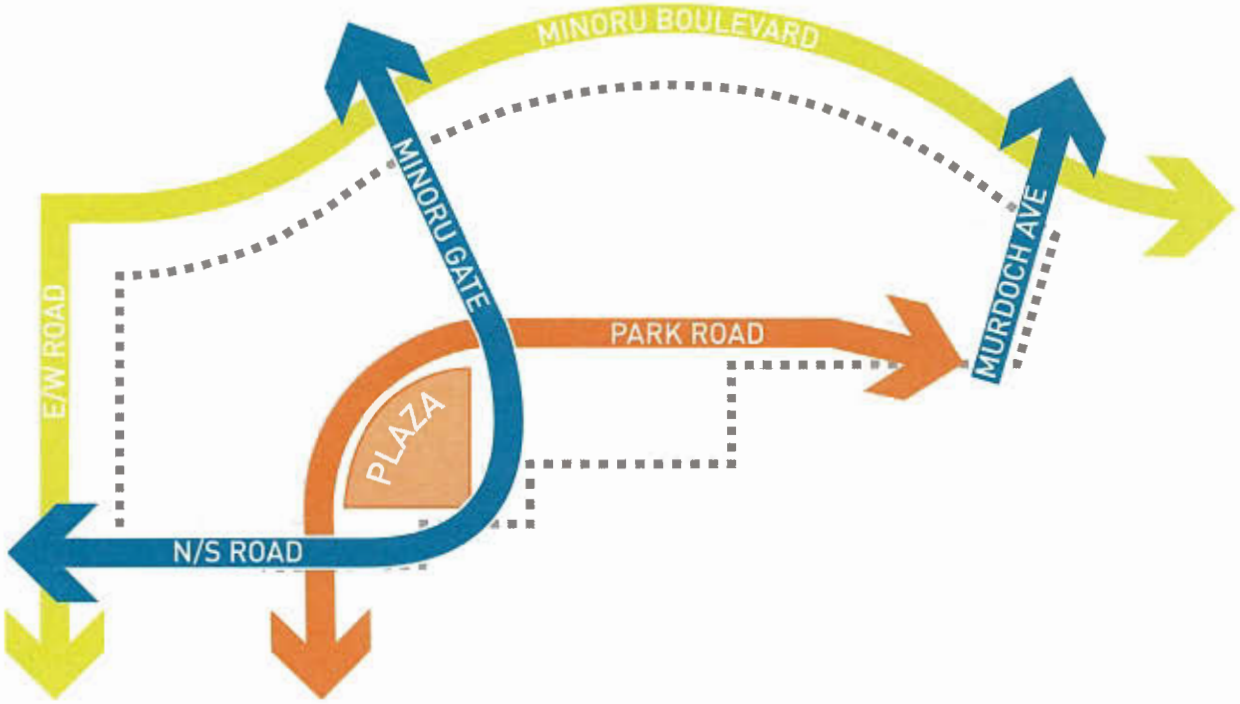


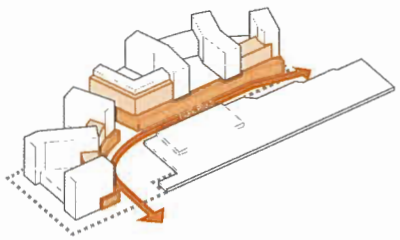
PB PB - PHASE 1 + 2 PARKING
1" = 80'-0"



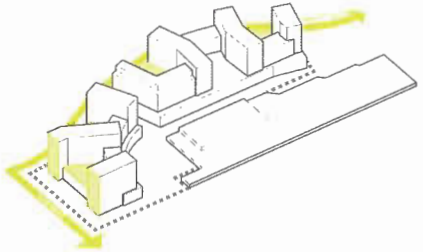
PA PA - PHASE 1 + 2 PARKING
1" = 80'-0"

STREET FRONTAGES
DP Guidelines

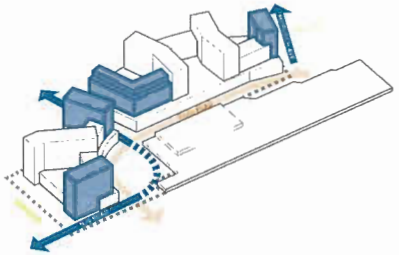




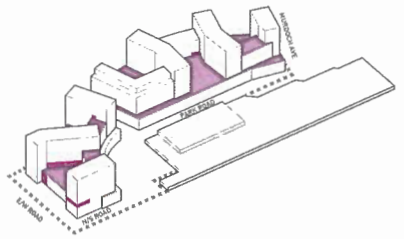
HIGH STREET
Park Road, Plaza, Mobility Hub & Frontage



