

## **Planning Committee**

Anderson Room, City Hall 6911 No. 3 Road Tuesday, September 18, 2018 4:00 p.m.

Pg. # ITEM

**MINUTES** 

PLN-4 Mo

Motion to adopt the minutes of the meeting of the Planning Committee held on September 5, 2018.

### NEXT COMMITTEE MEETING DATE

October 2, 2018, (tentative date) at 4:00 p.m. in the Anderson Room

#### PLANNING AND DEVELOPMENT DIVISION

1. APPLICATION BY GBL ARCHITECTS FOR AN OFFICIAL COMMUNITY PLAN (CITY CENTRE AREA PLAN) AMENDMENT AT 6551 NO. 3 ROAD (CF RICHMOND CENTRE SOUTH)

(File Ref. No. 12-8060-20-009892; CP 16-752923) (REDMS No. 5866800)

**PLN-10** 

#### See Page **PLN-10** for full report

Designated Speaker: Wayne Craig and Suzanne Carter-Huffman

#### STAFF RECOMMENDATION

- (1) That Official Community Plan Amendment Bylaw 9892, including:
  - (a) in Schedule 1 of Official Community Plan Bylaw 9000, to redesignate a portion of 6551 No. 3 Road from "Downtown Mixed Use" to "Park" in Attachment 1; and;
  - (b) in Schedule 2.10 (City Centre Area Plan) of Official Community Plan 7100, to:
    - (i) amend the existing land use designation in the Generalized Land Use Map (2031), Specific Land Use Plan: Brighouse Village (2031), and reference maps throughout the Plan to change the locations of roads, park, pedestrian-oriented retail precincts, pedestrian linkages, greenways, bike routes, and related features specific to 6551 No. 3 Road;
    - (ii) add a new policy encouraging multi-modal mobility hubs in the City Centre;
    - (iii) add new Development Permit Guidelines specific to 6551 No. 3 Road; and
    - (iv) make related minor map, text, page numbering, and table of contents amendments to the City Centre Area Plan;

be introduced and given first reading.

- (2) That Bylaw 9892, having been considered in conjunction with:
  - (a) the City's Financial Plan and Capital Program; and
  - (b) 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 882(3)(a) of the Local Government Act.

2. 2019-2023 YVR NOISE MANAGEMENT PLAN - CITY OF RICHMOND COMMENTS

(File Ref. No. 01-0153-04-01) (REDMS No. 5913603 v. 6)

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

Designated Speaker: Barry Konkin

PLN-163

Pg. # ITEM

#### STAFF RECOMMENDATION

- (1) That the staff comments contained in the report titled "2019-2023 YVR Noise Management Plan City of Richmond Comments" form the basis of the City's response to the Vancouver Airport Authority regarding its preparation of the 2019-2023 YVR Noise Management Plan;
- (2) That a copy of this report be forwarded to Vancouver Airport Authority for its consideration in the preparation of the draft 2019-2023 YVR Noise Management Plan; and
- (3) That staff be directed to request a copy of the final YVR Noise Management Plan and provide the Plan to Council for information.

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**ADJOURNMENT** 



#### **Minutes**

## **Planning Committee**

Date:

Wednesday, September 5, 2018

Place:

Anderson Room

Richmond City Hall

Present:

Councillor Linda McPhail, Chair

Councillor Bill McNulty Councillor Chak Au Councillor Alexa Loo Councillor Harold Steves

Also Present:

Councillor Carol Day (entered at 4:07 p.m.)

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 Planning Committee held on July 17,

2018, be adopted as circulated.

**CARRIED** 

#### NEXT COMMITTEE MEETING DATE

September 18, 2018, (tentative date) at 4:00 p.m. in the Anderson Room

## COMMUNITY SERVICES DIVISION

1. HOUSING AGREEMENT BYLAW NO. 9896 TO PERMIT THE CITY OF RICHMOND TO SECURE AFFORDABLE HOUSING UNITS LOCATED AT 6340 NO. 3 ROAD (KELTIC (BRIGHOUSE) DEVELOPMENT)

(File Ref. No. 08-4057-05) (REDMS No. 5875608 v. 3)

# Planning Committee Wednesday, September 5, 2018

Monica Bennington, Planner 1, noted that the proposed unit mix is consistent with the City's Affordable Housing Strategy and that staff can discuss increasing the number of family-friendly affordable housing rental units in the development with the applicant.

It was moved and seconded

That Housing Agreement (6340 No. 3 Road) Bylaw No. 9896 be introduced and given first, second and third readings to permit the City to enter into a Housing Agreement substantially in the form attached hereto, in accordance with the requirements of section 483 of the Local Government Act, to secure the Affordable Housing Units required by the Rezoning Application RZ 17-773703.

**CARRIED** 

2. HOUSING AGREEMENT BYLAW NO. 9913 TO PERMIT THE CITY OF RICHMOND TO SECURE AFFORDABLE HOUSING UNITS LOCATED AT 8620 RAILWAY AVENUE (1037533 BC LTD.)

(File Ref. No. 08-4057-05) (REDMS No. 5932120 v. 5)

It was moved and seconded

That Housing Agreement (8620 Railway Avenue) Bylaw No. 9913 be introduced and given first, second and third readings to permit the City to enter into a Housing Agreement with 1037533 BC Ltd. substantially in the form attached hereto, in accordance with the requirements of section 483 of the Local Government Act, to secure the Affordable Housing Units required by the Rezoning Application RZ 15-709884.

**CARRIED** 

#### PLANNING AND DEVELOPMENT DIVISION

3. APPLICATION BY ENRICH CUSTOM HOMES LTD. FOR REZONING AT 10320 LASSAM ROAD FROM SINGLE DETACHED (RS1/E) TO SINGLE DETACHED (RS2/B)

(File Ref. No. 12-8060-20-009905; RZ 18-810261) (REDMS No. 5885457)

Jordan Rockerbie, Planning Technician, reviewed the application, highlighting that the proposed development will include one secondary suite and a cash contribution to the City's Affordable Housing Reserve Fund and that several large trees on-site will be retained.

It was moved and seconded

That Richmond Zoning Bylaw 8500, Amendment Bylaw 9905, for the rezoning of 10320 Lassam Road from "Single Detached (RS1/E)" to "Single Detached (RS2/B)", be introduced and given first reading.

**CARRIED** 

# Planning Committee Wednesday, September 5, 2018

4. APPLICATION BY ALABASTER AEOUIN LIMITED PARTNERSHIP / PLLR 228 HOLDINGS LTD. FOR REZONING AT 8820, 8840, 8860, 8880, 8900, 8911 AND 8931 SPIRES ROAD AND THE SURPLUS PORTION OF THE SPIRES ROAD ROAD ALLOWANCE FROM **DETACHED PARKING** SINGLE (RS1/E) TO STRUCTURE **AND PROPOSED** TOWNHOUSES (RTP4), **ZONING** AMENDMENT TO THE PARKING STRUCTURE TOWNHOUSES (RTP4) ZONE

(File Ref. No. 12-8060-20-009915; RZ 17-766525) (REDMS No. 5886910 v. 5)

Edwin Lee, Planner 1, reviewed the application, highlighting that the proposed townhouse development will include basic universal housing units and convertible units. He added that a servicing agreement will be included for frontage improvements and sewer and sanitary upgrades.

It was moved and seconded

- (1) That Richmond Zoning Bylaw 8500, Amendment Bylaw 9915, for a Zoning Text Amendment to the "Parking Structure Townhouses (RTP4)" zone, be introduced and given first reading; and
- (2) That Richmond Zoning Bylaw 8500, Amendment Bylaw 9914, for the rezoning of 8820, 8840, 8860, 8880, 8900, 8911 and 8931 Spires Road from "Single Detached (RS1/E)" to "Parking Structure Townhouses (RTP4)", be introduced and given first reading.

**CARRIED** 

5. APPLICATION BY 1105061 B.C. LTD. FOR REZONING AT 11480 AND 11482 KING ROAD FROM SINGLE DETACHED (RS1/E) TO TWO-UNIT DWELLINGS (RD1)

(File Ref. No. 12-8060-20-009918; RZ 17-785443; SC 17-775125) (REDMS No. 5868634)

Cllr. Day entered the meeting (4:07 p.m.).

It was moved and seconded

- (1) That Richmond Zoning Bylaw 8500, Amendment Bylaw 9918, for the rezoning of 11480 and 11482 King Road from "Single Detached (RS1/E)" to "Two-Unit Dwellings (RD1)", be introduced and given first reading;
- (2) That the application for a Strata Title Conversion by 1105061 B.C. Ltd. for the property located at 11480 and 11482 King Road be approved on fulfillment of the following conditions:
  - (a) adoption of Bylaw No. 9918, rezoning the subject property from "Single Detached (RS1/E)" to "Two-Unit Dwellings (RD1)";
  - (b) payment of all City utility charges and property taxes up to and including the year 2018; and

# Planning Committee Wednesday, September 5, 2018

- (c) submission of appropriate plans and documents for execution by the Approving Officer within 180 days of the date of this resolution; and
- (3) That the City, as the Approving Authority, delegate the Approving Officer, the authority to execute the strata conversion plan on behalf of the City, as the Approving Authority, on the basis that the conditions set out in Recommendation 2 have been satisfied.

**CARRIED** 

6. APPLICATION BY CLASSICO DEVELOPMENT LTD. FOR A STRATA-TITLE CONVERSION AT 10531 AND 10551 ANAHIM DRIVE

(File Ref. No. SC 17-792263) (REDMS No. 5872980)

It was moved and seconded

- (1) That the application for a strata-title conversion by Classico Development Ltd. be approved on fulfillment of the following conditions:
  - (a) registration of a flood indemnity covenant on title;
  - (b) payment of all City utility charges and property taxes up to and including the year 2018;
  - (c) submission of appropriate plans and documents for execution by the Approving Officer within 180 days of the date of this resolution; and
  - (d) final inspection approval of Building Permits (B7 18-822793 and B7 18-828874) for previous construction without a permit at 10531 and 10551 Anahim Drive; and
- (2) That the City, as the Approving Authority, delegate the Approving Officer, the authority to execute the strata conversion plan on behalf of the City, as the Approving Authority, on the basis that the conditions set out in Recommendation 1 have been satisfied.

**CARRIED** 

7. APPLICATION BY IBI GROUP ARCHITECTS INC. FOR A TEMPORARY COMMERCIAL USE PERMIT AT 2980 NO. 3 ROAD (File Ref. No. TU 18-830948) (REDMS No. 5940049)

In reply to queries from Committee, Wayne Craig, Director, Development, noted that the proposed Temporary Commercial Use Permit will be valid for three years and the applicants will have the option to renew the permit.

## Planning Committee Wednesday, September 5, 2018

It was moved and seconded

- (1) That the application by IBI Group Architects Inc. for a Temporary Commercial Use Permit (TCUP) for the property at 2980 No. 3 Road be considered at the Public Hearing to be held October 15, 2018 at 7:00 p.m. in the Council Chambers of Richmond City Hall; and
- (2) That the following recommendation be forwarded to that meeting for consideration:

"That a Temporary Commercial Use Permit be issued to IBI Group Architects Inc. for the property at 2980 No. 3 Road to allow 'Office' as a permitted use for the marketing and sale of office and industrial strata units associated with the development at 9466 Beckwith Road for a period of three years."

CARRIED

8. RICHMOND RESPONSE: METRO VANCOUVER PROPOSED REGIONAL GROWTH STRATEGY AMENDMENT BYLAW NO. 1266, 2018, AS REQUESTED BY THE TOWNSHIP OF LANGLEY FOR THE WILLIAMS NEIGHBOURHOOD PLAN

(File Ref. No. 01-0157-30-RGST1) (REDMS No. 5932114)

It was moved and seconded

That the Metro Vancouver Board be advised that the City of Richmond has no concerns with Metro Vancouver's proposed Regional Growth Strategy Amendment Bylaw 1266, 2018, which proposes to amend Metro Vancouver 2040: Shaping our Future, Metro Vancouver's Regional Growth Strategy, as requested by the Township of Langley for the Williams Neighbourhood Plan area.

**CARRIED** 

#### 9. MANAGER'S REPORT

### House Moving and Salvage Program Update

James Cooper, Director, Building Approvals, spoke on the City's House Moving and Salvage Program, noting that staff are requesting that the update be provided one year following implementation of the program in February 2019. He added that aspects of the program will be discussed with community partners and more analysis can be conducted during the one year period.

Discussion ensued regarding (i) the moving or demolition process of a house, (ii) options to encourage recycling of demolition materials, (iii) options to adjust the fees related to demolition permits, and (iv) the economic feasibility of moving a house.

## Planning Committee Wednesday, September 5, 2018

## **ADJOURNMENT**

It was moved and seconded *That the meeting adjourn (4:26 p.m.).* 

**CARRIED** 

Certified a true and correct copy of the Minutes of the meeting of the Planning Committee of the Council of the City of Richmond held on Wednesday, September 5, 2018.

Councillor Linda McPhail Chair Evangel Biason Legislative Services Coordinator



# **Report to Committee**

To:

Re:

Planning Committee

Date:

September 10, 2018

From:

Wayne Craig

File:

CP 16-752923

Director, Development

Application by GBL Architects for an Official Community Plan (City Centre Area

Plan) Amendment at 6551 No. 3 Road (CF Richmond Centre South)

#### Staff Recommendation

1. That Official Community Plan Amendment Bylaw 9892, including:

- a) In Schedule 1 of Official Community Plan Bylaw 9000, to redesignate a portion of 6551 No. 3 Road from "Downtown Mixed Use" to "Park" in Attachment 1; and
- b) In Schedule 2.10 (City Centre Area Plan) of Official Community Plan 7100, to:
  - amend the existing land use designation in the Generalized Land Use Map (2031), Specific Land Use Plan: Brighouse Village (2031), and reference maps throughout the Plan to change the locations of roads, park, pedestrian-oriented retail precincts, pedestrian linkages, greenways, bike routes, and related features specific to 6551 No. 3 Road;
  - ii. add a new policy encouraging multi-modal mobility hubs in the City Centre;
  - add new Development Permit Guidelines specific to 6551 No. 3 Road; and iii.
  - make related minor map, text, page numbering, and table of contents amendments iv. to the City Centre Area Plan;

be introduced and given first reading.

- 2. That Bylaw 9892, having been considered in conjunction with:
  - the City's Financial Plan and Capital Program;
  - 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 882(3)(a) of the *Local Government Act*.

3. That Bylaw 9892, having been considered in accordance with OCP Bylaw Preparation Consultation Policy 5043, is hereby found not to require further consultation.