GREEN STREETS
Lobbies, Townhouses & Streetwall

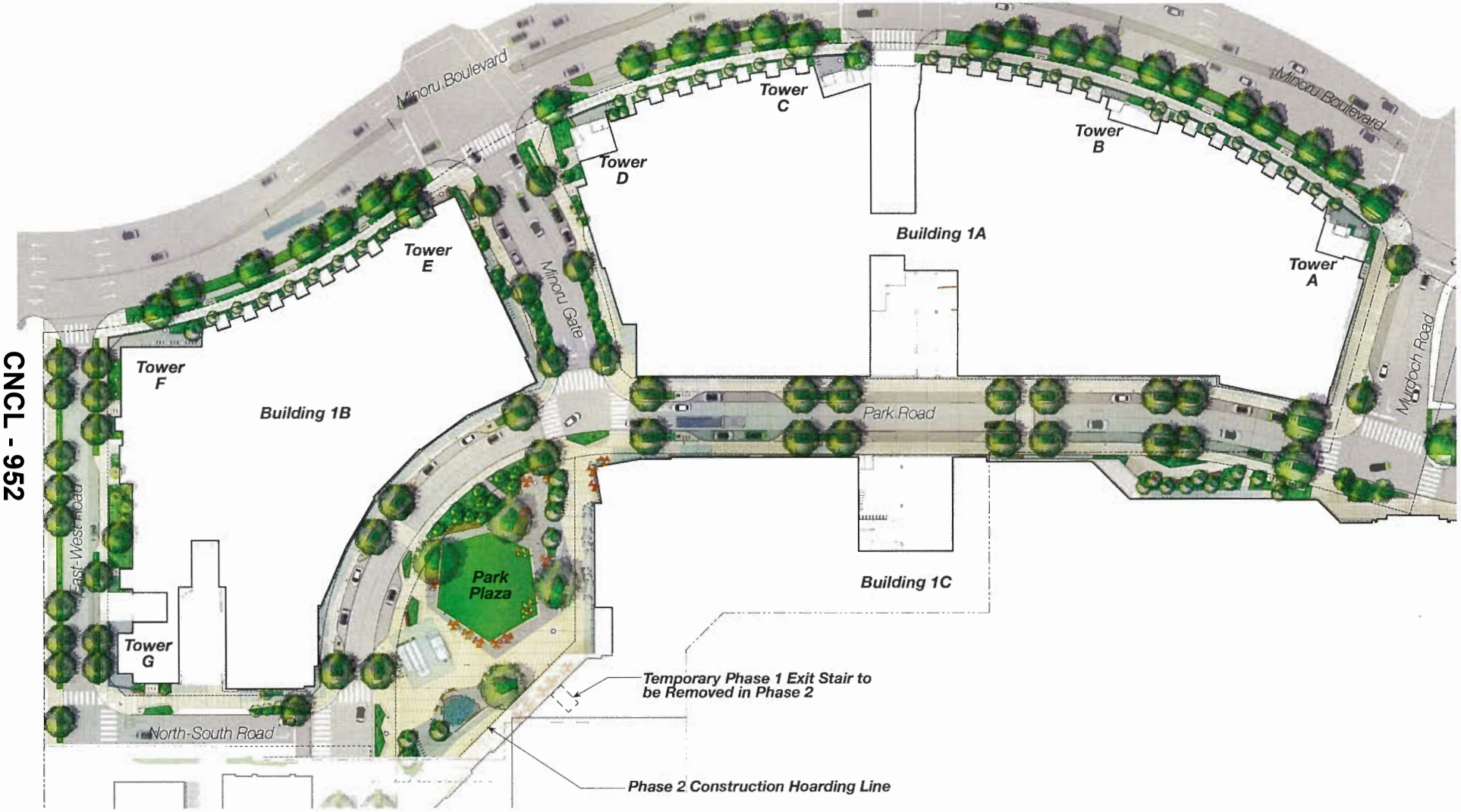


GATEWAYS
Towers

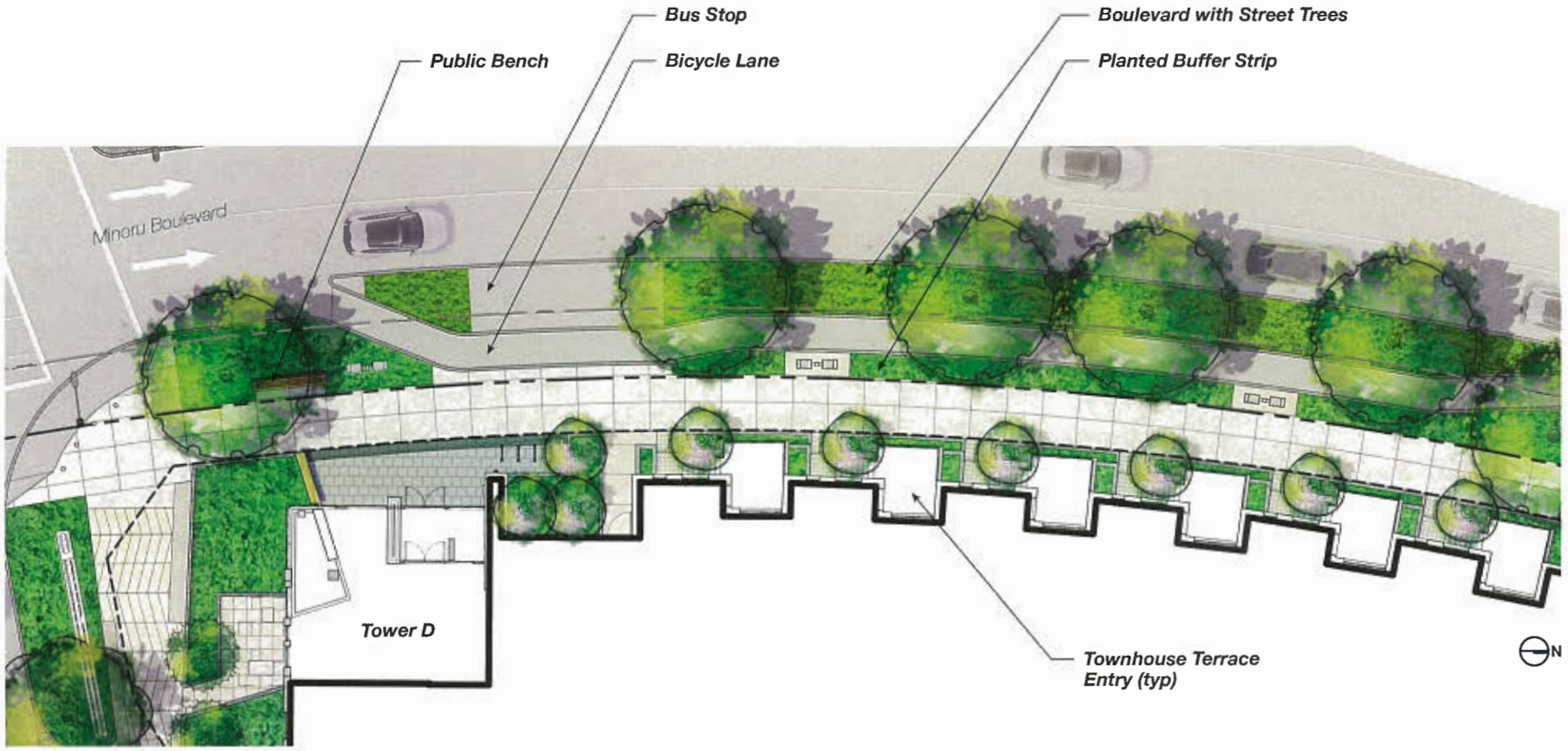


AMENITIES
Family-Friendly Indoor & Outdoor Spaces

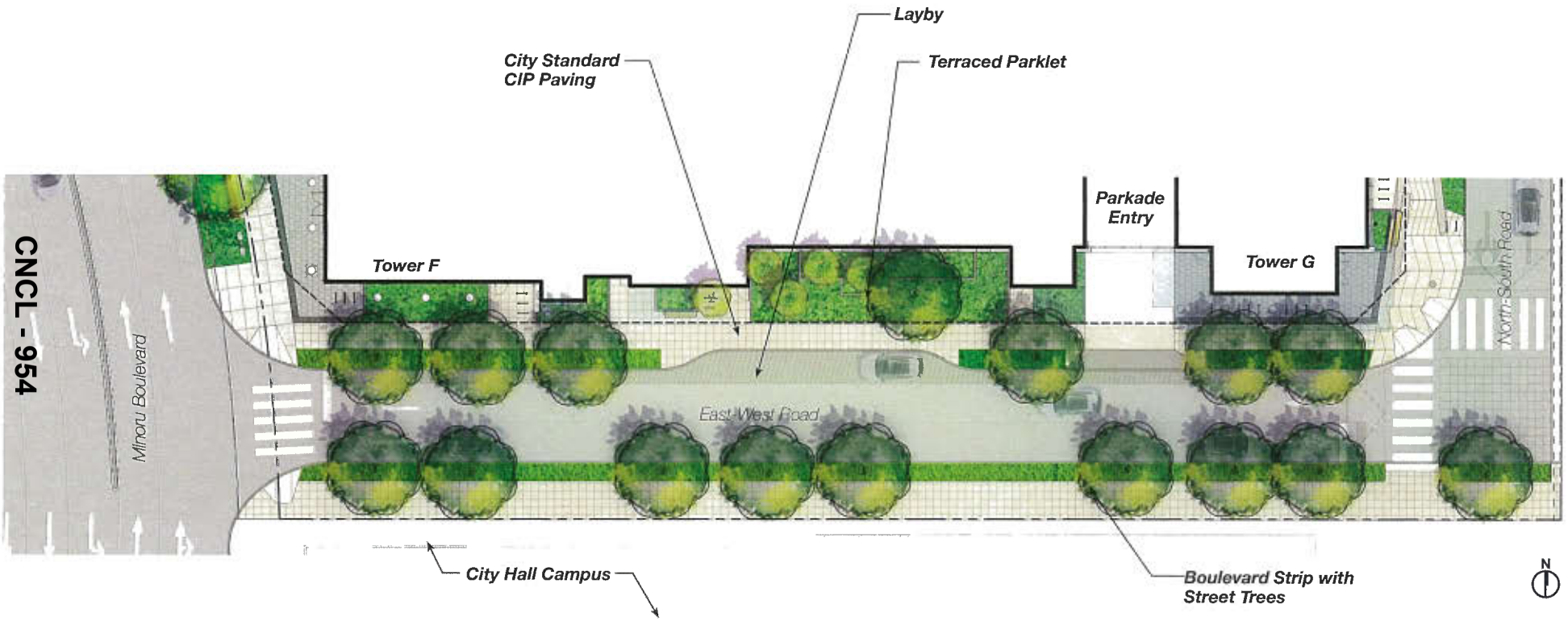
STREETSCAPE OVERVIEW



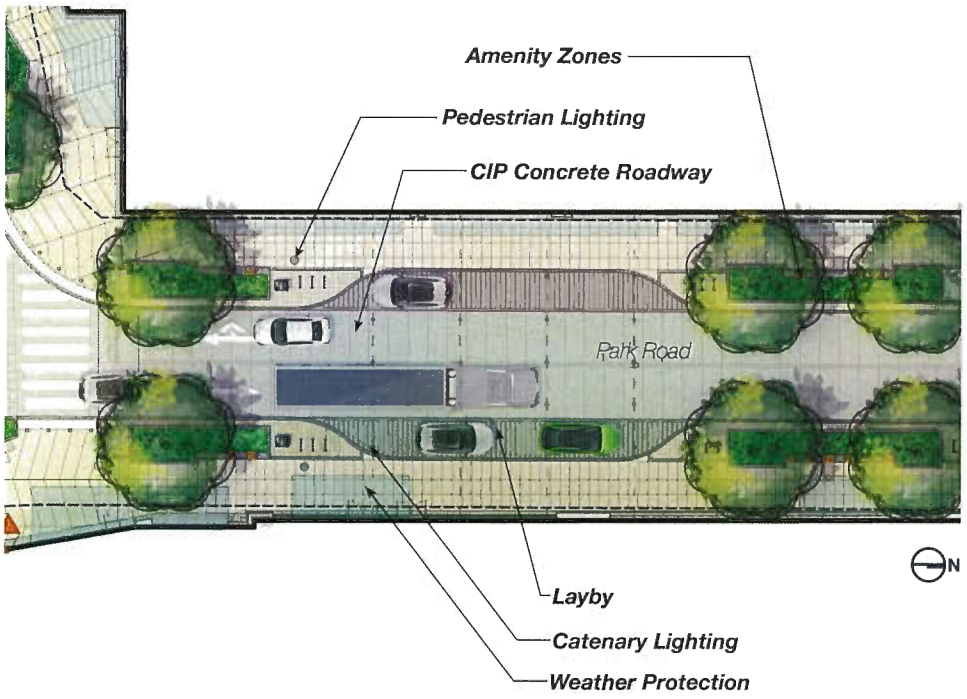
MINORU BOULEVARD

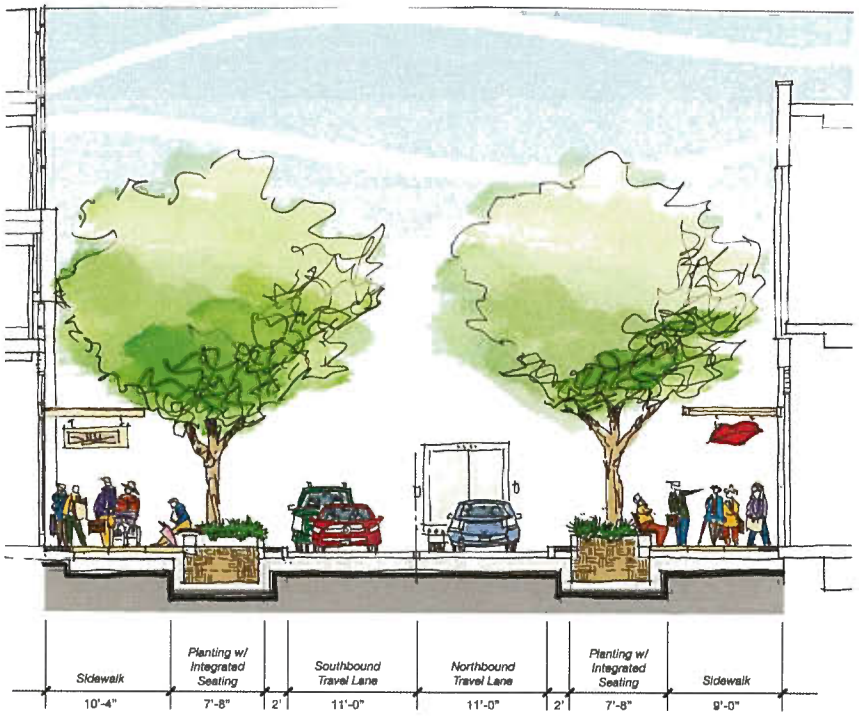


EAST-WEST ROAD



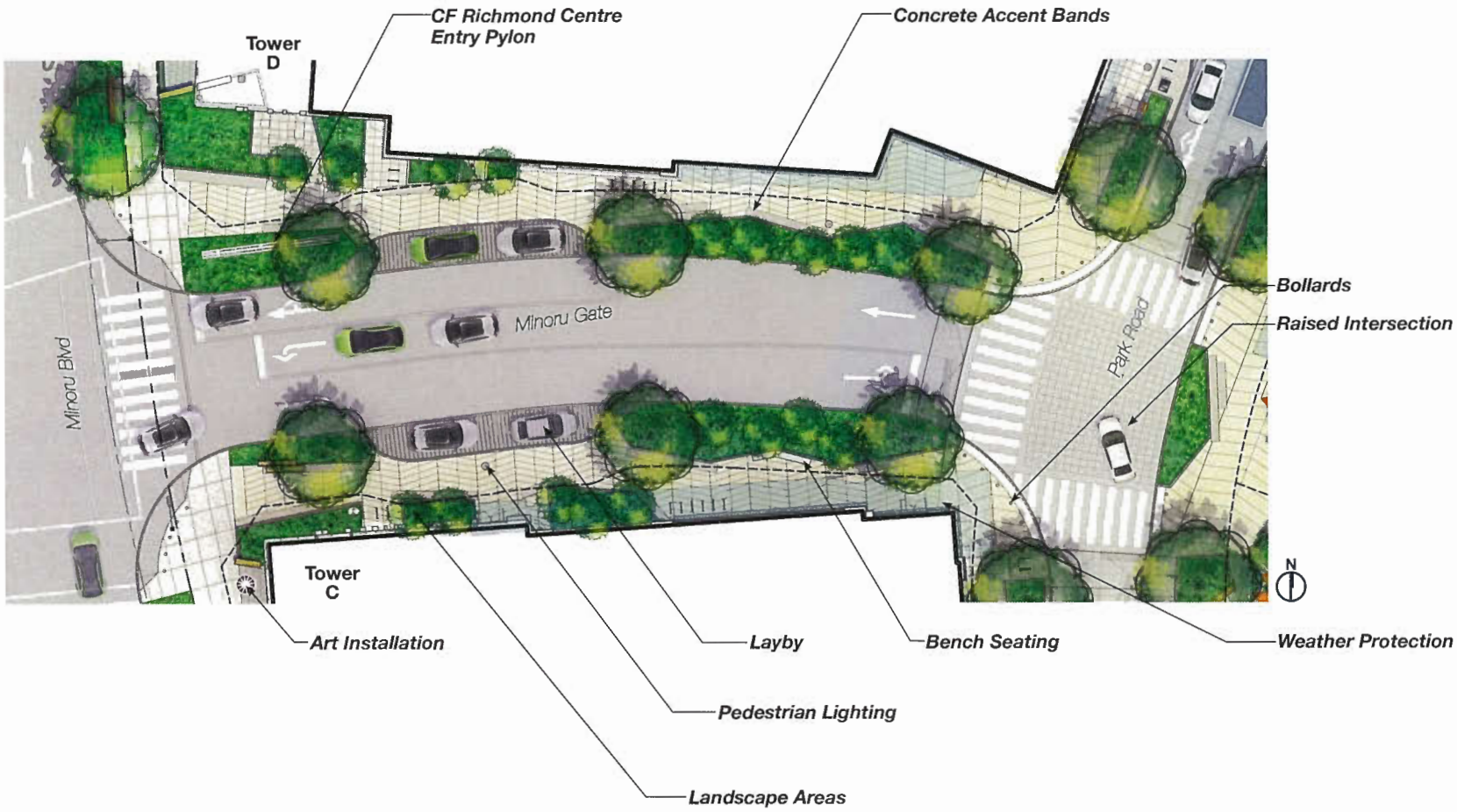
PARK ROAD





Typical Section

MINORU GATE


CF Richmond Centre
Entry Pylon
Concrete Accent Bands
Tower
D
Minoru Gate
Minoru Blvd
Park Road
Bollards
Raised Intersection
N
Tower
C
Art Installation
Layby
Bench Seating
Weather Protection
Pedestrian Lighting
Landscape Areas

PARK PLAZA


Raised Intersection
Park Road Pedestrian Lights
Bleacher Seating
CIP Concrete Roadway
Pedestrian Sidewalk
Raised Pedestrian Crosswalk
Platform Seating
Shuttle Layby
Mobility Hub
Bike Share Station
Bench Seatings
Public Art
Raised Intersection Crosswalk
Bike Racks
Lot Line
Minoru Gate
Park Road
Park Road
North-South Road
To Be Completed With Phase 2
Public Art Location
Platform Seating
Moveable Furniture
Landscape Islands
Central Green
Event Pole Lighting (TYP)
Street Furnishings
Mall Entry
Temporary Phase 1 Exit Stair to be Removed in Phase 2
Water Feature
Future Public Access to Washrooms, Phase 2 (TBD)
Bleacher Seating
Phase 2 Construction Hoarding Line
SRW
N

SITE FURNISHINGS

PARK PLAZA

MOBILITY HUB

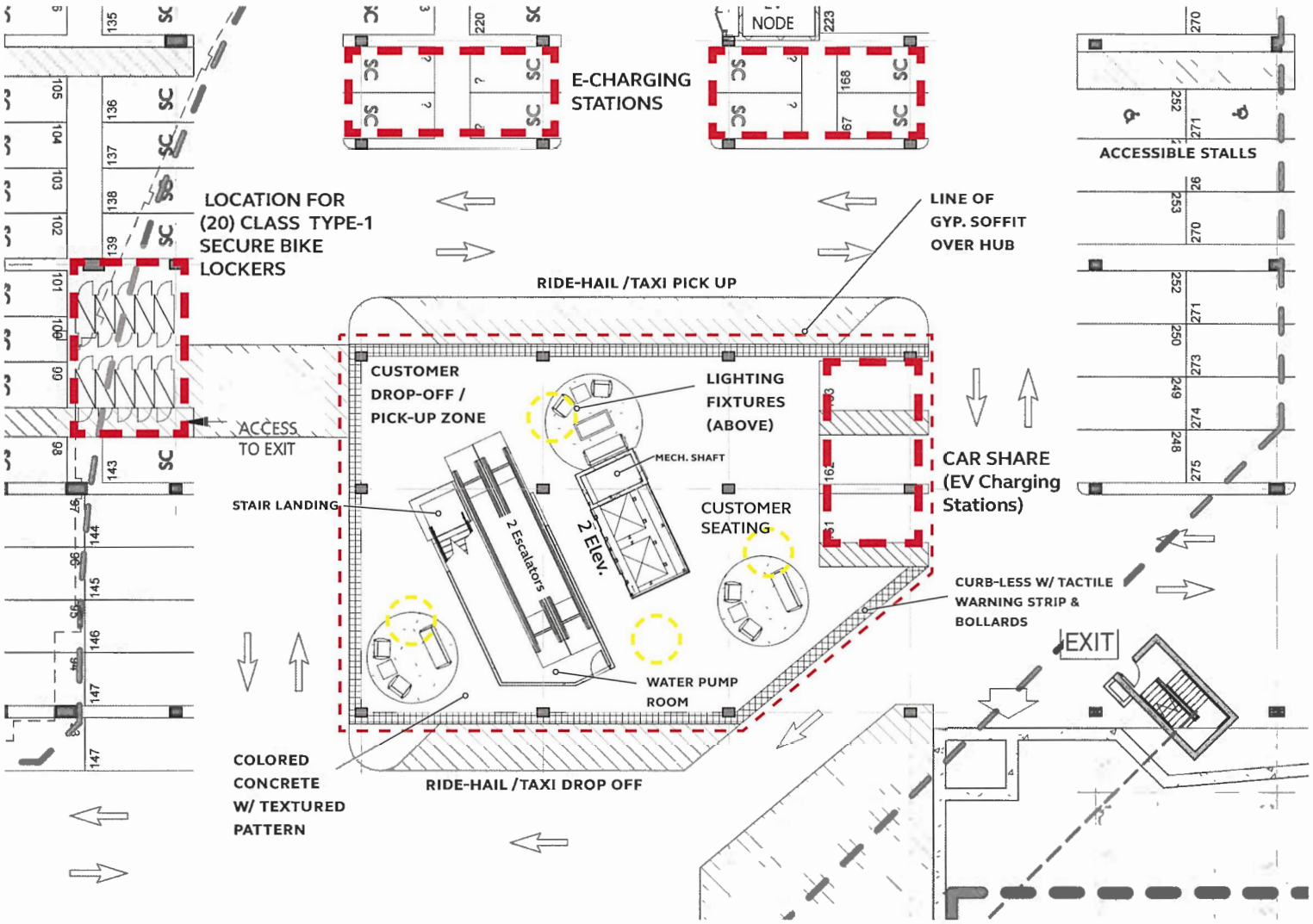
Aerial view of plaza

MOBILITY HUB
Plaza level plan

MOBILITY HUB

View from plaza

MOBILITY HUB
PA level plan



CNCL - 963

MOBILITY HUB

View from escalator to bike lockers

MOBILITY HUB
Escalator & stair at PA level

MOBILITY HUB
Lounge at PA level

CNCL - 966

MOBILITY HUB
Lounge at PA level

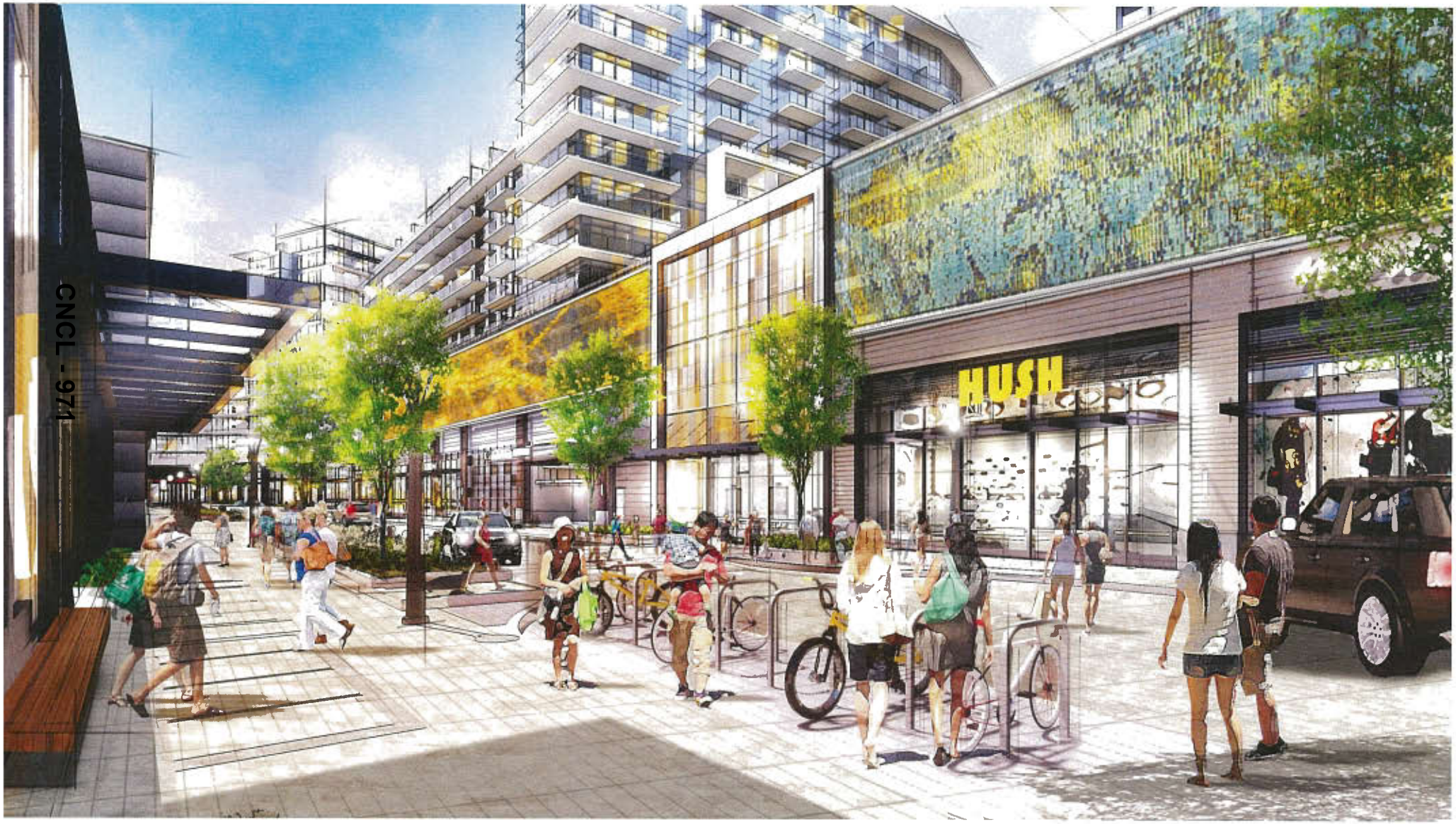
HIGH STREET FRONTAGE
1B at Plaza

HIGH STREET FRONTAGE
1C Corner at Plaza

HIGH STREET FRONTAGE

North Leg of Park Road Looking North

HIGH STREET FRONTAGE
North Leg of Park Road Looking South



HIGH STREET FRONTAGE
North Leg of Park Road Looking South

MATERIALS

Brick

Brick | Light Grey Mix

Brick | Medium Grey Mix

Brick | Dark Grey Mix

Metal Panel

Metal Panel | Black

Metal Panel | White

Metal Panel | Grey

Porcelain Panel

Porcelain Panel | Nero

Porcelain Panel | Carbonio

Porcelain Panel | Grigio

Porcelain Panel | Perla

Porcelain Panel | Ossidiana

Porcelain Panel | Or

Glazed Spandrel

Spandrel | White

Spandrel | Light Grey

Spandrel | Charcoal

Concrete Panel

Concrete Panel | White

Concrete Panel | Charcoal

GREEN STREET FRONTAGE

GREEN STREET FRONTAGE
Residential Lobbies

Tower A

Tower B

Tower C

Tower D

GREEN STREET FRONTAGE
Residential Lobbies

Tower E

Tower F

Tower G

GREEN STREET FRONTAGE
Minoru Townhouses

GREEN STREET FRONTAGE
Minoru Green Streetwall

GREEN STREET FRONTAGE
Civic Promenade Streetwall

GATEWAYS

MURDOCH GATEWAY
Tower A

MINORU GATE GATEWAY
Towers D & E

MINORU GATE GATEWAY
Towers D & E

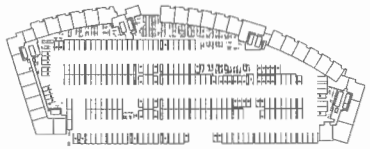
N/S ROAD GATEWAY
Tower G

AMENITY OVERVIEW

- SHARED INDOOR AMENITY (1A-1B)
- PRIVATE INDOOR AMENITY
- AFFORDABLE HOUSING INDOOR AMENITY
- GUEST SUITE
- SHARED OUTDOOR AMENITY (1A-1B-AH)
- PRIVATE OUTDOOR AMENITY

CNCL - 985

1B - LEVEL 2



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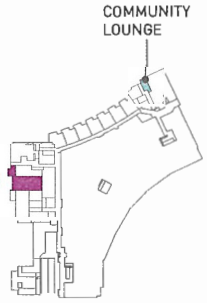

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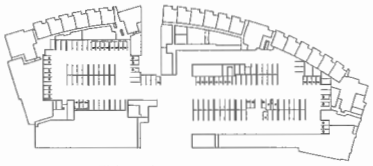

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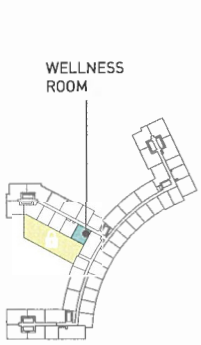

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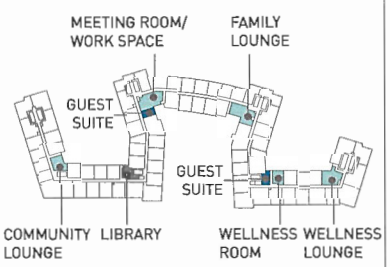

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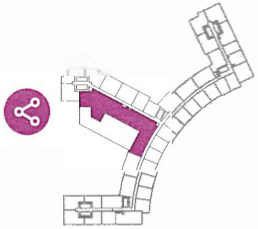

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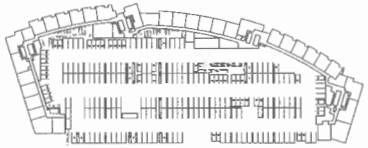