Wayne Craig

Director, Development

WC:sch

Att. 11

REPORT CONCURRENCE					
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER			
Policy Planning Affordable Housing Engineering Parks Transportation	日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日日	_ he Evel			

#### Staff Report

#### Origin

GBL Architects has applied to the City of Richmond to amend the Official Community Plan (OCP), Schedule 2.10 (City Centre Area Plan) at 6551 No. 3 Road to permit a high-rise, mixed use project on roughly 50% of 6551 No. 3 Road at the south end of the CF Richmond Centre shopping centre. (Attachments 1 & 2)

The CF Richmond Centre shopping centre occupies three lots: the subject site at 6551 No. 3 Road; 6060 Minoru Boulevard (under separate ownership, but the same operator); and 6253 No. 3 Road (a City-owned lot under long-term lease to the shopping centre operator). The subject development is limited to roughly 60% of 6551 No. 3 Road. (Attachment 3) Neither 6253 No. 3 Road (City lot) nor 6088 Minoru Boulevard is proposed for redevelopment.

Key features of the subject development proposal include the:

- Demolition of 26,905 m² (289,601 ft²) of the existing mall, including 24,487 m² (263,571 ft²) of retail shops (e.g., former Sears), together with the demolition of the existing multi-storey parkade at the lot's south end and adjacent surface parking; and
- Construction of a high-rise, urban neighbourhood including approximately 2,000 dwellings, new public streets and outdoor spaces, parking for 4,000 cars (including two levels of underground parking), and 38,937 m² (419,114 ft²) of new commercial space, comprising 35,197 m² (378,861 ft²) of retail shops, which represents a net commercial increase of 12,032 m² (129,513 ft²).

To facilitate the subject development, the applicant proposes to amend Schedule 2.10 (City Centre Area Plan) of Official Community Plan 7100 to permit changes to various mobility features (e.g., roads, bike routes, and connectivity enhancements), public open space features (e.g., new plaza), and form and character features.

Engineering, road, public open space, District Energy Utility (DEU), affordable housing, public art, and related community amenities and City infrastructure required with respect to the subject development are proposed to be secured by legal agreements prior to OCP Amendment bylaw adoption and delivered on a phase-by-phase basis through the City's standard Servicing Agreement, Development Permit, and Building Permit processes.

#### **Findings of Fact**

A Development Application Data Sheet providing details about the development proposal is attached. (Attachment 4)

#### No Rezoning Required

In the late 1980s, the City rezoned CF Richmond Centre and nearby properties to "Downtown Commercial (C7)", later renamed "Downtown Commercial (CDT1)", to encourage densification of Richmond's downtown core. The CDT1 zone permits high-rise, mixed use development to a maximum height of 45 m (148 ft.) and 3.0 floor area ratio (FAR), together with bonus density for the provision of affordable housing. The subject development complies with the CDT1 zone's

maximum permitted height and the combined total floor area of proposed and existing mixed use development on 6551 No. 3 Road equals approximately 70% of the zone's maximum permitted density on the lot. (Under the CDT1, the owner would be permitted to undertake additional development in the future to utilize the remaining 30% of the zone's permitted floor area. In addition, the City Centre Area Plan designates the subject site for a maximum density of 4.0 floor area ratio, so the owner may give future consideration to rezoning.)

	Height (Max)	FAR (Max)	Buildable Floor Area
CDT1 Zone	45 m (148 ft.)	3.15 FAR*	339,106 m <sup>2</sup> (3.65 million ft <sup>2</sup> ) max. permitted
Proposed	45 m (148 ft.)	2.1 FAR**	$232,258 \text{ m}^2 (2.5 \text{ million ft}^2) = +/-70\% \text{ of max. permitted}$

<sup>\*</sup> Includes 0.15 FAR Affordable Housing bonus (5% Affordable Housing) applicable to applications, like the subject application, that were received prior to July 24, 2017 and considered by Council prior to July 24, 2018. (The subject application was first considered by Council on April 9, 2018.)

\* The subject development proposal includes 5% Affordable Housing.

Developments that comply with existing zoning typically proceed directly to Development Permit (DP) review. When that occurs, the City's ability to secure community amenities is limited because Council does not have the discretionary power of a rezoning application. However, as the subject developer has made application to amend Schedule 2.10 (City Centre Area Plan) of Official Community Plan 7100, staff have worked with the developer to address community objectives.

#### Subject Site Existing Housing Profile

There are no dwelling units on 6551 No. 3 Road or the City-owned lot at 6253 No. 3 Road. The shopping centre's north lot (6088 Minoru Boulevard) includes the "Horizons", a twin-tower, 16-storey, 29,000 m<sup>2</sup> (312,000 ft<sup>2</sup>), residential development constructed in the late 1990s and comprising 248 dwellings. No changes are proposed to this existing residential use.

#### **Surrounding Development**

6551 No. 3 Road is a roughly 11 ha (28 ac) lot, located in the middle of the City Centre's Brighouse Village area, and occupied by the south part of CF Richmond Centre, a low-rise, low density, automobile-oriented shopping centre and associated parking. Existing development surrounding 6551 No. 3 Road includes the following:

To the North: CF Richmond Centre's north portion, including "Horizons" residential towers;

To the South: Richmond City Hall and annex;

To the West: Minoru Boulevard, beyond which is a mix of low- and high-rise residential

buildings, the Richmond Cultural Centre, and Minoru Park; and

To the East: No. 3 Road, beyond which is a mix of older, low-rise, auto-oriented commercial

buildings, existing mixed use and residential towers, the Canada Line's terminus

station (Richmond-Brighouse) and proposed bus mall, and several recent

development applications, including:

- 6390 No. 3 Road (RZ 17-773703 / DP 18-822743 / Keltic) comprising three residential towers, one office tower, an Early Childhood Development Hub, and retail uses at grade (pending rezoning adoption);
- 6840 and 6860 No. 3 Road and 8061 Anderson Road (RZ 14-678448 / DP 15-708092 / iFortune) comprising a mid-rise residential building, one office tower, and retail uses at grade (pending rezoning adoption); and
- 6560, 6600, 6640 & 6700 No 3 Road (RZ 15-694855 / DP 16-754761 / Bene Richmond) comprising a mixed residential-office tower and retail uses at grade (pending rezoning adoption).

#### Related Policies & Studies

#### Official Community Plan/City Centre Area Plan

#### City Centre Area Plan (CCAP)

The subject site is located in the middle of Brighouse Village (Attachment 5). The CCAP identifies this area as the traditional heart and civic focus of Richmond's downtown and supports its revitalization with a high density, high-rise, mix of commercial, residential, and civic uses centred on No. 3 Road and the Brighouse Station transit exchange. More specifically:

- 1) The subject site and properties to its north, south (e.g., City Hall), and east (beyond No. 3 Road) generally share the same high density, high-rise, mixed use designations, including:
  - "Urban Core T6 (45 m)", which permits mixed use or commercial development to a maximum of 3.0 FAR and 45 m (148 ft.) in height;
  - "Village Centre Bonus", which permits additional commercial floor area to a maximum of 1.0 FAR; and
  - "Pedestrian-Oriented Retail Precinct High-Street & Linkages", which encourages a
    high concentration of pedestrian-oriented retail, restaurant, and complementary activities
    at grade along No. 3 Road and other public streets and open spaces; and
- 2) West of the subject site, near Minoru Park, the CCAP encourages medium and high density, mid- and high-rise residential uses, generally designated as:
  - "Urban Centre T5 (25 m)", which permits residential and other uses to a maximum of 2.0 FAR and 25 m (82 ft.) in height; and
  - "Institution", which permits bonus density and increased height for developments that provide community amenity-type uses (e.g., Kiwanis Senior Citizens Housing Society); and
- 3) Mobility improvements are encouraged on and around 6551 No. 3 Road, including:
  - The extension of Park Road westward from No. 3 Road to Minoru Boulevard;
  - A new bike lane along No. 3 Road; and
  - Greenway improvements along No. 3 Road and Minoru Boulevard.

#### 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**

It is Council policy (OCP Bylaw Preparation Consultation Policy 5043) that staff consider consultation with persons, organizations, and authorities that may be affected by the enactment, repeal, or amendment of the Official Community Plan bylaw where the other parties' land use, programming, servicing, transportation, and/or environmental interests may be impacted.

#### Community Consultation

- 1) <u>Council-Supported Developer-Led Consultation Process</u>: On April 9, 2018, Council endorsed a developer-led community consultation process regarding the CF Richmond Centre South Development Plan and proposed changes to the CCAP. The process included:
  - Public Display: A public display was set up in the shopping centre's galleria from May 22 to June 3, 2018. The Community Consultation – Public

Display Boards are attached. (Attachment 6)

- Open Houses: Developer and City representatives attended the public display to answer questions on May 27 (1 4 p.m.) and May 31 (5 8 p.m.).
- Online: The public display boards were available to view on the City's website and at LetsTalkRichmond.ca from May 22 to June 3, 2018.
- Feedback Forms: Interested parties were able to complete a feedback form by:
  - a) Logging onto LetsTalkRichmond.ca; or
  - b) Completing a paper form (available at the open houses, or on request).
- Advertising: Advertisements included:
  - a) Print ads in the Richmond News and Richmond Sentinel;
  - b) City social media postings on Facebook and Twitter; and
  - c) News releases sent to local media and posted on the City's website.
- Direct Mail-Outs: Direct mail-outs (3,000 letters) were sent to tenants and owners of properties within 100 m (328 ft.) of the subject site to notify them of the public display, open houses, and opportunity to provide feedback.
- 2) Open House Attendance: Each of the two public open houses was attended by approximately 300 people (i.e. 600 in total).
- 3) Community Feedback: The feedback form included ten questions regarding the developer's proposed CCAP amendments and related voluntary developer contributions. The questions were included in the Public Display Boards, together with supportive diagrams and photographs, in the form of "Objective #1" to "Objective #10" (on the last ten pages of Attachment 6).

The City received a total of 164 feedback forms through LetsTalkRichmond.ca, by mail, and in person. Respondents primarily identified themselves as Richmond residents and CF Richmond Centre shoppers. A summary of the feedback form results is attached. (Attachment 7) In brief, the feedback indicated that:

- 65% liked the proposed street network;
- 81% liked the proposed improvements to Canada Line access, including public access through the mall's galleria outside regular business hours;
- 75% liked the proposed streetscape improvements for pedestrians and cyclists;
- 60% liked the proposed underground parking and features aimed at enhancing access by shoppers and the general public;
- 68% like the proposed outdoor retail precinct;
- 71% liked the proposed public plaza and other public open space features;
- 51% liked the proposed form of development;
- 64% liked the proposed affordable housing (i.e. 5% of total residential floor area in the form of 150 low-end-of-market-rental (LEMR) units);
- 66% liked the proposed housing mix (i.e. 50% 2- and 3-bedroom, family-friendly units and 25% Basic Universal Housing (BUH) units for people with mobility challenges); and
- 66% liked the proposed use of a low-carbon heating/cooling system to help reduce greenhouse gas.

Respondents who did not like the proposed changes at CF Richmond Centre primarily expressed concern regarding:

Growth:

Too much growth in the Richmond's downtown is changing the area's character and placing pressure on existing infrastructure, transit, schools, and other services.

Staff comments: Richmond, like most of Metro Vancouver, is growing. Since 1995, the City's OCP has aimed to direct 50% of Richmond's growth to the City Centre to support the establishment of a high-amenity urban core, protect farmland, and reduce development pressure on stable residential neighbourhoods outside the downtown. This OCP direction has been adopted in consultation with the Richmond School District, Vancouver Coastal Health, TransLink, and other stakeholders. In addition, through the City's capital plan and developer-funded contributions, the City seeks to ensure that the implementation of amenity and infrastructure improvements is coordinated with growth and minimizes taxpayer impacts. (Note that the subject development does not propose any increase in permitted density or change in permitted land uses.)

Shopping:

Shopping centre redevelopment could undermine the downtown as Richmond's central shopping district, displace small businesses, force people to shop outdoors (without weather protection), and result in expensive and/or empty street-facing storefronts.

Staff comments: The subject developer is the owner of 6551 No. 3 Road and is committed to the long-term commercial viability of CF Richmond Centre and Richmond's downtown. The proposed development will increase the shopping centre's existing commercial floor area by 12,032 m² (129,513 ft²), most of which will be located in street-fronting retail space along No. 3 Road and the extension of Park Road. This approach will enable the developer to maintain the existing indoor mall, while better connecting it with the Canada Line, providing a broader range of shopping options (which may include grocery and other local-serving retailers), and contributing towards a more walkable downtown.

Transportation:

Traffic congestion. Not enough parking. Overcrowding on the Canada Line. Impracticality of cycling in our climate.

Staff comments: The CCAP supports the establishment of a well-connected downtown community that provides for an expanding range of sustainable travel options with an emphasis on walking, cycling, and transit. This is consistent with TransLink's 10-Year Vision, which includes, among other things, the acquisition of 24 new Canada Line cars and increased Canada Line frequency during rush hours, evenings, and weekends. The proposed CF Richmond Centre development complies with City parking bylaws and includes features that are supportive of the City's mobility objectives including:

- a) Secure public access through the mall's galleria outside regular business hours to be consistent with the Canada Line's operating hours to improve access to the Canada Line and future bus mall;
- b) Smaller blocks and a more connected and attractive network of pedestrian sidewalks and off-street bike paths;
- c) Wider sidewalks and crosswalk upgrades, including enhanced pedestrian access between the subject site and the Canada Line station; and
- d) Two multi-modal mobility hubs (one in each phase of development) that will be designed and operated to seamlessly integrate multiple travel modes, supportive infrastructure, and placemaking strategies with the aim of creating two pedestrian-oriented centres that will help maximize first-to-last kilometre connectivity. Each mobility hub will be comprised of an integrated suite of pedestrian-friendly, transportation and related features such as bike- and carshare facilities, taxi and ride-hailing services, secure bike storage for the public and repair services, electric vehicle charging stations, and weather protected public transit stops all conveniently located near shops, services, and public amenities. (Legal agreements, securing the developer's commitment to the construction and operation of the mobility hubs, at the developer's

sole cost, will be registered on title prior to OCP amendment adoption.)

Housing:

The amount of affordable housing (too much or too little), whether the proposed units will really be affordable or family-friendly, and the amount of accessible Basic Universal Housing units were questioned.

Staff comments: Access to livable, appealing, and varied housing options that meet the needs of the City Centre's changing downtown population is a core value of the CCAP. In recognition of this, while the City's ability to require developer-funded community amenities from pre-zoned properties (like the subject site) is limited, staff have worked with the developer to achieve key City housing objectives, including the developer's construction (at the developer's sole cost) of:

- a) 150 low-end-of-market-rental (LEMR) units secured with a Housing Agreement registered on title prior to OCP bylaw adoption;
- b) Family-friendly residential buildings designed to include 50% 2and 3-bedroom units (including 50% of the LEMR units), large outdoor amenity spaces equipped with children's playgrounds (on the podium rooftops), and various indoor family-friendly amenities (e.g., party rooms, swimming pools, multi-purpose recreation rooms); and
- c) Accessible residential buildings containing universally accessible lobbies, circulation, and indoor/outdoor amenity spaces throughout, together with accessible unit features (secured with legal agreements registered on title prior to OCP bylaw adoption) including:
  - i. 25% of total units will be constructed to Basic Universal Housing (BUH) standards suitable for people with mobility challenges (including 100% of LEMR units); and
  - ii. 100% of units will include aging-in-place features (e.g., lever handles and blocking in walls for grab bars).