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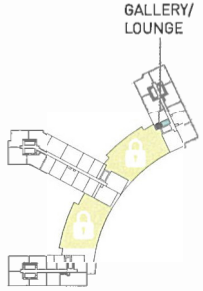

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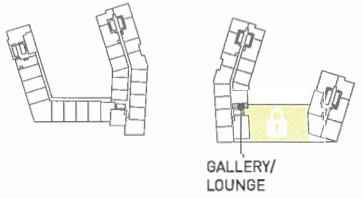

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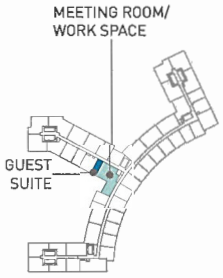

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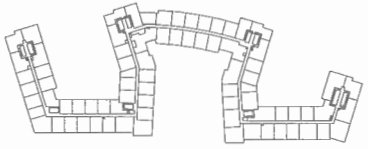
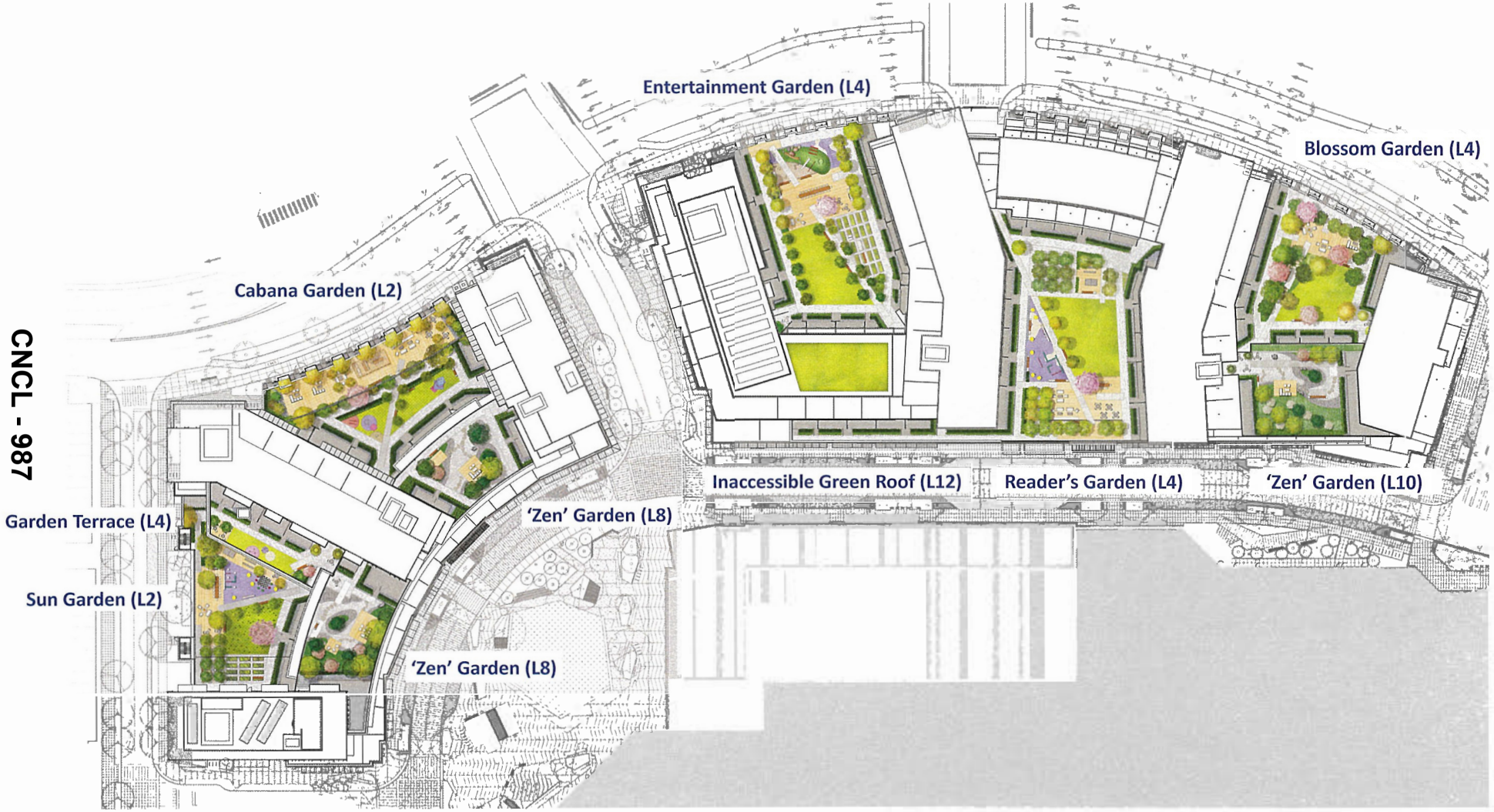


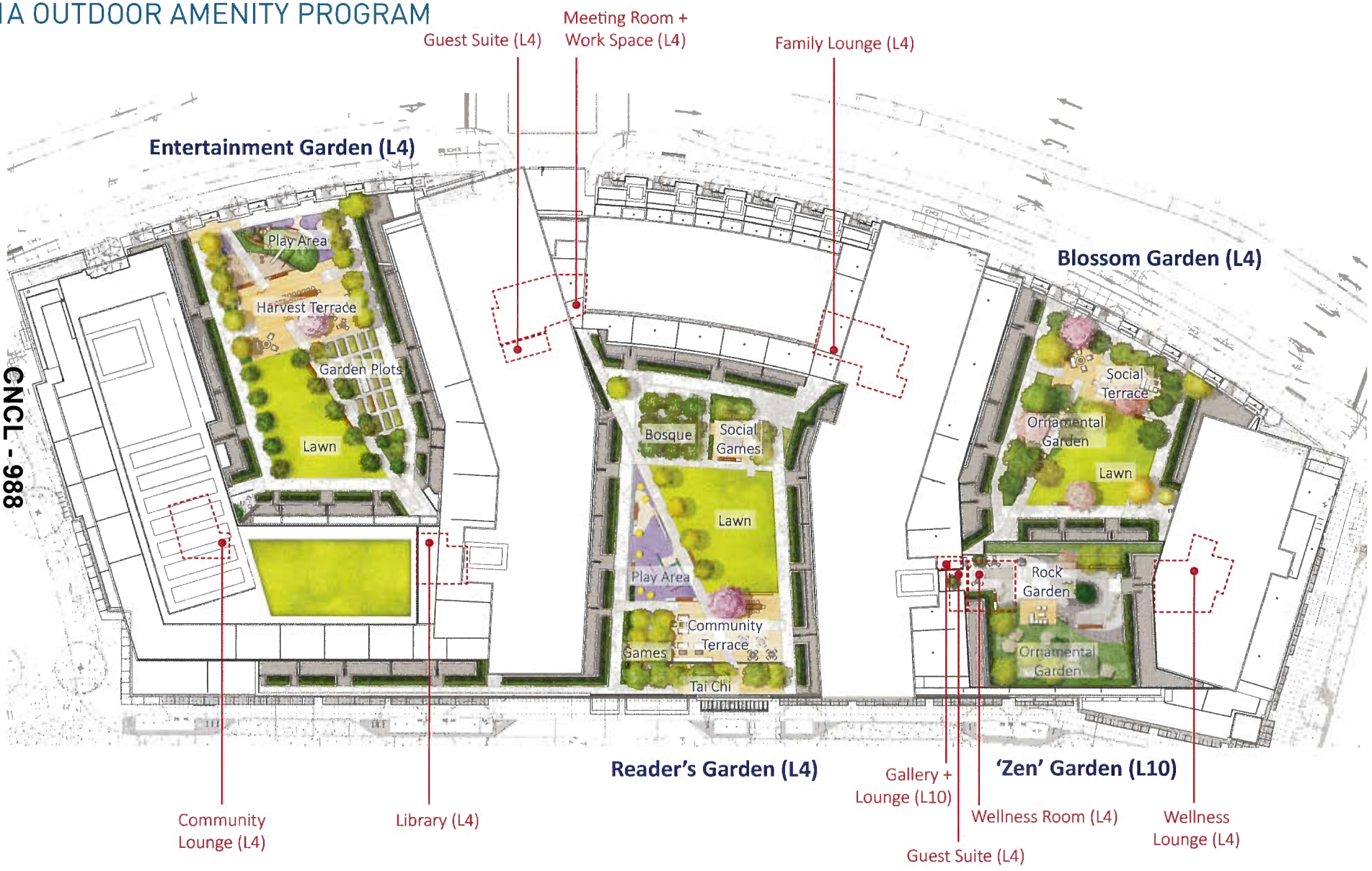
1A - LEVEL 5

AMENITIES

OUTDOOR AMENITY OVERVIEW



1A OUTDOOR AMENITY PROGRAM



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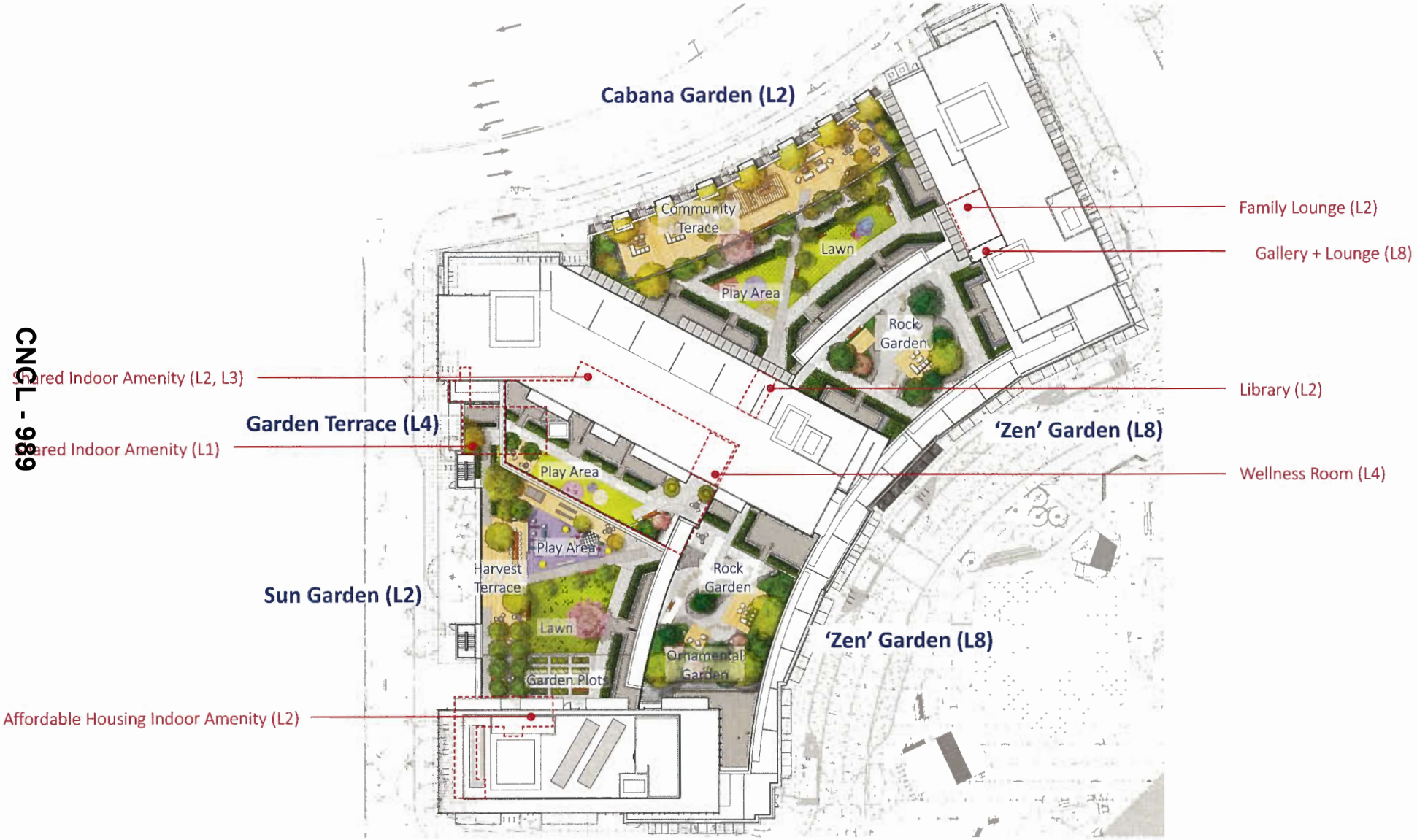

OUTDOOR AMENITY CHARACTER IMAGES
















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RICHMOND BC V6Y 1Z2

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TOLL FREE 800 665 3099

POPE ESTATES INC.

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May 24,2019

David Weber
Director, City Clerk's Office
City of Richmond
6911 No. 3 Road
Richmond, BC V6Y 2C1

Gentlemen/Ladies,

Notice of Application
For a Development Permit
DP 17-768248
Property Location: 6551 No. 3 Road

We write to express our disapproval of the proposed parking variances referenced in your letter concerning the development application above noted, namely items:

a) iii
b) i, ii

It is our considered opinion as long established commercial realtors and real estate developers that Richmond Zoning Bylaw 8500 provides adequate density without the need for further density by relaxation of the parking requirements stated in the bylaw.

Yours truly,

Ronald H. Pope
President & Founder
POPE ESTATES INC.(1962)
604 278 9793 * 800 665 3099
www.popemakesdeals.com

Schedule 4 to the Minutes of the Development Permit Panel meeting held on Wednesday, May 29, 2019.

JAIME Y. PESTANO

205-7388 Gollner Ave., Richmond, BC V6Y 0H4, Tel. No. 604-241-1271, Email: jypestano181@gmail.com

May 28, 2019

To Development Permit Panel
Date: MAY 29, 2019
Item # 2
Re: DP 17-768248

Director, City Clerk's Office
6911 No. 3 Road, Richmond, BC V6Y 2C1

Subject: Notice of Application for Development Permit DP 17-768248

In compliance with you request, may I submit my recommendation to include and construct a highly profitable multi-purpose arena for professional ice hockey, basketball, boxing, concerts, ice shows, musical shows, cultural shows, trade shows, conventions, circuses, and other sports and entertainment events like Madison Square Garden, New York, USA, and make Richmond Centre in Richmond City, BC a world class destination.

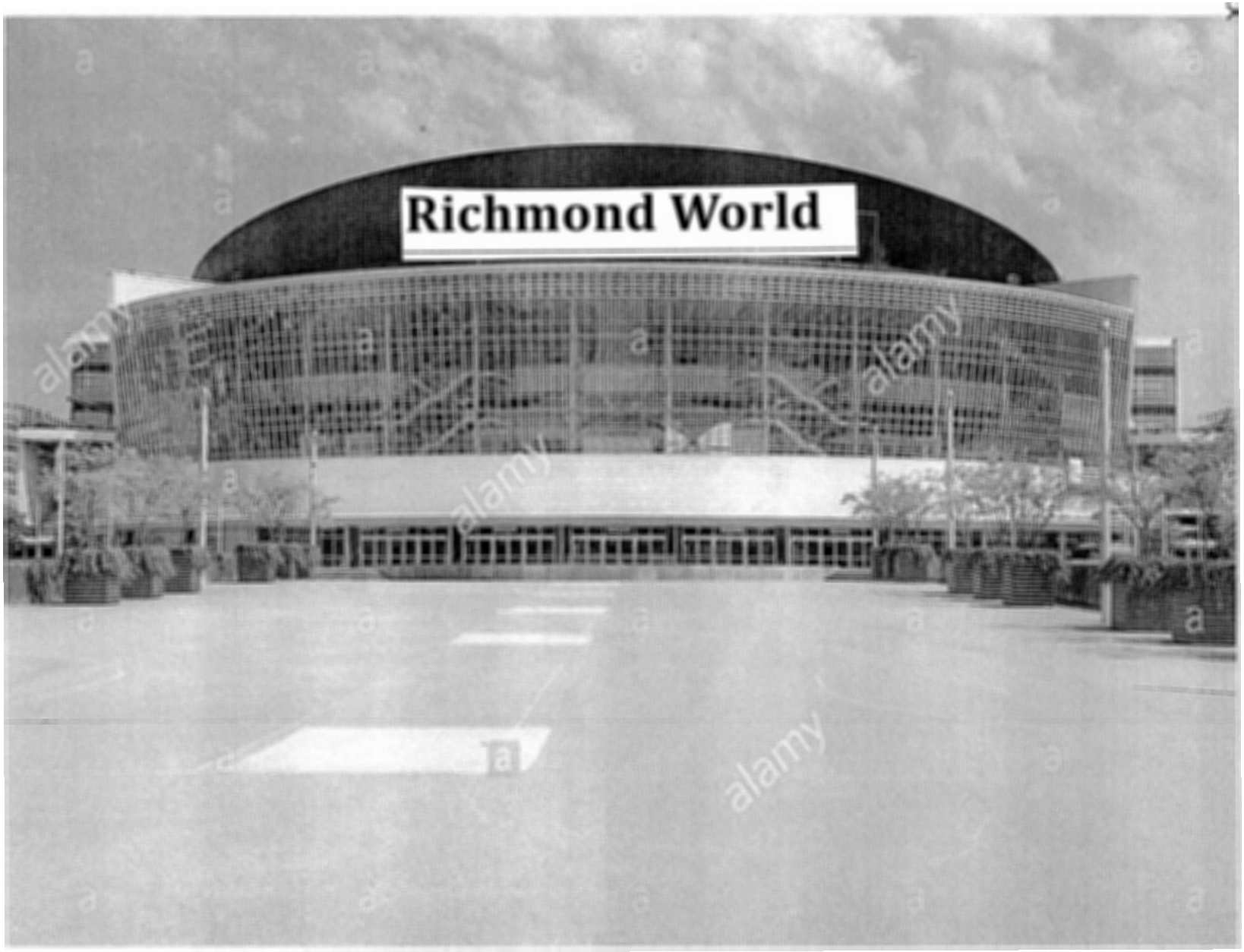
Thank you very much for this opportunity to present my thoughts and ideas that I think will greatly benefit the residents and City of Richmond as well as the whole province of British Columbia and Canada.

Your reply and comments will be greatly appreciated.

Respectfully yours,

Jaime Y. Pestano

CITY OF RICHMOND
DATE
MAY 28 2019
RECEIVED
CITY CLERK'S OFFICE



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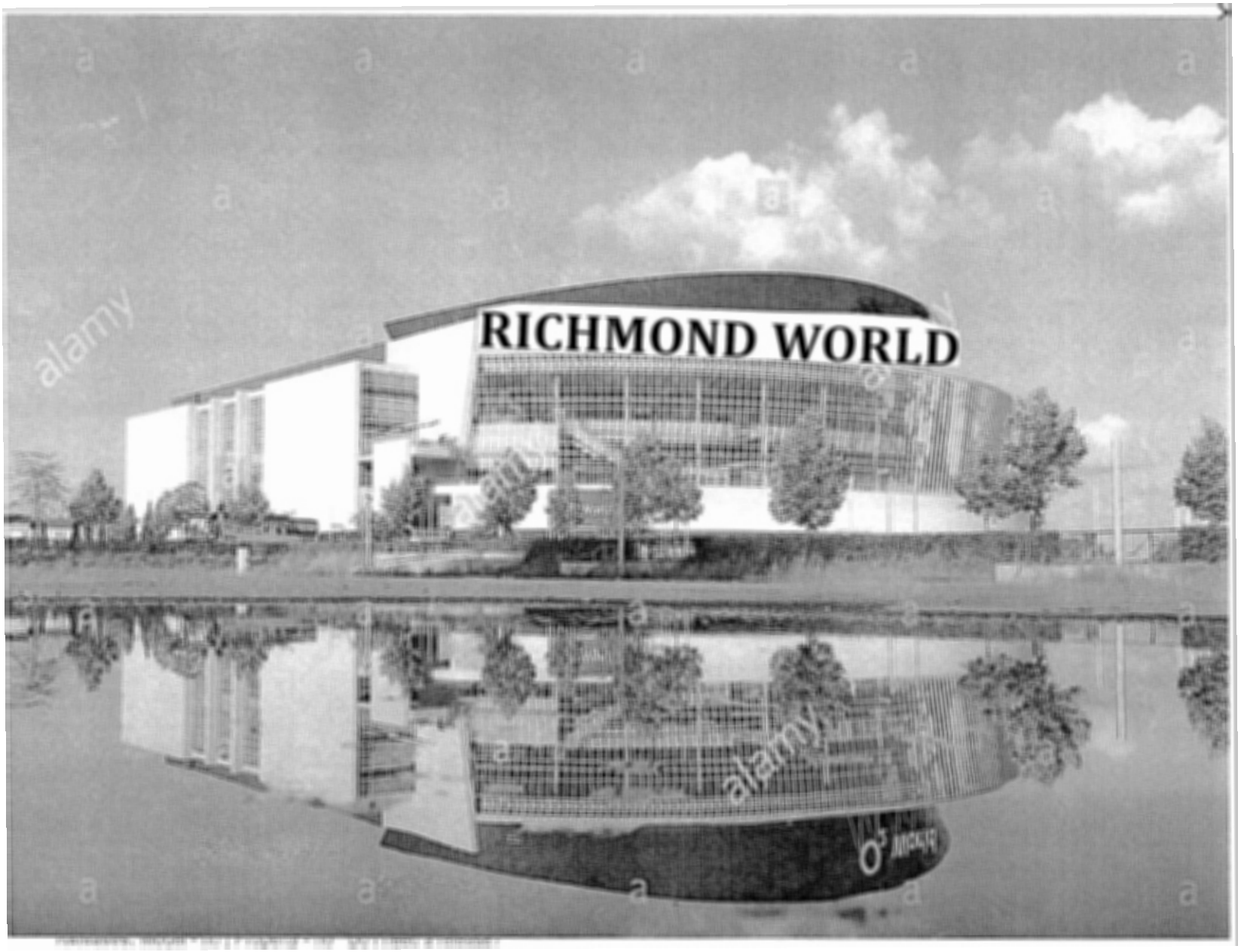

CNCL - 994

Date taken: 31 July 2014

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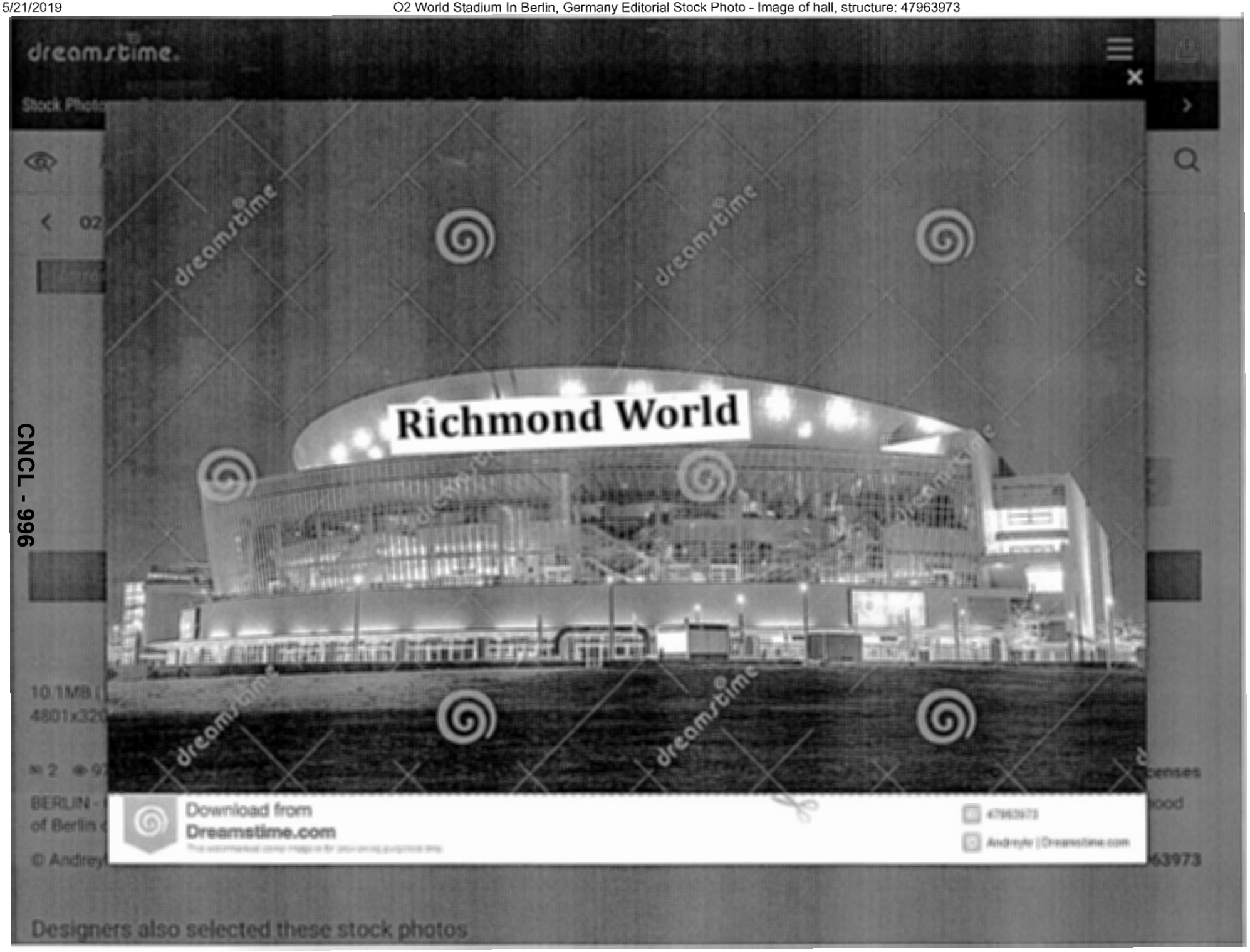
CNCL - 995

Date taken: 20 September 2012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CANADIAN STYLE BASKETBALL

CNCL - 997

Fair & exciting field goals scoring system

- Blue - 2-point free throw penalty
- Purple - 2-point field goal
- Orange - 3-point field goal
- Green - 4-point field goal
- Red - 5-point field goal

Safer rules & regulations

- 30-second time clock to shoot
- No touch on any part of the hoop and basket
- Blocking & charging are flagrant fouls
- No backing violation
- No 8-second violation to bring the ball to the front court
- Mandatory headband wear for head protection

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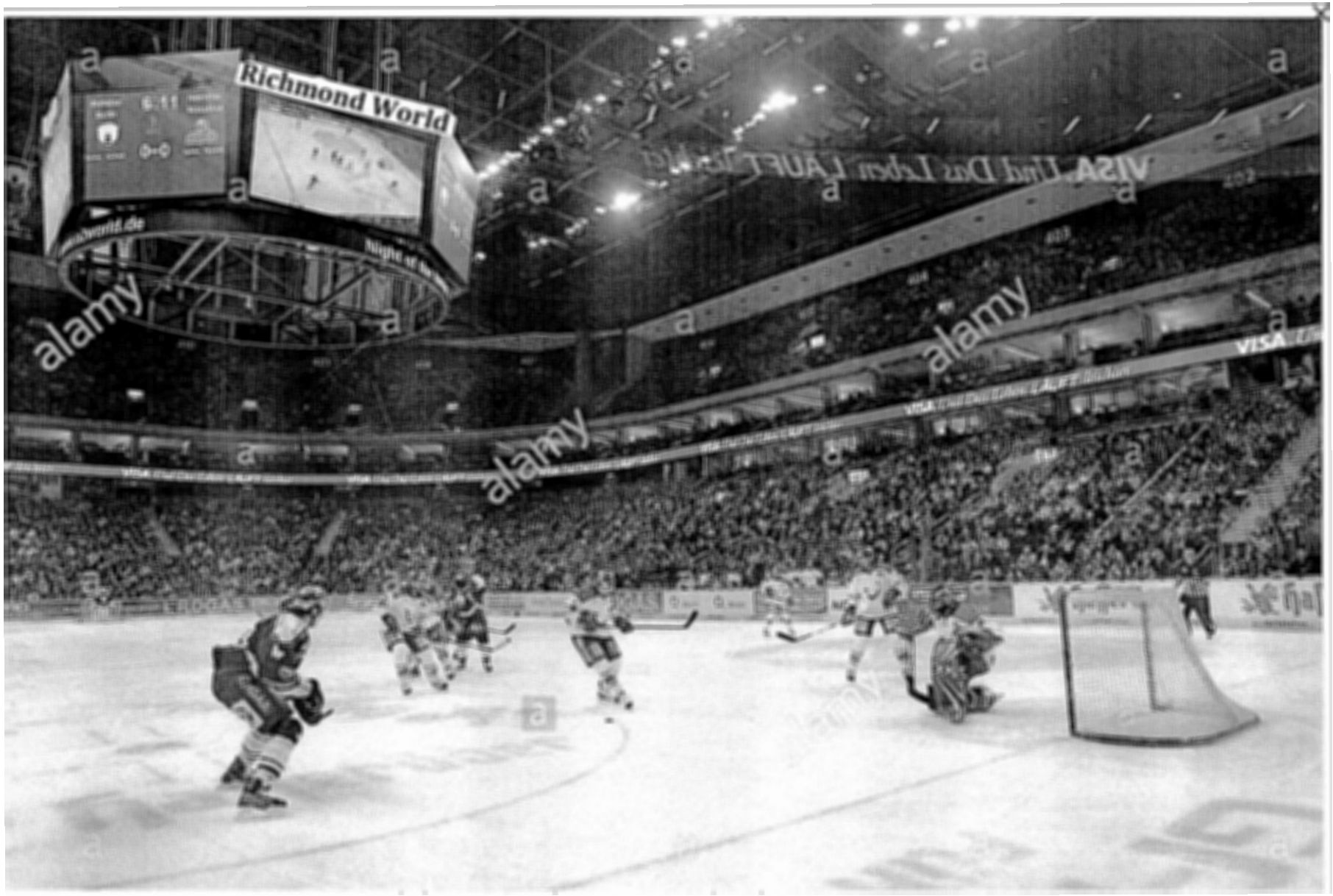


CNCL - 998

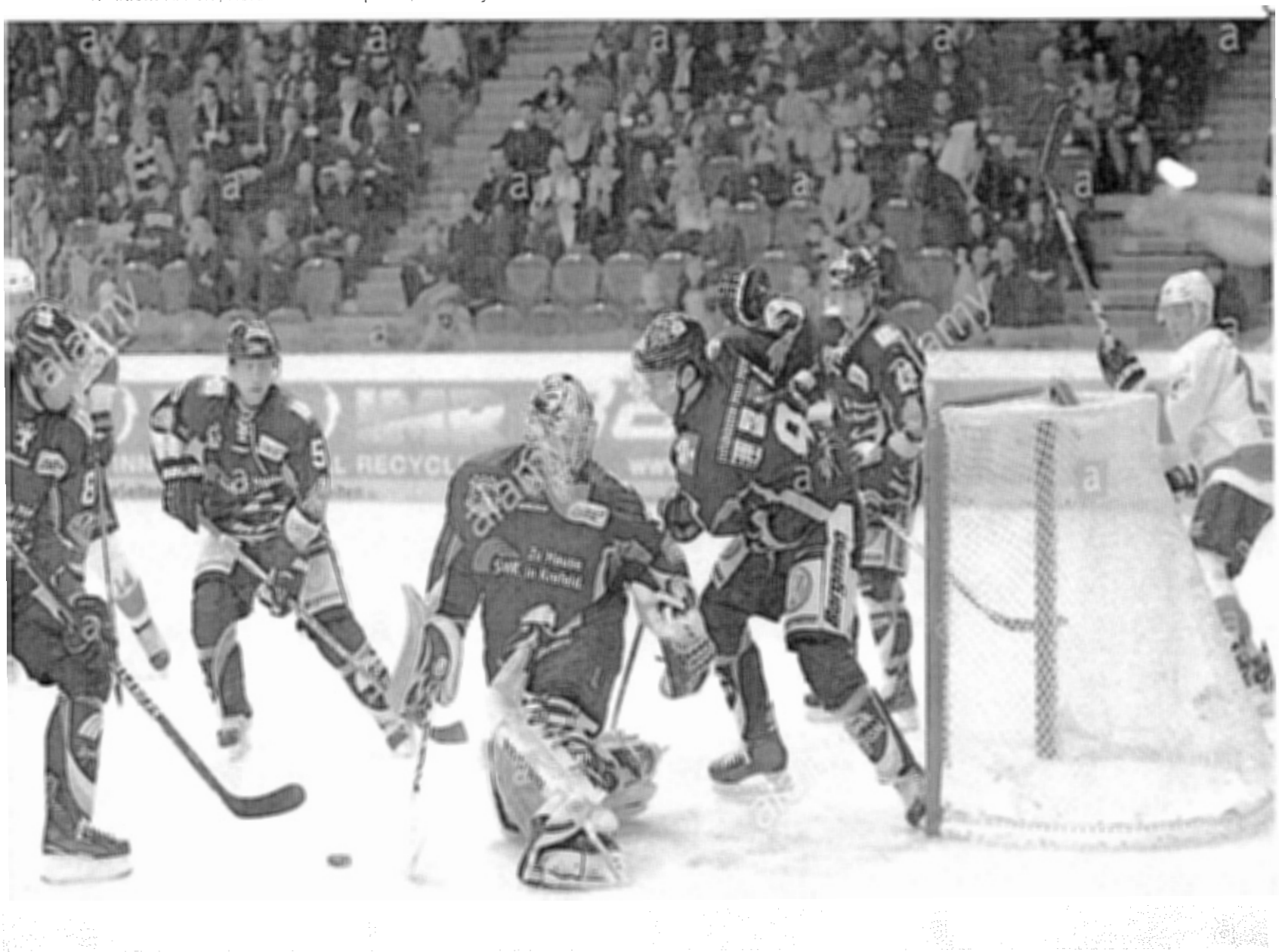
Releases: Model - no | Property - no Do I need a release?