Built Form:

Too many high-rises in the City Centre. Soil conditions, especially with respect to underground parking.

Staff comments: The developer's proposal is consistent with the CCAP, which encourages a variety of building types and housing options across the downtown ranging from high-rise, high density development in locations, like the subject site, that are within 400 m (1,312 ft.) of a Canada Line station and low-rise buildings in less accessible locations. In addition, the developer's proposal is consistent with CCAP policies that encourage developers of high density developments to include features (such as underground parking) that help to free up the ground plane for active public use. The design and construction of all buildings and underground parking structures in Richmond must comply with provincial and municipal

legislation (e.g., BC Building Code) to ensure that, among other things, they appropriately address local soil conditions. Based on engineering work undertaken by the developer's consultants, the developer has confirmed that construction standards and requirements related to local soil conditions and the project's proposed underground parking will be fully satisfied.

Construction:

Noise, dirt, and other construction impacts on nearby residents.

Staff comments: The developer will be required to submit a Construction Traffic Management Plan for City approval prior to Building Permit issuance. City bylaws limit the hours when noisy construction activities may be undertaken (i.e. 7 a.m. to 8 p.m. from Monday to Friday and shorter hours on Saturdays) and require that public streets and sidewalks are kept clean and accessible.

- 4) <u>Correspondence</u>: At the time of writing this report five emails/letters have been received by the City regarding the subject OCP amendment application. (Attachment 8) In brief:
  - Item #1: Supports the proposed public route through the mall's galleria to outside regular business hours, but expresses concern that the area is already too dense and unaffordable.
  - Item #2: Expresses concern that the area currently lacks a supermarket, may not have adequate elementary school capacity, and has only 2 electric vehicle charging stations.
  - Item #3 and #4: Seek information regarding the proposed energy plant, potential airspace parcel subdivision, and transit planning. (Staff responses are included in Attachment 6.)
  - Item #5: Supports the proposed development and suggests that the developer gives consideration to including a multi-purpose indoor stadium for sports and cultural events.

Staff comments: For the most part, the concerns expressed in the correspondence mirrors those conveyed through the feedback forms and have been addressed above. Regarding the inquiry into a new sports and cultural events venue, it is City policy to support the continued use and enhancement of the Richmond Cultural Centre, Minoru Park, the Richmond Olympic Oval, and other City facilities for this purpose.

#### Developer Consultation with Existing Shopping Centre Tenants

The shopping centre owner shared information about the proposed development and sought feedback from current retail tenants on several occasions, including:

- 1) Memo announcing the construction of the project's marketing Centre on January 29, 2018;
- 2) Town Hall style meeting (40-50 attendees) on February 20, 2018;
- 3) Drop-in session at the public display in the mall (4 attendees) on May 30, 2018; and
- 4) Various one-on-one meetings with tenants (focusing on those near the development).

Tenant feedback has been positive and there has been interest from some retailers in relocating to the new development. Concerns and questions have generally fallen into two categories:

1) Parking availability during construction.

- The development will be phased to ensure that adequate parking and vehicle access from both No. 3 Road and Minoru Boulevard are maintained throughout construction.
- 2) Relocation strategies for long-term retailers within the construction/demolition area.
  - The former Sears building will be used to temporarily house retailers during Phase 1 until they can be relocated to units in the new development.

The developer is committed to working with retailers to ensure that the mall is pleasant and attractive for customers and well managed for tenants throughout the construction process.

#### Advisory Design Panel

The CF Richmond Centre South Development Plan was presented to the Advisory Design Panel on March 7, 2018 (Attachment 9). The Panel voted unanimously in support of the application and commended the applicant on the Plan's features (e.g., affordable, family-friendly, and accessible housing, smaller blocks defined by new streets and pedestrian linkages, underground parking, and a more vibrant public realm). ADP recommended that, at Development Permit stage, the applicant undertakes design development with respect to detailed public realm design, sun/shade impacts, and architectural expression.

#### Richmond School District

According to OCP Bylaw Preparation Consultation Policy 5043, adopted by Council and agreed to by the School District, OCP amendment applications must be referred to the School District if they have the potential to generate 50 or more additional school-aged children (i.e. equivalent to 295 or more additional multiple-family housing units) over and above the existing OCP. As the subject application does not propose any increase in permitted residential units, it is not required to be referred to the School District. The subject OCP amendment application was presented at the Council/School Board Liaison Committee meeting on April 25, 2018. City staff will continue to keep School Board staff apprised of the development of the property.

#### TransLink

No referral is necessary because the subject OCP amendment application does not include streets identified as part of TransLink's Major Road Network (MRN) or involve significant road network changes. The subject OCP amendment application and related transportation impact study prepared by the applicant will be provided to TransLink as a courtesy.

#### Other Stakeholders

Staff have reviewed the proposed OCP amendments with respect to the Local Government Act and the requirements of the City's OCP Bylaw Preparation Consultation Policy 5043 and recommend that this report does not require referral to any other external stakeholders, as indicated in the table below.

Stakeholder	Referral Comment (No Referral necessary)	
BC Land Reserve Co.	No referral necessary because the Land Reserve is not impacted.	
The Board of Metro Vancouver	No referral necessary because the Regional District is not impacted.	

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Stakeholder	Referral Comment (No Referral necessary)
The Councils of adjacent Municipalities	No referral necessary because adjacent Municipalities are not impacted.
First Nations (e.g., Sto:lo, Tsawwassen, Musqueam)	No referral necessary because First Nations are not impacted.
Port Authorities (Vancouver Port Authority and Steveston Harbour Authority)	No referral is necessary because the Port Authorities are not impacted.
Vancouver International Airport Authority (VIAA) (Federal Government Agency)	No referral is necessary because VIAA is not impacted.
Richmond Coastal Health Authority	No referral is necessary because the Richmond Coastal Health Authority is not impacted.
All relevant Federal and Provincial Government Agencies	No referral is necessary because no Federal or Provincial Government Agencies are impacted.

#### **Additional Comments**

OCP amendment application signage has been installed on the subject site.

Should the Planning Committee endorse this application and Council grant first reading to the OCP amendment 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**

The origin of the subject City Centre Area Plan (CCAP) amendment application is the developer's proposal to vary street and development features set out in the Plan. Through the CCAP amendment application review process, staff have worked with the developer towards satisfying City and Area Plan objectives through various proposed developer contributions and development features. The CF Richmond Centre development plan's proposed revisions to the CCAP are generally illustrated in the Community Consultation – Public Display Boards. (Attachment 6) The proposed Area Plan amendments, including community feedback highlights the developer's response, and the proposed OCP amendment implementation approach are summarized below.