Photographer: Frank Sorge

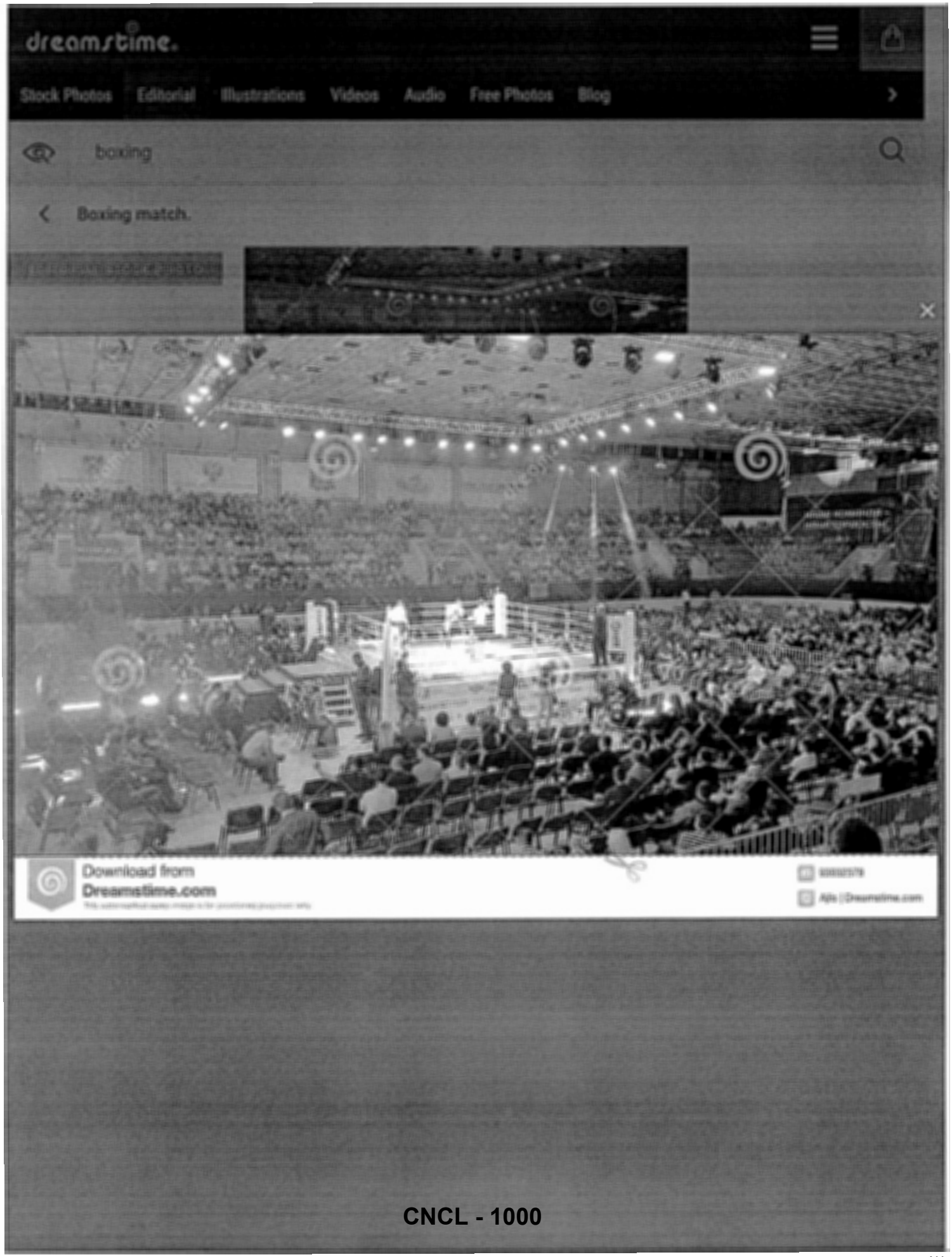
Date taken: 10 January 2010

Location: Berlin, Berlin, Germany

Location: Krefeld, North Rhine-Westphalia, Germany



CNCL - 999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Political Party Conventions Day-by-Day

Four Days of Speeches, Candidates and Lots of Politics

Romney Accepts Party Nomination at The Republican National Convention. Mark Wilson / Getty Images

by Robert Longley

Updated December 04, 2018

The United States presidential nominating conventions are held during the spring or summer of each quadrennial presidential election year by most political parties fielding nominees in the November presidential election. Along with selecting the party's nominee for president, delegates to the conventions adopt the party's platform—the party's principals and goals for its candidate's presidential administration.

TORONTO THEATRE

PLAYS IN TORONTO

WORLD CLASS PLAYS ON STAGE IN TORONTO

Opening Soon

TORONTO WELCOMES KNISHES 'N' GRITS

First night May 21st

Knishes 'n' Grits sees a group of fantastic singers take on the sounds of jazz, blues and soul. Toronto's Greenwin Theatre will pay homage to the remarkable music of artists including Barbra Streisand, Sammy Davis Jr., the Gershwins, Irving... Read more ▸ Buy Tickets ▸

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The studio shot of group of kids training karate martial arts - Stock image ···

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TORONTO THEATRE

CONTEMPORARY POP IN TORONTO

CONTEMPORARY POP IN TORONTO

Just Announced

LOVELYTHEBAND DATES FOR YOUR DIARY

Booking from July 11th

Indie-pop-rockers lovelytheband hit the road in 2019 with their The Finding It Hard To Smile tour! The Californian trio head out across North America in support of their debut album Finding It Hard To Smile. After bursting onto the charts... Read more ▸ Buy Tickets ▸

Just Announced

DATES ANNOUNCED FOR JACOB COLLIER

Dates from June 23rd

At the age of 17, London-based crossover jazz muso Jacob Collier gained a firm international following thanks to his uploads of multi-track,... Read more ▸ Buy Tickets ▸

Limited Run

DON'T MISS LANY, STRICTLY LIMITED RUN

May 21st

Formed in of Nashville, Tennessee in 2014, Paul Jason Klein, Leslie Priest and Jake Goss took on a broader musical view than the country roots... Read more ▸ Buy Tickets ▸

One Night Only

ALESSIA CARA'S ONE NIGHT VISIT TO TORONTO

May 17th

Alessia Cara represents the new breed of pop star. The young Canadian singer songwriter first came to the attention of the internet for her... Read more ▸ Buy Tickets ▸

CNCL - 1004

DAVID MARQUARDT
ARCHITECTURAL PHOTOGRAPHY

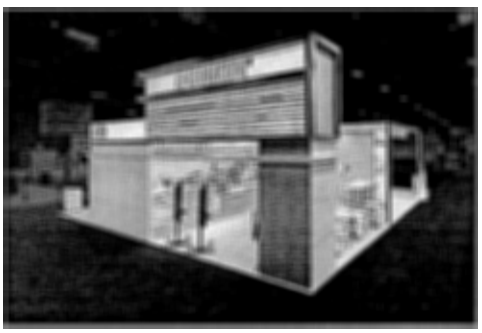
Trade Show Exhibit Photography

Show Off Your Booth in Pictures

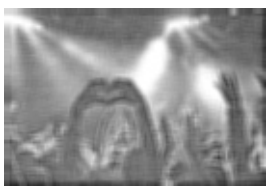
Capture the design of your booth with professional trade show exhibit photography.

View Trade Show Booth Gallery

So much time, money and effort goes into a trade show exhibit because an event is a company's opportunity to shine in a place where competitors and collaborators are right nextdoor. But often very little effort is put into getting excellent photographs of all that time and creative work. Professional trade show exhibit photography can help guarantee that you come away from a big event with photos you're proud to put in print, on your website and post on social media.



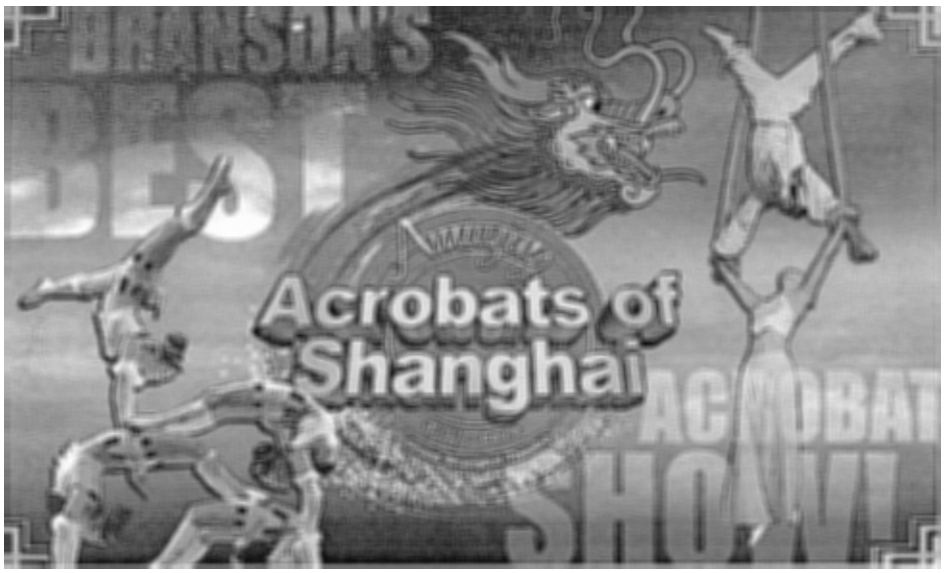
CNCL - 1005



CNCL - 1006

Amazing Acrobats of Shanghai

Mickey Gilley Grand Shanghai Theatre The Preserve, Branson



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Amazing Acrobats of Shanghai

From
$35

See Dates

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What You'll Get

Visit: Mickey Gilley Grand Shanghai Theatre, Branson, Missouri

Performance times are 10AM, 3 PM AND/OR 8 PM depending on the day.
We are located at 3455 W. 76, Branson MO, 65616
Phone: 417-336-0888
AMAZING ACROBATS OF SHANGHAI takes audiences on an enchanting journey through the orient with beautiful costumes, scenery, and the unbelievable art of acrobatics at the Grand Shanghai Theatre. Each performer brings to the stage their own unique training and talent; from precision skating to foot juggling, aerial acrobatics, human strength to the flight of the butterfly lovers. All ages will be delighted by the breathtaking performances, edge of your seat thrills, and lighthearted laughter. Amazing Acrobats of Shanghai is a treat for both the mind and soul. The excitement of Shanghai comes to life before your very eyes in this astonishing show..... their largest variety show ever.....Branson's Best Acrobat Show!

Additional Information

- Confirmation will be received at time of booking
- Wheelchair accessible
- Your tickets will be held at the theater box office for collection on the day of the performance
- This tour/activity will have a maximum of 10 travelers

Inclusions

- Live entertainment
- Local taxes
- 10% Live Entertainment Tax
- Entry/Admission - Mickey Gilley Grand Shanghai Theatre

CNCL - 1007

WIKIPEDIA

Coordinates: 40°45′2″N 73°59′37″W

Madison Square Garden

Madison Square Garden, colloquially known as **The Garden** or in initials as **MSG**, is a multi-purpose indoor arena in New York City. Located in Midtown Manhattan between 7th and 8th Avenues from 31st to 33rd Streets, it is situated atop Pennsylvania Station. It is the fourth venue to bear the name "Madison Square Garden"; the first two (1879 and 1890) were located on Madison Square, on East 26th Street and Madison Avenue, with the third Madison Square Garden (1925) further uptown at Eighth Avenue and 50th Street.

The Garden is used for professional ice hockey and basketball, as well as boxing, concerts, ice shows, circuses, professional wrestling and other forms of sports and entertainment. It is close to other midtown Manhattan landmarks, including the Empire State Building, Koreatown, and Macy's at Herald Square. It is home to the New York Rangers of the National Hockey League (NHL), the New York Knicks of the National Basketball Association (NBA), and was home to the New York Liberty (WNBA) from 1997 to 2017.

Originally called **Madison Square Garden Center**, the Garden opened on February 11, 1968, and is the oldest major sporting facility in the New York metropolitan area. It is the oldest arena in the National Hockey League and the second-oldest arena in the National Basketball Association. In 2016, MSG was the second-busiest music arena in the world in terms of ticket sales, behind The O2 Arena in London.[6] Including two major renovations, its total construction cost is approximately $1.1 billion, and it has been ranked as one of the 10 most expensive stadium venues ever built.[7] It is part of the Pennsylvania Plaza office and retail complex, named for the railroad station. Several other operating entities related to the Garden share its name.

Madison Square Garden

"MSG", "The Garden"

Location within Manhattan

Show map of Manhattan

Show map of New York City

Show map of New York

Contents

History
- Previous Gardens
- Current Garden
  - Joe Louis Plaza
- 2011–2013 renovation
  - Penn Station renovation controversy

Events
Regular events
Sports
Pro wrestling
Concerts
Other events
Notable firsts and significant events
Recognition given by Madison Square Garden
Madison Square Garden Gold Ticket Award
Madison Square Garden Platinum Ticket Award
Madison Square Garden Hall of Fame
Madison Square Garden Walk of Fame
Seating
Capacity
Hulu Theater
Accessibility and transportation
See also
References
Notes
Other sources
External links

	Show map of the United States Show all
Address	4 Pennsylvania Plaza
Location	New York City, New York
Coordinates	40°45′2″N 73°59′37″W
Public transit	**Amtrak**: Penn Station **LIRR**: Penn Station **NJ Transit**: Penn Station **New York City Subway**: 34th Street–Penn Station (7th Ave) 34th Street–Penn Station (8th Ave) 34th Street–Herald Square **PATH**: 33rd Street **New York City Bus**: M4, M7, M20, M34 SBS, M34A SBS, Q32 buses
Owner	The Madison Square Garden Company
Operator	MSG Entertainment
Capacity	Basketball: 19,812[1] Ice hockey: 18,006[1] Pro wrestling: 18,500 Concerts: 20,000 Boxing: 20,789 Hulu Theater: 5,600
Field size	820,000 square feet (76,000 m^2)
Construction	
Broke ground	October 29, 1964[2]
Opened	Former locations: 1879, 1890, 1925 Current location: February 11, 1968
Renovated	1989–1991, 2011–2013
Construction cost	$123 million ($873 million in 2019[3])

History

Previous Gardens

Madison Square is formed by the intersection of 5th Avenue and Broadway at 23rd Street in Manhattan. It was named after James Madison, fourth President of the United States.[8]

Two venues called Madison Square Garden were located just northeast of the square, the first from 1879 to 1890, and the second from 1890 to 1925. The first Garden, leased to P. T. Barnum,[9] had no roof and was inconvenient to use during inclement weather, so it was demolished after 11 years. Madison Square Garden II was designed by noted architect Stanford White. The new building was built by a syndicate which included J. P. Morgan, Andrew Carnegie, P. T. Barnum,[10] Darius Mills, James Stillman and W. W. Astor. White gave them a Beaux-Arts structure with a Moorish feel, including a minaret-like tower modeled after Giralda, the bell tower of the Cathedral of Seville[10] – soaring 32 stories – the city's second tallest building at the time – dominating Madison Square Park. It was 200 feet (61 m) by 485 feet (148 m), and the main hall, which was the largest in the world, measured 200 feet (61 m) by 350 feet (110 m), with permanent seating for 8,000 people and floor space for thousands more. It cost $1,200

seat theatre, a concert hall with a capacity of 1,500, the largest restaurant in the city and a roof garden cabaret.[9] The building cost $3 million.[9] Madison Square Garden II was unsuccessful like the first Garden,[11] and the New York Life Insurance Company, which held the mortgage on it, decided to tear it down in 1925 to make way for a new headquarters building, which would become the landmark Cass Gilbert-designed New York Life Building.

A third Madison Square Garden opened in a new location, on 8th Avenue between 49th and 50th Streets, from 1925 to 1968. Groundbreaking on the third Madison Square Garden took place on January 9, 1925.[12] Designed by the noted theater architect Thomas W. Lamb, it was built at the cost of $4.75 million in 249 days by boxing promoter Tex Rickard;[9] the arena was dubbed "The House That Tex Built."[13] The arena was 200 feet (61 m) by 375 feet (114 m), with seating on three levels, and a maximum capacity of 18,496 spectators for boxing.[9]

Demolition commenced in 1968 after the opening of the current Garden,[14] and was completed in early 1969. The site is now the location of One Worldwide Plaza.

Current Garden

In 1959, Graham-Paige purchased a controlling interest in the Madison Square Garden.[15] In November 1960, Graham-Paige president Irving Mitchell Felt purchased from the Pennsylvania Railroad the rights to build at Penn Station.[16] To build the new facility, the above-ground portions of the original Pennsylvania Station were torn down.

The new structure was one of the first of its kind to be built above the platforms of an active railroad station. It was an engineering feat constructed by Robert E. McKee of El Paso, Texas. Public outcry over the demolition of the Pennsylvania Station structure—an outstanding example of Beaux-Arts architecture—led to the creation of the New York City Landmarks Preservation Commission. The venue opened on February 11, 1968. Still there was criticism: Yale University art historian Vincent Scully wrote about the old Penn Station compared to the commuter underground of MSG "One entered the city like a god; now one scuttles like a rat."[17]

	Renovation: 1991: $200 million ($322 million in 2019[3]) **Total cost:** $1.07 billion in 2013
Architect	Charles Luckman Associates Brisbin Brook Beynon Architects
Structural engineer	Severud Associates[4]
Services engineer	Syska & Hennessy, Inc.[5]
General contractor	Turner/Del E. Webb[5]
Tenants	
New York Rangers (NHL) (1968–present) New York Knicks (NBA) (1968–present) St. John's Red Storm (NCAA) (1969–present) New York Raiders/Golden Blades (WHA) (1972–1973) New York Apples (WTT) (1977–1978) New York Cosmos (NASL) (1983–1984) New York Knights (AFL) (1988) New York CityHawks (AFL) (1997–1998) New York Liberty (WNBA) (1997–2010, 2014–2017) New York Titans (NLL) (2007–2009)	
Website	
www.thegarden.com (http://www.thegarden.com/)	

A basketball game at Madison Square Garden circa 1968

In 1972, Felt proposed moving the Knicks and Rangers to a then incomplete venue in the New Jersey Meadowlands, the Meadowlands Sports Complex. The Garden was also the home arena for the NY Raiders/NY Golden Blades of the World Hockey Association. The Meadowlands would eventually host its own NBA and NHL teams, the New Jersey Nets and the New Jersey Devils, respectively. The New York Giants and Jets of the National Football League (NFL) also relocated there. In 1977, the arena was sold to Gulf and Western Industries. Felt's efforts ended controversy between the Garden and New York City over real

estate taxes. The disagreement again flared in 1980 when the Garden again challenged its tax bill. The arena, since the 1980s, has since enjoyed tax-free status, under the condition that all Knicks and Rangers home games must be hosted at MSG, lest it lose this exemption. As such, when the Rangers have played neutral-site games—even those in New York City, such as the 2018 NHL Winter Classic, they have always been designated as the visiting team.[18]

Garden owners spent $200 million in 1991 to renovate facilities and add 89 suites in place of hundreds of upper-tier seats. The project was designed by Ellerbe Becket. In 2004–2005, Cablevision battled with the City of New York over the proposed West Side Stadium, which was cancelled. Cablevision then announced plans to raze the Garden, replace it with high-rise commercial buildings, and build a new Garden one block away at the site of the James Farley Post Office. Meanwhile, a new project to renovate and modernize the Garden completed phase one in time for the Rangers and Knicks' 2011–12 seasons,[19] though the vice president of the Garden says he remains committed to the installation of an extension of Penn Station at the Farley Post Office site. While the Knicks and Rangers were not displaced, the New York Liberty played at the Prudential Center in Newark, New Jersey during the renovation.

Madison Square Garden is the last of the NBA and NHL arenas to not be named after a corporate sponsor.[20]

Joe Louis Plaza

In 1984, the four streets immediately surrounding the Garden were designated as Joe Louis Plaza, in honor of boxer Joe Louis, who made eight successful title defenses in the previous Madison Square Garden.[21][22]

2011–2013 renovation

Madison Square Garden's upper bowl concourse, seen in January 2014 during a Rangers game

Madison Square Garden's $1 billion second renovation took place mainly over three offseasons. It was set to begin after the 2009–10 hockey/basketball seasons, but was delayed until after the 2010–11 seasons. Renovation was done in phases with the majority of the work done in the summer months to minimize disruptions to the NHL and NBA seasons. While the Rangers and Knicks were not displaced,[23][24] the Liberty played their home games through the 2013 season at Prudential Center in Newark, New Jersey, during the renovation.[25][26]

The completely transformed Madison Square Garden in January 2014 (with a new HD scoreboard), as the New York Rangers play against the St. Louis Blues.

New features include a larger entrance with interactive kiosks, retail, climate-controlled space, and broadcast studio; larger concourses; new lighting and LED video systems with HDTV; new seating; two new pedestrian walkways suspended from the ceiling to allow fans to look directly down onto the games being played below; more dining options; and improved dressing rooms, locker rooms, green rooms, upgraded roof, and production offices. The lower bowl concourse, called the Madison Concourse, remains on the 6th floor. The upper bowl concourse was relocated to the 8th floor and it is known as the Garden Concourse. The 7th

floor houses the new Madison Suites and the Madison Club. The upper bowl was built on top of these suites. The rebuilt concourses are wider than their predecessors, and include large windows that offer views of the city streets around the Garden.[27]

MSG during the 2014 Big East Tournament

Construction of the lower bowl (Phase 1) was completed for the 2011–2012 NHL season and the 2011–12 NBA lockout shortened season. An extended off-season for the Garden permitted some advanced work to begin on the new upper bowl, which was completed in time for the 2012–2013 NBA season and the 2012–13 NHL lockout-shortened NHL season. This advance work included the West Balcony on the 10th floor, taking the place of sky-boxes, and new end-ice 300 level seating. The construction of the upper bowl along with the Madison Suites and the Madison Club (Phase 2) were completed for the 2012–2013 NHL and NBA seasons. The construction of the new lobby known as Chase Square, along with the Chase Bridges and the new scoreboard (Phase 3) were completed for the 2013–2014 NHL and NBA seasons.

Penn Station renovation controversy

Madison Square Garden is seen as an obstacle in the renovation and future expansion of Penn Station, which is already expanding through the James Farley Post Office, and some have proposed moving MSG to other sites in western Manhattan. On February 15, 2013, Manhattan Community Board 5 voted 36–0 against granting a renewal to MSG's operating permit in perpetuity and proposed a 10-year limit instead in order to build a new Penn Station where the arena is currently standing. Manhattan borough president Scott Stringer said, "Moving the arena is an important first step to improving Penn Station." The Madison Square Garden Company responded by saying that "[i]t is incongruous to think that M.S.G. would be considering moving."[28]

In May 2013, four architecture firms – SHoP Architects, SOM, H3 Hardy Collaboration Architecture, and Diller Scofidio + Renfro – submitted proposals for a new Penn Station. SHoP Architects recommended moving Madison Square Garden to the Morgan Postal Facility a few blocks southwest, as well as removing 2 Penn Plaza and redeveloping other towers, and an extension of the High Line to Penn Station.[29] Meanwhile, SOM proposed moving Madison Square Garden to the area just south of the James Farley Post Office, and redeveloping the area above Penn Station as a mixed-use development with commercial, residential, and recreational space.[29] H3 Hardy Collaboration Architecture wanted to move the arena to a new pier west of Jacob K. Javits Convention Center, four blocks west of the current station and arena. Then, according to H3's plan, four skyscrapers would be built, one at each of the four corners of the new Penn Station superblock, with a roof garden on top of the station; the Farley Post Office would become an education center.[29] Finally, Diller Scofidio + Renfro proposed a mixed-use development on the site, with spas, theaters, a cascading park, a pool, and restaurants; Madison Square Garden would be moved two blocks west, next to the post office. DS+F also proposed high-tech features in the station, such as train arrival and departure boards on the floor, and apps that would inform waiting passengers of ways to occupy their time until they board their trains.[29] Madison Square Garden rejected the notion that it would be relocated, and called the plans "pie-in-the-sky".[29]

In June 2013, the New York City Council Committee on Land Use voted unanimously to give the Garden a ten-year permit, at the end of which period the owners will either have to relocate, or go back through the permission process.[30] On July 24, the City Council voted to give the Garden a 10-year operating permit by a vote of 47 to 1. "This is the first step in finding a new home for Madison Square Garden and building a new Penn Station that is as great as New York and suitable for the 21st century", said City Council speaker Christine Quinn. "This is an opportunity to reimagine and redevelop Penn Station as a world-class transportation destination."[31]

In October 2014, the Morgan facility was selected as the ideal area for Madison Square Garden to be moved, following the 2014 MAS Summit in New York City. More plans for the station were discussed.[32][33] Then, in January 2016, New York Governor Andrew Cuomo announced a redevelopment plan for Penn Station that would involve the removal of The Theater at Madison Square Garden, but would otherwise leave the arena intact.[34][35]

Events

Regular events

Sports

Madison Square Garden hosts approximately 320 events a year. It is the home to the New York Rangers of the National Hockey League, and the New York Knicks of the National Basketball Association. The New York Rangers, New York Knicks, and the Madison Square Garden arena itself are all owned by the Madison Square Garden Company. The arena is also host to the Big East Men's Basketball Tournament and the finals of the National Invitation Tournament. It also hosts selected home games for the St. John's men's Red Storm (college basketball), and almost any other kind of indoor activity that draws large audiences, such as the Westminster Kennel Club Dog Show and the 2004 Republican National Convention.

The Garden was home of the NBA Draft and NIT Season Tip-Off, as well as the former New York City home of the Ringling Brothers and Barnum and Bailey Circus and Disney on Ice; all four events are now held at the Barclays Center in Brooklyn. It served the New York Cosmos for half of their home games during the 1983–84 NASL Indoor season.[36]

Many of boxing's biggest fights were held at Madison Square Garden, including the Roberto Durán–Ken Buchanan affair, and the first Muhammad Ali – Joe Frazier bout. Before promoters such as Don King and Bob Arum moved boxing to Las Vegas, Nevada Madison Square Garden was considered the mecca of boxing. The original 18½ ft × 18½ ft (5.6 m × 5.6 m) ring, which was brought from the second and third generation of the Garden, was officially retired on September 19, 2007, and donated to the International Boxing Hall of Fame after 82 years of service. A 20 ft × 20 ft (6.1 m × 6.1 m) ring replaced it beginning on October 6 of that same year.

Pro wrestling

Madison Square Garden has been considered the mecca for professional wrestling and the home of World Wrestling Entertainment (formerly WWF and WWWF).[37] The Garden has hosted three WrestleManias, more than any other arena, including the first edition of the annual marquee event for WWE, as well as the 10th and 20th editions. It also hosted the Royal Rumble in 2000 and 2008; SummerSlam in 1988, 1991 and 1998; as well as Survivor Series in 1996, 2002 and 2011.

New Japan Pro-Wrestling and Ring of Honor hosted their G1 Supercard supershow at the venue on April 6, 2019, which sold out in 19 minutes after the tickets went on sale.[38]

On April 4, 2019, the Mexican promotion Lucha Libre AAA Worldwide announced that its first event in the United States titled "Invading NY" would be held in that venue that would take place on September 15, 2019.[39]

Concerts

Madison Square Garden hosts more high-profile concert events than any other venue in New York City. It has been the venue for George Harrison's The Concert for Bangladesh, The Concert for New York City following the September 11 attacks, John Lennon's final concert appearance (during an Elton John concert on Thanksgiving Night, 1974) before his

murder in 1980, and Elvis Presley, who gave four sold out performances in 1972, his first and last ever in New York City. Parliament-Funkadelic headlined numerous sold out shows in 1977 and 1978. Kiss, who were formed in the arena's city and three of whose members were city-born, did four shows at the arena in 1977 (their first ever there on February 18 and three more returning ones on December 14-16 the same year) and another two shows for a decade-ender in 1979 (July 24–25). Billy Joel, also city-born and fellow 1970's pop star did his first Garden show in 1978 on December 14. Led Zeppelin's three night stand in July 1973 was recorded and released as both a film and album titled *The Song Remains The Same*. The Police played their final show of their reunion tour at the Garden in 2008.

The Madison Square Garden marquee, as it appeared in August 2011

Madison Square Garden in January 2009, as the New York Knicks play against the Houston Rockets

At one point, Elton John held the all-time record for greatest number of appearances at the Garden with 64 shows. In a 2009 press release, John was quoted as saying "Madison Square Garden is my favorite venue in the whole world. I chose to have my 60th birthday concert there, because of all the incredible memories I've had playing the venue."[40] Billy Joel, who broke the record, stated "Madison Square Garden is the center of the universe as far as I'm concerned. It has the best acoustics, the best audiences, the best reputation, and the best history of great artists who have played there. It is the iconic, holy temple of rock and roll for most touring acts and, being a New Yorker, it holds a special significance to me."[40]

The Seventh Avenue entrance to MSG as it appeared in 2011

Grateful Dead have performed in the venue 53 times from 1979 to 1994 with the first show being held on September 7, 1979 and the last being on October 19, 1994. Their longest run being done in September 1991.[41]

Madonna performed at this venue a total of 31 concerts, the first two being during her 1985 Virgin Tour, on June 10 and 11, and the most recent being the two-nights stay during her Rebel Heart Tour on September 16 and 17, 2015.

Hard rock band Guns N' Roses has played Madison Square Garden multiple times through its career, including most notably, a three night sold out stand in December 1991 as part of the Use Your Illusion Tour. [42]

Taylor Swift made history when tickets for the Madison Square Gardens stop of her Fearless Tour sold out in only one minute.[43]

Bruce Springsteen has performed 47 concerts at this venue, many with the E Street Band, including a 10-night string of sold-out concerts out between 12 June and 1 July 2000 at the end of the E Street Reunion tour.

U2 performed at the arena 28 times: the first one was on April 1, 1985 during their Unforgettable Fire Tour, in front of a crowd of 19,000 people. The second and the third were on September 28 and 29, 1987 during their Joshua Tree Tour, in front of 39,510 people. The fourth was on March 20, 1992 during their Zoo TV Tour, in front of a crowd of 18,179 people. The fifth, sixth, seventh, eighth and ninth was on June 17 and 19 and October 24, 25 and 27, 2001 during their Elevation

Tour, in front of 91,787 people. The 10th, the 11th, the 12th, the 13th, the 14th, the 15th, the 16th and the 17th were on May 21, October 7, 8, 10, 11 and 14 and November 21 and 22, 2005 during their Vertigo Tour, in front of a total sold out crowd of 149,004 people. The band performed eight performances at the arena in 2015 on July 18, 19, 22, 23, 26, 27, 30 and 31, 2015 as part of their Innocence + Experience Tour, and three performances in 2018 on June 25, 26 and July 1 as part of their Experience + Innocence Tour.

The Who have headlined at the venue 30 times, including a four night stand in 1974, a five night stand in 1979, a six night stand in 1996, and four night stands in 2000 and 2002. They also performed at The Concert for New York City in 2001.[44]

In the summer of 2017, Phish performed 13 consecutive concerts at the venue, which the Garden commemorated by adding a Phish themed banner to the rafters.[45] The "Bakers' Dozen" brought the total number of Phish shows at MSG to 52. An additional 8 shows (4 for their 2017 New Year's Eve run, and 4 more for their 2018 New Year's Eve run) brings their total to 60.[46]

On 28 and 29 June 2019, Hugh Jackman will perform during his The Man. The Music. The Show. Tour.

Other events

It has previously hosted the 1976 Democratic National Convention, 1980 Democratic National Convention, 1992 Democratic National Convention, and the 2004 Republican National Convention, and hosted the NFL Draft for many years (now held at Garden-leased Radio City Music Hall). From 1982 to 1990, the Church of God in Christ in New York under the leadership of Bishop F.D. Washington used Madison Square Garden for its Annual Holy Convocation.

Madison Square Garden, as it appeared during "Mark Messier Night" on January 12, 2006.

The New York Police Academy, Baruch College/CUNY and Yeshiva University also hold their annual graduation ceremonies at Madison Square Garden. It hosted the Grammy Awards in 1972, 1997, 2003 and 2018 (which are normally held in Los Angeles) as well as the Latin Grammy Awards of 2006.

The group and Best in Show competitions of the Westminster Kennel Club Dog Show are held every February for two days at MSG.

Notable firsts and significant events

The Garden hosted the Stanley Cup Finals and NBA Finals simultaneously on two occasions: in 1972 and 1994.

MSG has hosted the following All-Star Games:

- NHL All-Star Game: 1973, 1994
- NBA All-Star Game: 1998, 2015
- WNBA All-Star Game: 1999, 2003, 2006

UFC held its first event in New York State, UFC 205, at Madison Square Garden on November 12, 2016. This was the first event the organization held after New York State lifted the ban on mixed martial arts.

Recognition given by Madison Square Garden

Madison Square Garden Gold Ticket Award - 1015

In 1977 Madison Square Garden announced Gold Ticket Awards would be given to performers who had brought in more than 100,000 unit ticket sales to the venue. Since the arena's seating capacity is about 20,000, this would require a minimum of five sold-out shows. Performers who were eligible for the award at the time of its inauguration included Chicago, John Denver, Peter Frampton, the Rolling Stones , the Jackson 5, Elton John, Led Zeppelin, Sly Stone, Jethro Tull, The Who, and Yes.[47] [48] Graeme Edge, who received his award in 1981 as a member of the Moody Blues, said he found his gold ticket to be an interesting piece of memorabilia because he could used it to attend any event at the Garden.[49] Many other performers have received a Gold Ticket Award since 1977.

Madison Square Garden Platinum Ticket Award

Madison Square Garden also gave Platinum Ticket Awards to performers who sold over 250,000 tickets to their shows throughout the years. Winners of the Platinum Ticket Awards include: the Rolling Stones (1981),[50] Elton John (1982),[51] Yes (1984),[52] Billy Joel (1984),[53] and The Grateful Dead (1987).[54]

Madison Square Garden Hall of Fame

The Madison Square Garden Hall of Fame honors those who have demonstrated excellence in their fields at the Garden. Most of the inductees have been sports figures, however some performers have been inducted as well. Elton John was reported to be the first non-sports figure inducted into the MSG Hall of Fame in 1977 for "record attendance of 140,000" in June of that year.[55] For their accomplishment of "13 sell-out concerts" at the venue, the Rolling Stones were inducted into the MSG Hall of Fame in 1984, along with nine sports figures, bringing the hall's membership to 107.[56]

Madison Square Garden Walk of Fame

The walkway leading to the arena of Madison Square Garden was designated as the "Walk of Fame" in 1992.[57] It was established "to recognize athletes, artists, announcers and coaches for their extraordinary achievements and memorable performances at the venue."[58] Each inductee is commemorated with a plaque that lists the performance category in which his or her contributions have been made.[57] Twenty-five athletes were inducted into the MSG Walk of Fame at its inaugural ceremony in 1992, a black-tie dinner to raise money to fight multiple sclerosis.[59] Elton John was the first entertainer to be inducted into the MSG Walk of Fame in 1992.[60][61] Billy Joel was inducted at a date after Elton John,[62] and the Rolling Stones were inducted in 1998.[63] In 2015 the Grateful Dead were inducted into the MSG Walk of Fame along with at least three sports-related figures.[62][58]

Seating

Seating in Madison Square Garden was initially arranged in six ascending levels, each with its own color. The first level, which was available only for basketball games, boxing and concerts, and not for hockey games and ice shows, was known as the "Rotunda" ("ringside" for boxing and "courtside" for basketball), had beige seats, and bore section numbers of 29 and lower (the lowest number varying with the different venues, in some cases with the very lowest sections denoted by letters rather than numbers). Next above this was the "Orchestra" (red) seating, sections 31 through 97, followed by the 100-level "First Promenade" (orange) and 200-level "Second Promenade"(yellow), the 300-level (green) "First Balcony", and the 400-level (blue) "Second Balcony." The rainbow-colored seats were replaced with fuchsia and teal seats[64] during the 1990s renovation (in part because the blue seats had acquired an unsavory reputation, especially during games in which the New York Rangers hosted their cross-town rivals, the New York Islanders) which installed the 10th floor sky-boxes around the entire arena and the 9th floor sky-boxes on the 7th avenue end of the arena, taking out 400-level seating on the 7th Avenue end in the process.

Because all of the seats, except the 400 level, were in one monolithic grandstand, horizontal distance from the arena floor was significant from the ends of the arena. Also, the rows rose much more gradually than other North American arenas, which caused impaired sight lines, especially when sitting behind tall spectators or one of the concourses. This arrangement, however, created an advantage over newer arenas in that seats had a significantly lower vertical distance from the arena floor.

Madison Square Garden's basketball court set for a St. John's College basketball game in 2005

As part of the 2011–2013 renovation, the club sections, 100-level and 200-level have been combined to make a new 100-level lower bowl. The 300-level and 400-level were combined and raised 17 feet closer, forming a new 200-level upper bowl. All skyboxes but those on the 7th Avenue end were removed and replaced with balcony seating (8th Avenue) and Chase Bridge Seating (31st Street and 33rd Street). The sky-boxes on the 9th floor were remodeled and are now called the Signature Suites. The sky-boxes on the 7th Avenue end of the 10th Floor are now known as the Lounges. One small section of the 400-level remains near the west end of the arena, and features blue seats. The media booths have been relocated to the 31st Street Chase Bridge.