#### **Proposed CCAP Amendments**

#### 1) Mobility Network:

- Existing CCAP: The Plan currently requires the extension of Park Road from No. 3 Road to Minoru Boulevard (at Minoru Gate) and the extension of on-street bike lanes along No. 3 Road and Minoru Boulevard.
- **Proposed CCAP Amendment**: The subject development proposes to:
  - a) Satisfy the Plan's existing requirements with respect to the extension of Park Road to Minoru Gate (in the form of a statutory right-of-way secured for public access, constructed at the developer's sole cost to the City's satisfaction, and owned/maintained by the developer); and

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- b) Provide additional community benefits, including:
  - A new City-owned street and multi-use pathway (secured as a road dedication), together with special landscape features, along the south edge of the subject property (adjacent to the City Hall site);
  - ii. Smaller, more pedestrian-friendly blocks, which will be achieved by extending Park Road beyond Minoru Gate to Murdoch Avenue and adding a new north-south connection between Park Road and the new City-owned street (in the form of additional "private road" owned/maintained by the developer and secured for public access with a statutory right-of-way);
  - iii. Enhanced street design standards, including wider sidewalks and special landscape features;
  - iv. Off-street bike paths along Minoru Boulevard and No. 3 Road, shared offstreet bike access via the new City-owned street's broad multi-use pathway, and future off-street bike paths along the CCAP's designated Cook-Murdoch connector;
  - v. Improved access to/from Brighouse Station and the future bus mall via:
    - A secured public route across the subject site between Minoru Boulevard and No. 3 Road, including access through CF Richmond Centre's galleria outside normal shopping mall business hours (during transit operating hours); and
    - Sidewalk widening, upgraded crosswalks, and related improvements along the entire No. 3 Road frontage of CF Richmond Centre (including the subject site and the portion of the mall located north of 6551 No. 3 Road);
  - vi. End-of-trip cycling facilities for commercial tenants and employees; and
  - vii. Two multi-modal mobility hubs incorporating pedestrian-friendly, transportation-related features (e.g., bike- and car-share, taxi and ride-hailing pick-up/drop-offs, secure public bike storage, electric vehicle charging stations, transit stops) co-located with shops, services, and public amenities (Attachment 11, Schedule J "Mobility Hub Vision").
- Community Feedback Highlights: Support was expressed for the proposed street network (65%), cross-mall access outside regular business hours (81%), streetscape improvements (75%), and parking features (60%).
- Developer Response: Following the community consultation process, the developer undertook design development regarding the proposed mobility hubs (Attachment 11, Schedule J) to further enhance pedestrian bicycle, transit, and vehicle connectivity, features, and operations. The developer also proposes to provide transit passes for residents for one year (i.e. 25% of market units and 100% of affordable housing units) and retail employees/customers (\$100,000 value). The developer's commitment to provide the mobility hubs, transit passes, and other mobility features will be secured by legal agreements registered on title prior to OCP amendment adoption. Additional design development will be undertaken through CF Richmond Centre's Development Permit processes.

### 2) Public Open Space Network:

Existing CCAP: The Plan currently requires greenway improvements (e.g., street tree
planting, decorative paving, pedestrian lighting and furnishings) along the subject site's
No. 3 Road and Minoru Boulevard frontages.

- *Proposed CCAP Amendment*: The subject development proposes to:
  - a) Satisfy the Plan's existing requirements with respect to greenway improvements along the site's No. 3 Road and Minoru Boulevard frontages; and
  - b) Provide additional community benefits in the form of:
    - i. A central plaza (to be designated as park in the OCP and CCAP) secured for public use, approximately 0.2 ha (0.5 ac) in size (i.e. roughly twice the size of Lang Park); and
    - ii. Improved pedestrian and cycling linkages with Minoru Park and the Richmond Cultural Centre.
- *Community Feedback Highlights*: Support was expressed for the proposed public plaza and other public open space features (71%).
- Developer Response: Following the community consultation process, the developer undertook design development with respect to the private building frontages along the new City street (adjacent to City Hall) to increase the proposed size of the development's fronting gardens and enhance the ability to plant large trees on the subject site. The developer's commitment to provide the public plaza and other public open space features will be secured by legal agreement registered on title prior to OCP amendment adoption. Additional design development will be undertaken through the Development Permit process.

#### 3) Form and Character:

- Existing CCAP: As the subject site is located within 400 m (1,312 ft.) of a Canada Line station, the Plan encourages high-rise, high density, mixed use, transit-oriented development, generally in the form of towers up to 45 m (148 ft.) in height, mid-rise streetwall buildings with landscaped roof decks (for use as residential outdoor amenity space), and a combination of ground floor, pedestrian-oriented retail and public amenities such as greenways (i.e. low-rise, lower density buildings are discouraged in key downtown transit nodes). Parking is encouraged to be screened from view (e.g., located underground or behind residential or commercial uses). The overall form of development is encouraged to contribute to a livable urban environment and a visually distinct and appealing urban village.
- **Proposed CCAP Amendment**: The subject development proposes to meet or exceed the Plan's existing requirements by:
  - a) Locating most of the development's required parking in two underground levels so as to screen it from public view and free up the ground plane for public open space, retail, restaurant, residential, and other non-parking uses;
  - b) Extending pedestrian-oriented commercial uses along No. 3 Road and the extension of Park Road, with links to the east and west ends of the mall's existing galleria, to provide for a connected outdoor/indoor pedestrian shopping (loop) precinct;
  - c) Designing the proposed public street and multi-use path along the subject site's south edge as a "civic promenade" framed by City Hall on its south and complementary architectural and landscape features on its north;
  - d) Providing opportunities for slim slab-type tower forms with large floorplates, wide tower spacing, and large podium-level landscaped outdoor amenity spaces; and

- e) Supporting the development of a distinctive public realm characterized by high quality, pedestrian-oriented retail and residential frontages and enhanced public spaces.
- Community Feedback Highlights: Support was expressed for the proposed outdoor shopping precinct (68%) and form of development (51%). Concerns expressed regarding the form of development were focussed on the number of towers and the potential impact of soil conditions on underground parking.
- **Developer Response**: Following the community consultation process, the developer undertook design development with respect to the proposed:
  - a) Tower massing with the aim of refining measures intended to minimize the project's total number of towers, improve the development's ability to meet the needs of families with children, and enhance views from neighbouring existing residential towers. Features of the proposed development include:
    - i. Increasing the CCAP's maximum recommended mid-rise building height from 25 m (82 ft.) (8 storeys) to 30.5 m (100 ft.) (9 storeys) and increasing the CCAP's maximum recommended tower floorplate size on the subject site from 650 m<sup>2</sup> (7,000 ft<sup>2</sup>) to 1,200 m<sup>2</sup> (13,000 ft<sup>2</sup>), which together, as generally illustrated in Attachment 10:
      - Effectively cuts in half the number of towers that would otherwise be built under the existing CCAP; and
      - Increases the achievable tower spacing along all City street frontages (i.e. No. 3 Road, Minoru Boulevard, and the new City street adjacent to City Hall) to 35 m (115 ft.), as compared with the CCAP minimum recommended spacing (i.e. 24 m / 79 ft.) or the spacing that would potentially result if smaller, CCAP-size towers were constructed on the site (i.e. spacing of 20 m / 66 ft. or less, as shown in Attachment 10);
    - ii. Reducing tower width (i.e. narrow dimension of the slab) to 20 m (66 ft.) as compared with the width of Richmond's typical point towers, which are generally 35 m (115 ft.) or wider;
    - iii. Varying tower heights, shapes, and orientation to provide visual interest; and
    - iv. Creating large podium-level outdoor residential amenity spaces (co-located with indoor amenities) that are able to accommodate a variety of children's play opportunities suitable for a range of age groups and needs;
  - b) Increasing landscaping and terracing along the development's Minoru Boulevard frontage to enhance its interface with nearby residential buildings and Minoru Park; and
  - c) Providing greater façade articulation and incorporating special streetscape features along the north portion of Park Road (e.g., murals, public art, catenary lighting suspended over the roadway) to enhance the exposed portions of the existing mall, screen above-grade parking, and provide for a lively shopping environment.