Capacity

Basketball[65]

Years	Capacity
1968–1971	19,500
1971–1972	19,588
1972–1978	19,693
1978–1989	19,591
1989–1990	18,212
1990–1991	19,081
1991–2012	19,763
2012–2013	19,033
2013–present	19,812[1]

Hockey[66]

Years	Capacity
1968–1972	17,250
1972–1990	17,500
1990–1991	16,792
1991–2012	18,200
2012–2013	17,200
2013–present	18,006[1]

Hulu Theater

The Hulu Theater at Madison Square Garden seats between 2,000 and 5,600 for concerts and can also be used for meetings, stage shows, and graduation ceremonies. It was the home of the NFL Draft until 2005, when it moved to the Jacob K. Javits Convention Center after MSG management opposed a new stadium for the New York Jets. It also hosted the NBA Draft from 2001 to 2010. The theater also occasionally hosts boxing matches on nights when the main arena is unavailable. The fall 1999 *Jeopardy!* Teen Tournament as well as a *Celebrity Jeopardy!* competition were held at the theater. *Wheel of Fortune* taped at the theater twice in 1999 and 2013. In 2004, it was the venue of the *Survivor: All-Stars*

finale. No seat is more than 177 feet (54 m) from the 30' × 64' stage. The theatre has a relatively low 20-foot (6.1 m) ceiling at stage level[67] and all of its seating except for boxes on the two side walls is on one level slanted back from the stage. There is an 8,000-square-foot (740 m^2) lobby at the theater.

Accessibility and transportation

Madison Square Garden sits directly atop a major transportation hub in Pennsylvania Station, featuring access to commuter rail service from the Long Island Rail Road and New Jersey Transit, as well as Amtrak. The Garden is also accessible via the New York City Subway. The A, C, and E trains stop at 8th Avenue and the 1, 2, and 3 trains at 7th Avenue in Penn Station. The Garden can also be reached from nearby Herald Square with the B, D, F, M, N, Q, R, and W trains at the 34th Street – Herald Square station as well as PATH train service from the 33rd Street station.

The 7th Avenue entrance to Madison Square Garden and Penn Station, as it appeared in July 2005

See also

- Madison Square Garden Bowl, a former outdoor boxing venue in Queens operated by the Garden company
- List of NCAA Division I basketball arenas

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Madison Square Garden in January 2009, as the New

More details

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View of Knicks game at Madison Square Garden

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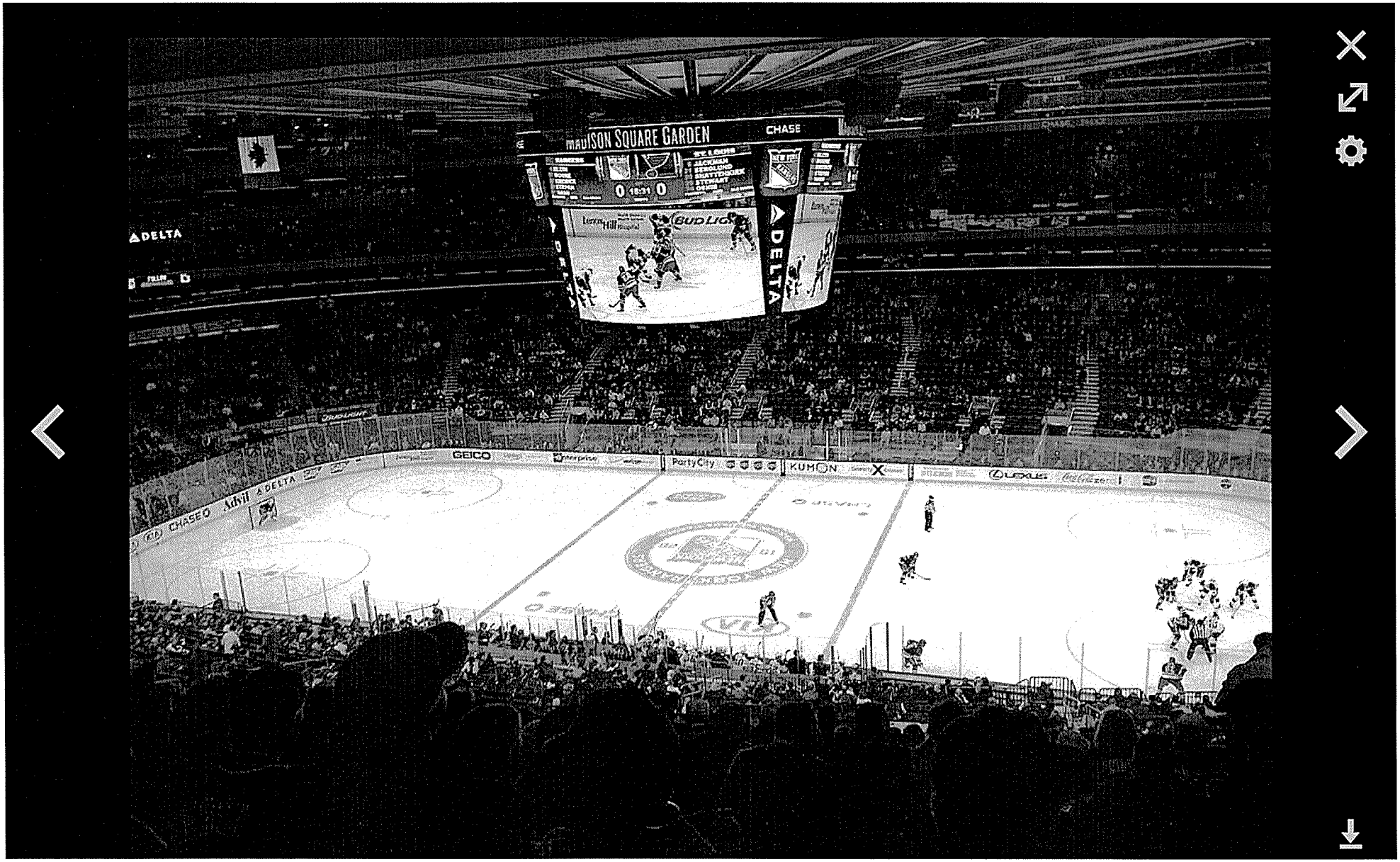

The completely transformed Madison Square Garden in January 2014 (with a new HD scoreboard), as the New York Rangers play against the St. Louis Blues.

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Madison Square Garden Company

The Madison Square Garden Company is an American sports and entertainment holding company based in New York City.

The original company was established in 2010 when Cablevision spun off the New York Knicks, New York Rangers, Madison Square Garden, MSG Network and other entertainment assets as an independent, publicly traded company.

In 2015, the original company spun off the sports entertainment division into a separate company and the original company was renamed to MSG Networks, Inc.; the new company took the name "The Madison Square Garden Company".

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History

Pre-history

On May 31, 1923, Tex Rickard incorporated the New Madison Square Garden Corporation for the purpose of building and operating the third Madison Square Garden. On January 15, 1925, shortly after the Garden opened, the corporation's name was changed to the Madison Square Garden Corporation.[3]

Following the success of the New York Americans, the Madison Square Garden Corporation established the New York Rangers, which began play in 1926.[4] In 1946, at the behest of vice president Ned Irish, the Madison

The Madison Square Garden Company

Type	Public
Traded as	NYSE: MSG (https://www.nyse.com/quote/XNYS:MSG) (Class A) Russell 1000 Component
Industry	Sports and entertainment
Founded	2010; 2015 (spin-off Madison Square Network)[1]
Founder	James L. Dolan
Headquarters	New York City, New York, U.S.
Key people	James L. Dolan (Executive Chairman & CEO) Andrew Lustgarten (President)
Revenue	▲ $1.120 billion (2016)
Operating income	▲ $316.79 million (2016)
Total assets	▲ $9.384 billion (2008)
Owner	Dolan family (71.1% voting, 21.6% economic)[2]
Subsidiaries	Beacon Theatre Chicago Theatre Counter Logic Gaming The Forum Hartford Wolf Pack Madison Square Garden

Square Garden Corporation became a charter member of the National Basketball Association with the New York Knicks.[5]

On April 7, 1960, the Madison Square Garden Corporation merged with its majority shareholder Graham-Paige.[6] On March 9, 1962, Graham-Paige changed its name to the Madison Square Garden Corporation to reflect their largest asset.[7]

On August 20, 1977, Gulf and Western Industries, which owned 81% of MSG's stock, purchased complete control of the corporation and turned it into a whole owned subsidiary. At the time of G&W's acquisition, the Madison Square Garden Corporation owned the arena, Knicks, Rangers, three horse tracks (Roosevelt Raceway, Arlington Park, and Washington Park Race Track), Holiday on Ice, and real estate holdings in Long Island, Manhattan, and Chicago.[8] Gulf and Western shed its non-media and entertainment assets, became Paramount Communications (owner of Paramount Pictures) in 1989.

	MSG Sphere Las Vegas MSG Sphere London New York Knicks New York Liberty New York Rangers Radio City Music Hall Westchester Knicks
Website	Official website (http://www.themadisonsquaregardencompany.com)

In 1994, Viacom purchased majority ownership of Paramount Communications, but quickly sold MSG to Cablevision and ITT Corporation.[9] In 1997, ITT sold its half to Cablevision for $650 million.[10]

Main history

In February 2010, Cablevision spun off the MSG properties, including the sports franchises, into The Madison Square Garden Company.[11]

On September 30, 2015, the MSG Networks division (including MSG Network) and the main MSG operation were both split as two separate companies.[12][13] The MSG Network division ended up being the former Madison Square Garden Company and the main MSG operation became the spin off company. The original Madison Square Garden Company was renamed to MSG Networks, Inc. and the new company took the name "The Madison Square Garden Company".[14]

In September 2018, Madison Square Garden began work on a spherical music venue in Las Vegas, called MSG Sphere Las Vegas, planned to open in 2021.[15] Earlier in the year, MSG announced plans to build MSG Sphere London, near the Queen Elizabeth Olympic Park in Stratford.[16] Both venues are designed by Populous architects and are supposed to incorporate highly advanced audio and visual technologies.[17]

Acquisitions

On August 17, 2016, MSG acquired a 12% stake in digital media, broadcasting, and events company Townsquare Media from GE Capital.[18]

On July 31, 2017, MSG acquired a controlling stake in professional video gaming team Counter Logic Gaming.[19]

Divisions

In addition to owning the Madison Square Garden arena in Manhattan, New York City, The Madison Square Garden Company is divided into two entities.

- MSG Sports is the division that manages the company's professional sports teams. These include the NBA New York Knicks and the NBA G League Westchester Knicks basketball teams, and the NHL New York Rangers and AHL Hartford Wolf Pack ice hockey teams.

- MSG Entertainment is the operating arm of the company. It controls live events at Madison Square Garden, both in the arena and in The Theater at Madison Square Garden. In addition to the Garden itself, MSG Entertainment owns the rights to operate two theaters in Manhattan: Radio City Music Hall and the Beacon Theatre. Outside New York City, MSG Entertainment controls the operations of the Chicago Theatre (acquired in 2008), co-booking at the Wang Theatre in Boston (since 2008), and ownership in The Forum in Inglewood, California (acquired in 2012), with the intent of transforming The Forum into a venue to compete with the Staples Center.[20] MSG Entertainment also produces the Radio City Christmas Spectacular (starring the Rockettes), both at Radio City Music Hall and in venues around the United States.

Madison Square Garden, L.P. used to operate the Hartford Civic Center (now the XL Center), an indoor arena in Hartford, Connecticut, and Rentschler Field (now the name of the playing surface at Pratt & Whitney Stadium), a stadium in East Hartford, under contract with the state of Connecticut until the 2007 season when it was replaced by Northland/Anschutz Entertainment Group.[21][22]

Anti-Competitive Controversies

On several occasion, the Madison Square Garden Company has generated controversy in regard to how they approach their competition. On two separate occasions they made attempts to block the construction of competing venues in the New York and Los Angeles markets.

West Side Stadium

Before the Madison Square Garden Company was formed, its businesses were part of Cablevision. In 2005, it was proposed that a new West Side Stadium be built for the New York Jets. The stadium would have directly competed with the then-Cablevision owned Madison Square Garden. Cablevision ran TV ads rallying against the proposed stadium which ultimately resulted in the state of New York rejecting the proposal. The rejection of the proposal meant that Madison Square Garden would not have a nearby venue competing for concert revenue. The rejection of the venue also had a negative impact on New York's bid for the 2012 Summer Olympics, which was ultimately defeated by London.[23]

Los Angeles Clippers arena proposal

In 2018, the Madison Square Garden Company was behind a lawsuit against the city of Inglewood in an attempt to stop the construction of a new basketball arena for the Los Angeles Clippers. The new arena would compete directly with The Forum which is owned by The Madison Square Garden Company.[24] Another lawsuit from a local community group was filed to block the construction of the venue in June 2018. Inglewood mayor James Butts suggested that the lawsuit was brought about by "business interests from out-of-state", suggesting that the Madison Square Garden Company were using this group to not have a competing arena near by.[25] James Dolan is said to be trying to avoid being deposed in the case.[26] In December 2018, the Los Angeles Clippers countersued the Madison Square Garden Company alleging that they are trying to prevent competition from a new arena by trying to stop its construction.[27]

In March 2019, leaked emails revealed that Irving Azoff attempted to lure the Los Angeles Lakers back to The Forum after their lease at the Staples Center was up. Despite nothing coming of the proposal, Azoff's proposal to re-purpose The Forum was seen as a way of preventing the LA Clippers from building their own arena in Inglewood and ensuring that the Madison Square Garden Company got an unfair advantage over rival AEG, which already owns part of the Lakers. [28]

Officers

- James L. Dolan - Executive Chairman and CEO
- Andrew Lustgarten - President
- Victoria Mink - Chief Financial Officer

- Steve Mills - President, Basketball Operations - New York Knicks
- Glen Sather - President, Hockey Operations - New York Rangers

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27. Inglewood arena row: LA Clippers launch MSG countersuit (http://www.sportspromedia.com/news/la-clippers-msg-inglewood-arena)
28. Lakers explored leaving Staples Center for return to Forum, emails reveal (https://www.latimes.com/sports/la-sp-lakers-forum-move-20190314-story.html)

External links

- Official website (https://www.themadisonsquaregardencompany.com)
- Business data for The Madison Square Garden Company: Google Finance (https://www.google.com/finance?q=MSG) · Yahoo! Finance (https://finance.yahoo.com/q?s=MSG) · Bloomberg (https://www.bloomberg.com/quote/MSG:US) · Reuters (https://www.reuters.com/finance/stocks/overview?symbol=MSG) · SEC filings (https://www.sec.gov/cgi-bin/browse-edgar?action=getcompany&CIK=MSG)

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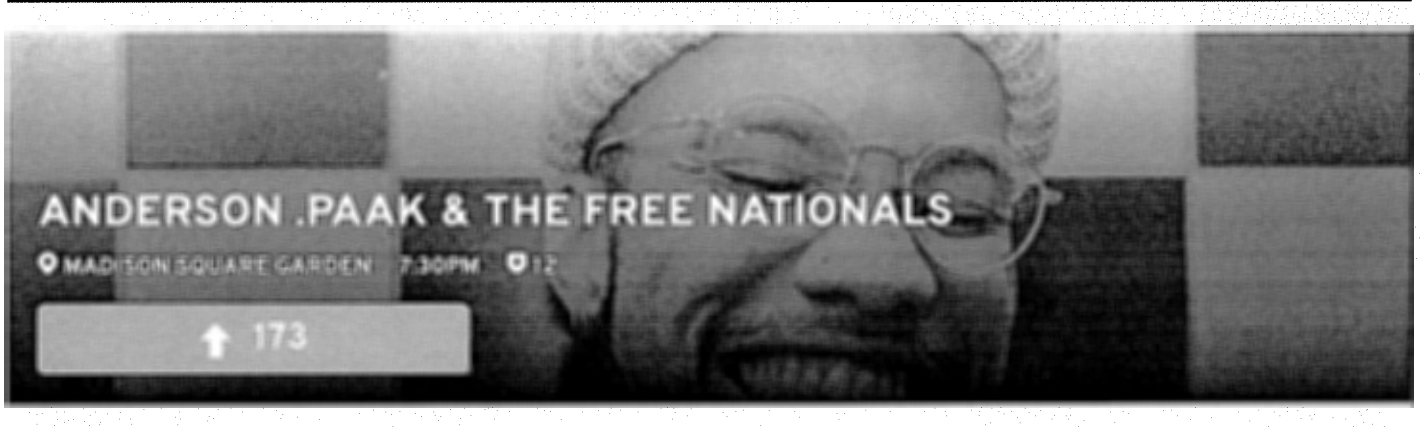
MADISON SQUARE GARDEN

7th Ave & 32nd St 212 465 6290
@msgnyc Facebook Official Website

UPCOMING EVENTS

68 FOLLOWERS

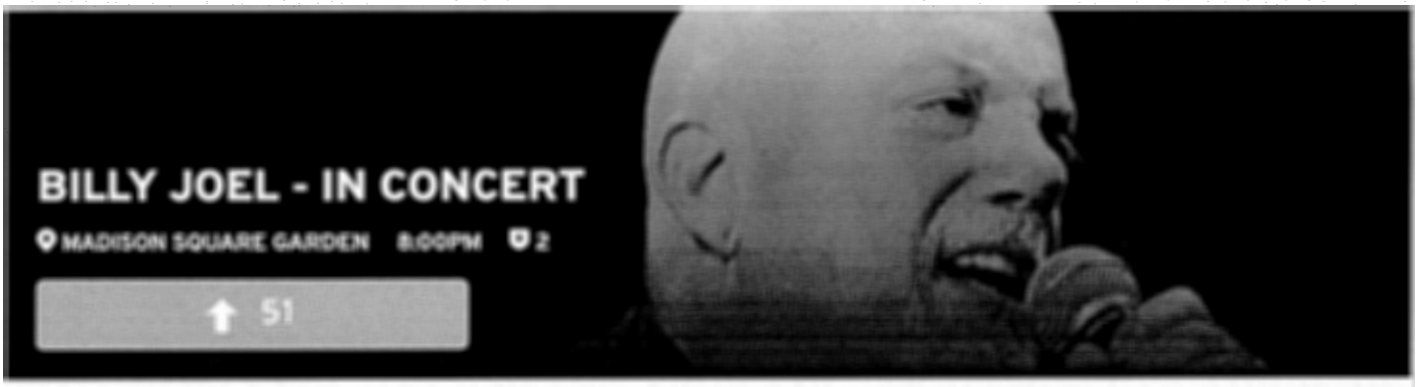
THURSDAY MAY 30



SATURDAY JUN 1

CNCL - 1026

SUNDAY JUN 2



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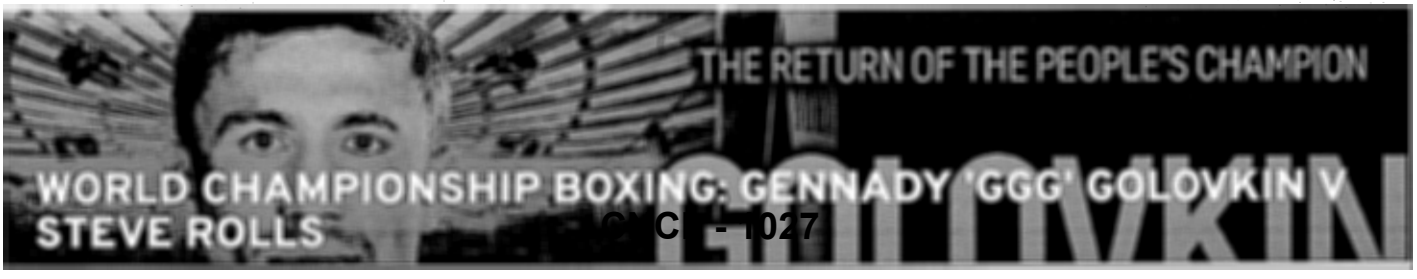

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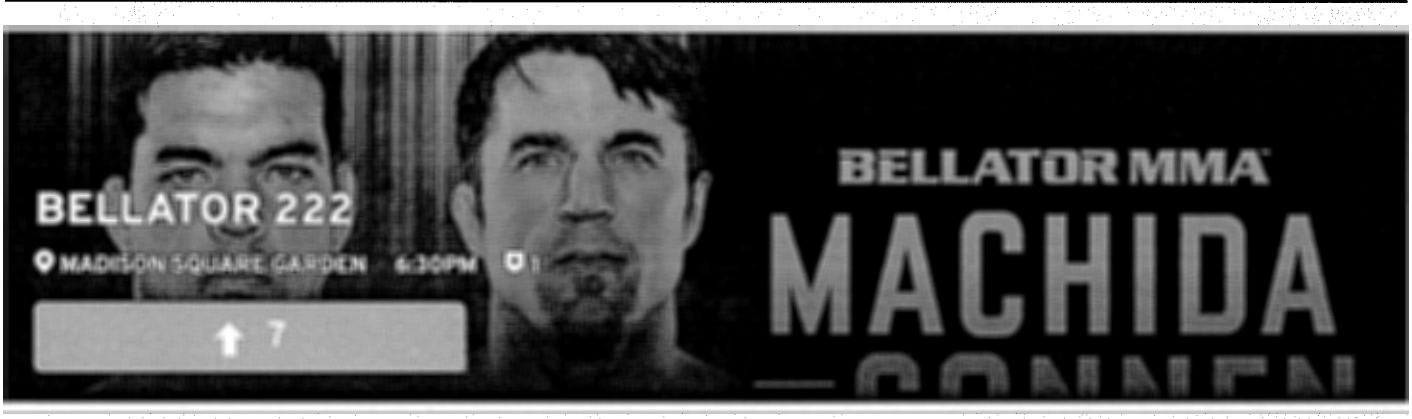

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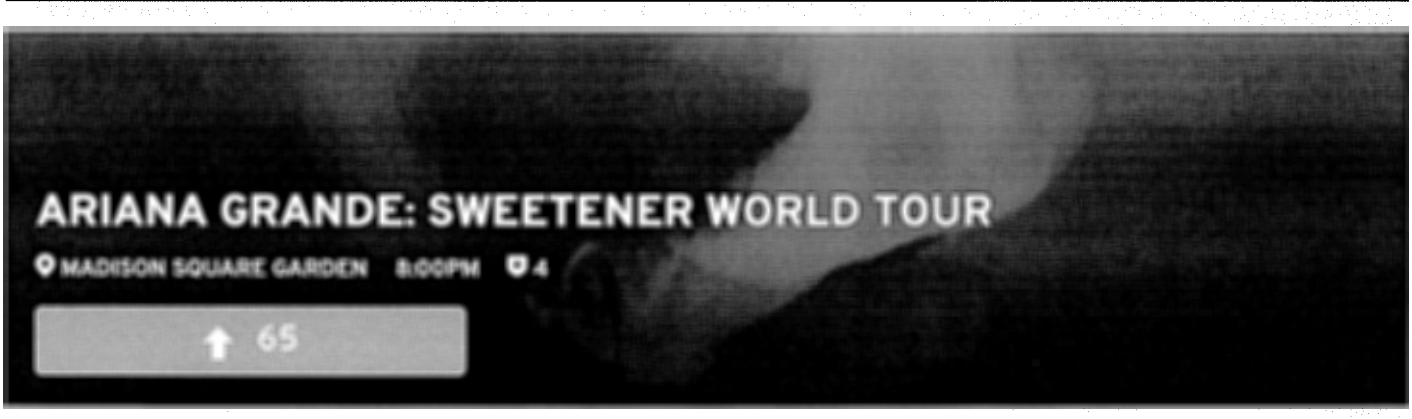

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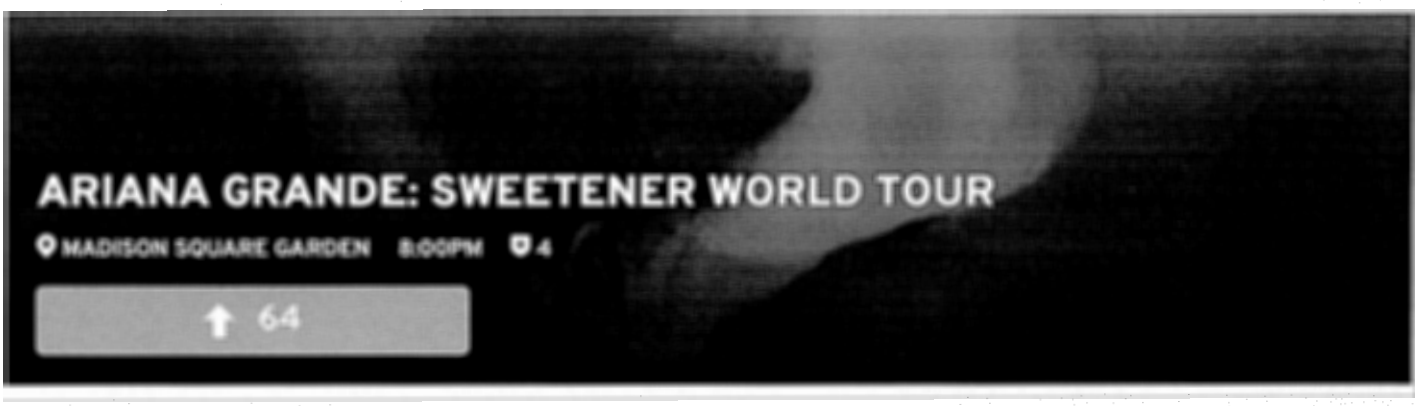

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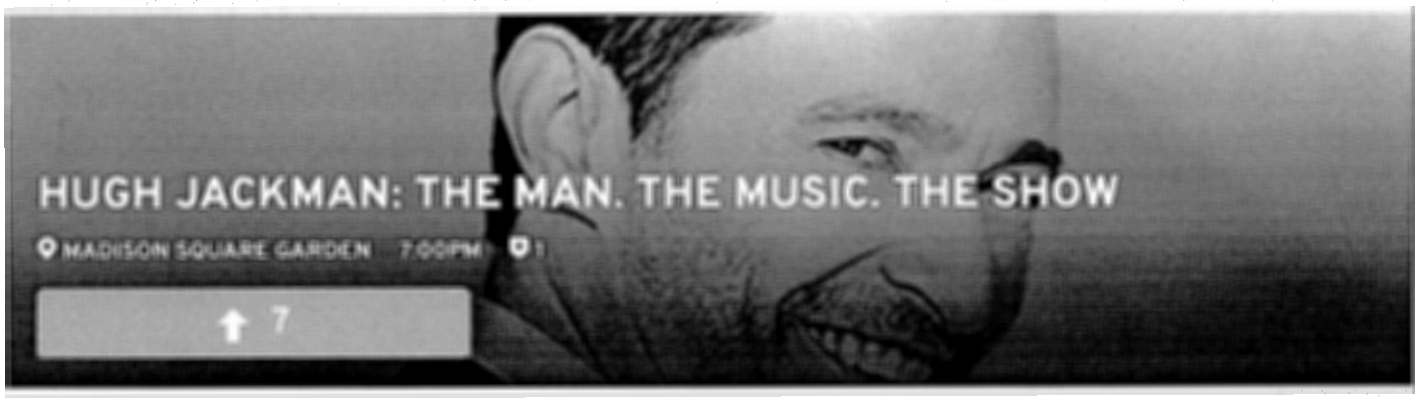

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CNCL - 1029

TUESDAY JUL 2

SATURDAY JUL 6

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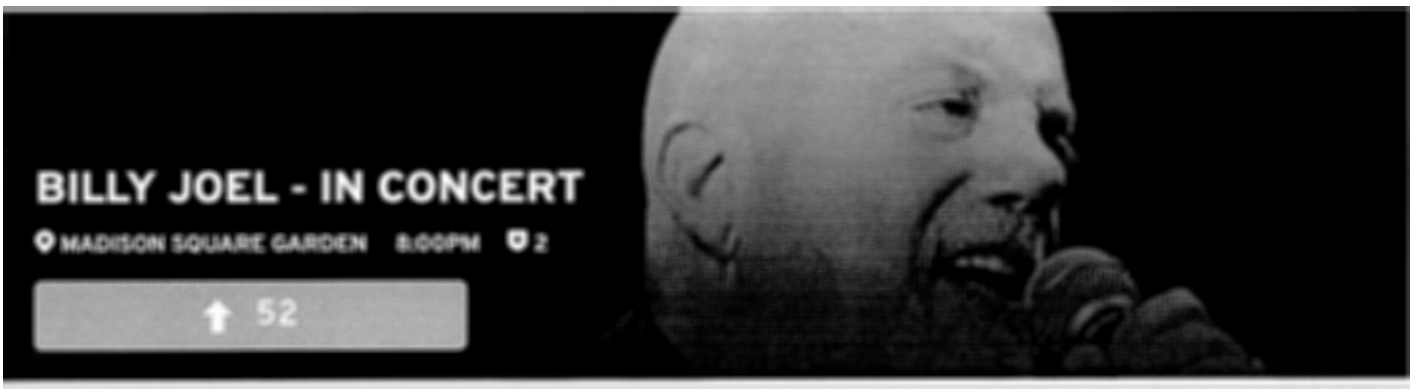

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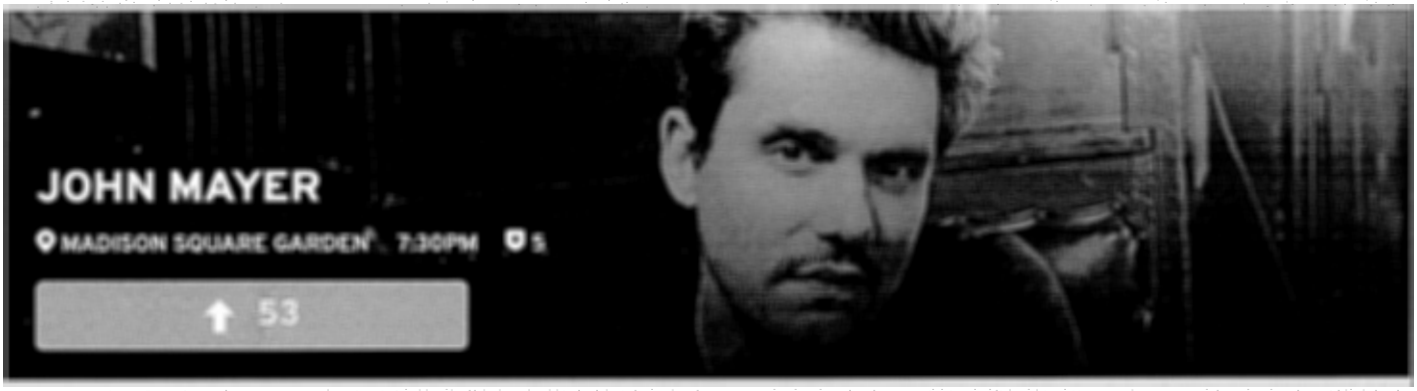
WEDNESDAY JUL 24

CNCL - 1031

THURSDAY JUL 25



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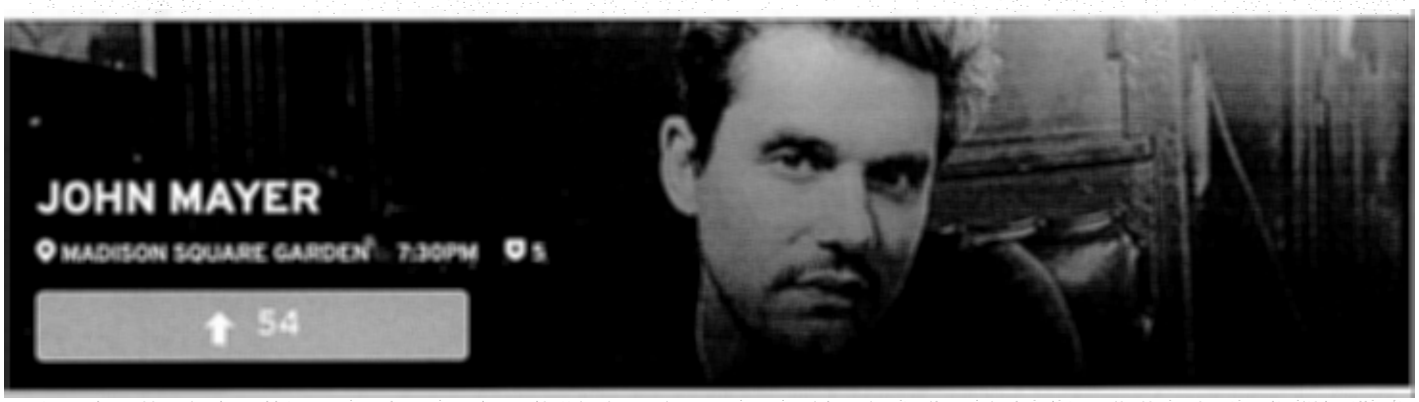

WEDNESDAY JUL 31

THURSDAY AUG 1

TUESDAY AUG 6

WEDNESDAY AUG 7

NEXT PAGE

CNCL - 1033

City of Richmond

Report to Council

To:	Richmond City Council	**Date:**	May 28, 2019
From:	Joe Erceg Chair, Development Permit Panel	**File:**	01-0100-20-DPER1-01/2019-Vol 01
Re:	**Development Permit Panel Meeting Held on September 12, 2018**		

Staff Recommendation

That the recommendation of the Panel to authorize the issuance of a Development Permit (DP 17-793478) for the property at 4360 Garry Street be endorsed, and the Permit so issued.

Joe Erceg
Chair, Development Permit Panel
(604-276-4083)

SB:blg

Panel Report

The Development Permit Panel considered the following item at its meetings held on September 12, 2018.

DP 17-793478 – TL HOUSING SOLUTIONS LTD. – 4360 GARRY STREET
(September 12, 2018)

The Panel considered a Development Permit application to permit the construction of a four-storey 107 unit congregate housing facility on a site zoned "Assembly and Congregate Housing – Garry Street (Steveston) (ZR12)". No variances are included in the proposal.

Architect, Rodrigo Cepeda, of GBL Architects; and Landscape Architect, Rod Maruyama, of Maruyama and Associates Landscape Architecture, provided a brief presentation, noting that:

- The height and massing of the east elevation has been reduced to three-storeys to provide an appropriate interface with the adjacent townhouses to the east.
- The curved wall on the west portion of the facility provides a main entrance to the building which is visible from Garry Street to the north.
- Level 2 of the building includes a central open space courtyard for facility residents, with small spaces for social interaction and multiple walking paths.
- A multi-purpose open space courtyard will be provided between the congregate housing facility and the existing temple.
- An existing landscaped area at the site's northeast corner along Garry Street will be modified to accommodate a multi-purpose outdoor space with seating and landscaping.
- A stepped retaining wall, that contains planting areas and incorporates an accessible pathway and fencing, on the south edge of the site provides an interface with the park to the south.

In reply to Panel queries, Mr. Maruyama and Mr. Cepeda acknowledged that: (i) the landscaped retaining wall will provide a buffer to the adjacent townhouses to the east; (ii) a gate will be installed on the south edge of the site to provide access to the park; (iii) a fire truck access is provided between the existing temple and the proposed congregate housing facility; (iv) the proposed loading space on the west side of the proposed building is located adjacent to the kitchen and could also be utilized by residents moving into the facility; (v) the height and massing of the east elevation of the congregate housing facility has been reduced in response to concerns from residents of adjacent townhouse units at rezoning; and (vi) the height reduction will result in additional hours of sunlight exposure to the adjacent townhouses to the east.

Staff advised that: (i) there is a Servicing Agreement associated with the proposed development prior to Building Permit issuance which includes frontage works along Garry Street and site servicing works; (ii) two existing driveways will be closed as a result of the Servicing Agreement, (iii) the project's proposed park interface was designed in consultation with Parks staff, and (iv) the proposed congregate housing facility includes 12 barrier free housing units which are wheelchair accessible and 95 adaptable units which could be easily renovated to accommodate a future resident in a wheelchair.

Correspondence was submitted to the Panel regarding the Development Permit application by Garry Street resident Geraldine Wray. Staff noted that in her letter, Ms. Wray expressed concern regarding the proposed building's height and its implications to airflow and sunlight penetration to the adjacent townhouse unit.

In reply to a Panel query, staff confirmed that Ms. Wray resides in the townhouse development adjacent to the side of the congregate housing facility where the height reduction is proposed.

The Panel expressed support for the project, noting that the project's interface with adjacent properties is appropriate.

The Panel recommends the Permit be issued.