Staff are supportive of the developer's proposed built form strategy because it effectively responds to the site's special constraints while respecting key urban design objectives of the CCAP. More specifically, while the net site is unusually large (109,353 m<sup>2</sup> / 28 ac.), 37% of the net site is occupied by the portion of the existing mall and surface parking that the owner wants to remain operational throughout and after construction and 18% is occupied by proposed publicly accessible streets and open spaces (which will be secured

with statutory right-of-ways prior to OCP Amendment adoption). As a result, the above-grade portion of the proposed development occupies just 45% of the net site. The developer's proposed underground parking, increased tower floorplate size, increased tower spacing, public and private open space amenities, and pedestrian-oriented streetscapes will help enable the lot's pre-zoned density to be accommodated on the site in a manner that is attractive, livable, and distinctive. The adoption of site-specific Development Permit (DP) Guidelines for the subject site is recommended to guide the developer's 2-phase development and define the boundaries of this distinct mixed use, urban precinct. (Proposed site-specific DP Guidelines are included in the attached OCP Amendment bylaw.)

Additional design development will be undertaken through CF Richmond Centre's Development Permit processes.

#### 4) Housing:

- Existing CCAP: The Plan encourages affordable housing, a diversity of unit types, and
  accessible housing options; however, as the subject site is pre-zoned site, the developer
  would not be obligated to provide for these features through a stand-alone Development
  Permit process.
- *Proposed CCAP Amendment*: The subject development proposes to provide:
  - a) 5% affordable, low-end-of-market rental (LEMR) housing in the form of two purpose-built rental buildings (one per phase) comprising a total of 150 units (secured in perpetuity with a Housing Agreement prior to adoption of the OCP amendment bylaw);
  - b) 50% family-friendly, 2- and 3-bedroom (market and LEMR) units; and
  - c) 25% Basic Universal Housing (BUH) units (including 100% of LEMR units), together with aging-in-place features (e.g., lever handles and blocking in walls for grab bars) in all units.

The developer's proposed 5% affordable housing contribution is consistent with the CDT1 zone, which permits a density bonus (0.15 FAR) for applications containing 5% LEMR units (secured with a Housing Agreement registered on title) that were submitted to the City prior to July 24, 2017 and presented for consideration by Council prior to July 24, 2018. The subject OCP amendment application was submitted on November 25, 2016 and first presented to Council on April 9, 2018.

The developer's proposed affordable housing contribution will be taken into account with respect to the Zoning Bylaw's permitted parking reduction applicable to pre-zoned CDT1 sites (i.e. from 1.5 spaces/unit to 1.0 space/unit). This is consistent with the Affordable Housing Strategy, which supports parking reductions in transit-oriented locations where it will help to facilitate increased affordable housing developer contributions.

- Community Feedback Highlights: Support was expressed for the proposed affordable housing units (64%) and family-friendly housing mix and accessibility features (66%).
- Developer Response: Following the community consultation process, the developer has
  engaged a non-profit affordable housing provider to be involved in the design and
  management of the LEMR units proposed for the development's first phase.

The developer's commitment to provide the proposed affordable housing (i.e. 150 units), family-friendly unit mix (i.e. 50% 2- and 3-bedroom market and LEMR units), and BUH and aging-in-place features (including 100% of LEMR units built to BUH standards) will be secured by legal agreements registered on title prior to OCP amendment adoption.

Additional design development will be undertaken through the Development Permit process.

#### 5) District Energy Utility (DEU) Network:

- Existing CCAP: The Plan aims to support the development of a cleaner, greener, and healthier downtown and reductions is greenhouse gas (GHG) emissions, but does not set specific directions or targets for the City Centre.
- Proposed CCAP Amendment: To implement a low-carbon (i.e. low/zero GHG emissions)
  system to heat/cool the subject development with consideration being given to a City
  District Energy Utility (DEU).
- *Community Feedback Highlights*: Support was expressed for a low-carbon system that would help reduce GHG (66%).
  - Developer Response: Following the community consultation process, staff and the developer worked cooperatively to ensure that the subject development will contribute towards City objectives for the implementation of a low carbon system capable of meeting the heating/cooling needs of the subject development and providing for future network connections to Richmond's emerging City Centre DEU system. More specifically, the developer has proposed and staff have agreed that:
  - a) As required under City policy for new City Centre development, the development (excluding commercial portions of the enclosed mall) will be designed and constructed, at the developer's sole cost, with the ability to connect to and be serviced by a City DEU system; and
  - b) In addition, if prior to Development Permit issuance Council adopts a DEU service area bylaw that provides for the owner's construction of an energy generation plant on the subject site, the developer shall, at the developer's sole cost:
    - i. Design and construct a low carbon energy plant(s) capable of supplying at least 70% of the development's annual space heating, space cooling, and domestic hot water needs (excluding commercial portions of the enclosed mall) from a renewable (non-carbon) energy source;
    - ii. Transfer ownership of the low carbon energy plant(s), distribution system, and all ancillary components to the City or its DEU service provider prior to building occupancy; and
    - iii. Work with the City to explore opportunities for heat recovery from the enclosed mall and its integration with a City DEU system.

The developer's commitment to design, construct, and transfer a low carbon energy plant to the City's DEU service provider is consistent with that achieved through recent City Centre rezoning applications.

A separate staff report recommending a DEU service area bylaw with respect to the subject site will be presented for Council consideration.

The developer's commitment to implement the proposed low-carbon energy system will be secured by legal agreements registered on title prior to OCP amendment adoption.

Additional design development (e.g., energy modelling report, low carbon energy system detail design and configuration) will be undertaken through CF Richmond Centre's Development Permit and Building Permit processes.

#### **CCAP Amendment Implementation Approach**

Implementation of the subject development as proposed would require a combination of site-specific amendments to the City Centre Area Plan (i.e. OCP Amendment Bylaw) and various related voluntary developer commitments towards specific development features and amenities secured through legal agreements registered on title to the property, as set out in the attached OCP Amendment Considerations (Attachment 11).

- 1) OCP Amendment Bylaw addresses items specific to the City Centre Area Plan, generally including amendments to:
  - Maps throughout the Plan, including changing in the locations of road, park, pedestrianoriented retail precincts, pedestrian linkages and greenways, cycling linkages, and related features on and around the subject site;
  - The mobility section to add a mobility hub policy and related information;
  - The arts and culture section to revise the location of pedestrian-oriented retail street in response to the new street pattern;
  - The parks and open space section to add the central plaza and multi-modal route along the new City street (adjacent to City Hall);
  - The public realm and public life section to increase permitted tower floorplate sizes from 650 m<sup>2</sup> (7,000 ft<sup>2</sup>) to 1,200 m<sup>2</sup> (13,000 ft<sup>2</sup>) and revise recommended frontage conditions in response to the new street pattern; and
  - The Development Permit (DP) Guidelines section to add DP Guidelines specific to the subject site.
- 2) OCP Considerations address items to be secured via legal agreements for implementation by the developer, at the developer's sole cost. Development and the developer's delivery of community amenities and voluntary contributions will be undertaken in two phases, beginning with the site's west half (fronting Minoru Boulevard) and followed by the site's east half (fronting No. 3 Road). This includes:
  - Subdivision to create three fee-simple lots (i.e. Phase 1/west lot, Phase 2/east lot, and a remainder/north lot), as determined to the City's satisfaction, together with road widening (dedication) along the site's No. 3 Road and Minoru Boulevard frontages;
  - Statutory right-of-ways and related legal agreements securing:
    - a) A new publicly-accessible, privately-owned/maintained central plaza;
    - b) A new publicly-accessible, privately-owned/maintained street network (e.g., extensions of Park Road, Cook Road, Murdoch Avenue, and Minoru Gate); and
    - c) A future City-owned street and multi-use pathway along the site's south side (adjacent to City Hall), which right-of-way area will be:

- i. On an interim basis, occupied by the shopping centre's existing multi-storey parkade; and
- ii. Prior to Building Permit, on a phase-by-phase basis (i.e. two phases), dedicated as City street (and the developer will enter into Servicing Agreements for the street's design and construction at the developer's sole cost).
- Transit access improvements, including:
  - a) Public access through the mall's galleria outside business hours to be consistent with Canada Line operating hours (to be secured with legal agreements); and
  - b) Upgrades to pedestrian crossings and sidewalks in proximity to the Richmond-Brighouse Station, including in Phase 1, widening of the shopping centre's No. 3 Road sidewalk to 3 m (10 ft.) from the pedestrian crossing at the transit station to the mall's north property line (i.e. north of Shopper's Drugmart);
- Transportation demand management (TDM) measures including, among other things, two multi-modal mobility hubs and transit passes for residents and commercial tenants/employees;
- Servicing Agreement requirements for the design and construction of new and upgraded streets, intersections, engineering infrastructure, public open space, greenways and bike paths, and related improvements (to be secured with Letters of Credit and, as applicable, statutory right-of-ways);
- Electric vehicle and bike charging infrastructure and secure bike storage for the use of residents and, at the mobility hubs, for the general public;
- Restrictions regarding driveway access along City-owned streets and tandem parking (i.e. permitted for market residential use and commercial valet parking only);
- Affordable housing comprising at least 5% of total residential floor area (e.g., 150 units constructed to Basic Universal Housing standards, including 50% family-friendly 2- and 3-bedroom units);
- 50% family-friendly 2- and 3-bedroom units;
- 25% Basic Universal Housing units;
- DEU-ready buildings and, upon Council's adoption of a DEU service area bylaw, the developer's commitment to the design, construction, and transfer of a low carbon energy plant to the City's DEU service provider;
- Public art voluntary developer contribution (i.e. phase-by-phase, based on the City policy in effect at the time of Development Permit issuance);
- Various construction traffic management requirements, including connectivity across the subject site for vehicles and pedestrians throughout demolition and construction;
- Compliance with standard Richmond development requirements (e.g., covenants with respect to flood construction, aircraft noise, the Canada Line, view blockage, and other potential development impacts);
- Tree retention, removal, and replacement in compliance with City bylaws;

- Submission and processing of a Development Permit application for the development's first phase to the satisfaction of the Director of Development prior to OCP Amendment bylaw adoption; and
- Various Development Permit, Building Permit, and occupancy holds and a development staging legal agreement (in the form of covenants and a no-separate-sales agreement registered on title to the lots) to ensure that community amenities and infrastructure improvements are delivered concurrently with the developer's proposed commercial and market residential uses.

#### Proposed Development Schedule

The developer anticipates the subject 2-phase development to proceed generally as follows:

2018	Sales centre construction and demolition of the former automotive shop (near the former Sears building)
2019	Opening of the sales centre and the start of Phase 1, including demolition (i.e. west half of the existing multi-storey parkade and a portion of the mall), excavation, and site preparation followed near year-end by the start of construction
2021-2022	Building-by-building completion and occupancy of Phase 1, beginning with the proposed underground parking and new retail space connected to the existing mall
2022-2025	Phase 2 demolition (including the former Sears building, the east half of the multi-storey parkade, and a portion of the mall), excavation, site preparation, construction, and occupancy

#### Financial Impact or Economic Impact

As a result of the proposed development, the City will take ownership of developer contributed assets such as road works, waterworks, storm sewers, sanitary sewers, street lights, street trees and traffic signals. The anticipated operating budget impact for the ongoing maintenance of these assets is \$33,000.00. This will be considered as part of the 2020 Operating budget.

#### Conclusion

GBL Architects has applied to the City of Richmond to amend the Official Community Plan (OCP), Schedule 2.10 (City Centre Area Plan), at 6551 No. 3 Road to permit a 2-phase redevelopment of the south end of the CF Richmond Centre shopping centre with approximately 2,000 dwellings, new public streets and outdoor spaces, two levels of underground parking, and 38,937 m² (419,114 ft²) of new commercial space, the latter of which represents a net commercial increase of 12,032 m² (129,513 ft²). Rezoning is not required. However, the Richmond Centre South Development Plan includes new streets, public spaces, and building features that are not identified in the City Centre Area Plan (CCAP). To rectify this situation, the developer was required to make an application to amend the CCAP. Through the CCAP amendment review process, developer-led community consultation was undertaken (overseen by staff) and staff have worked with the developer to address community objectives, including ones that may not be readily achievable through a stand-alone Development Permit application process. An analysis of the subject development and proposed OCP amendments shows them to

be consistent with Richmond's objectives for development, livability, sustainability, and urban design in the downtown. On this basis, it is recommended that Official Community Plan Bylaw 7100, Amendment Bylaw No. 9892, be introduced and given first reading.

Sopranne Corter-Huffman.

Suzanne Carter-Huffman Senior Planner/Urban Design

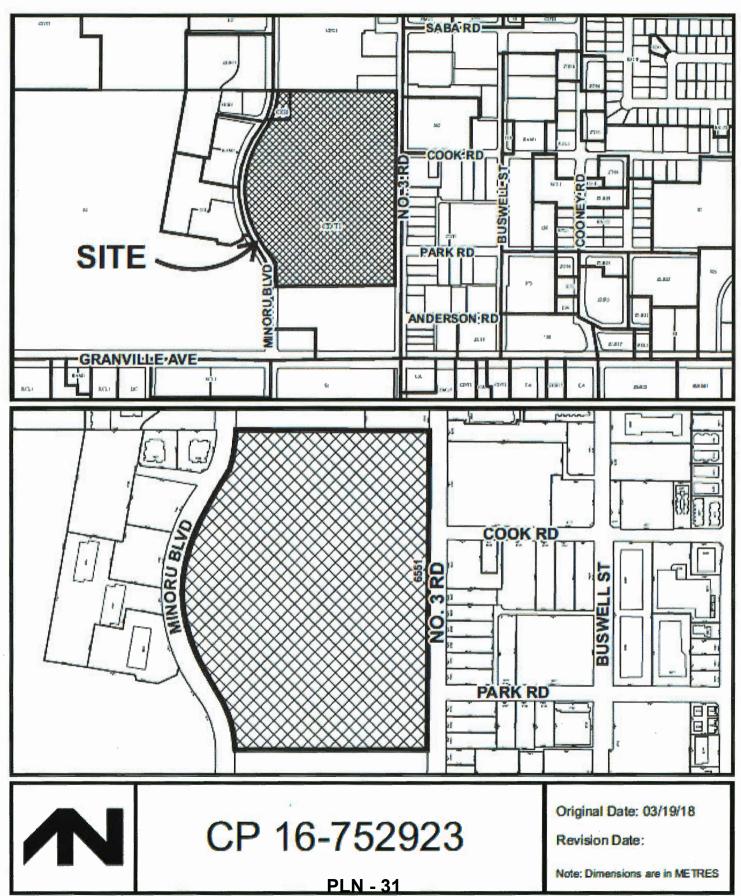
SPC:cas

#### Attachments:

- 1. Location Map
- 2. Aerial Photograph
- 3. Site Location & Proposed Phasing Boundaries
- 4. Development Application Data Sheet
- 5. City Centre Area Plan Specific Land Use Map: Brighouse Village (2031)
- 6. Community Consultation Public Display Boards
- 7. Community Consultation Feedback Form Summary
- 8. Correspondence (5 items)
- 9. Excerpt of the Advisory Design Panel (ADP) Meeting Minutes Held on March 7, 2018
- 10. Built Form Comparison
- 11. OCP Amendment Considerations

## **ATTACHMENT 1**

Location Map







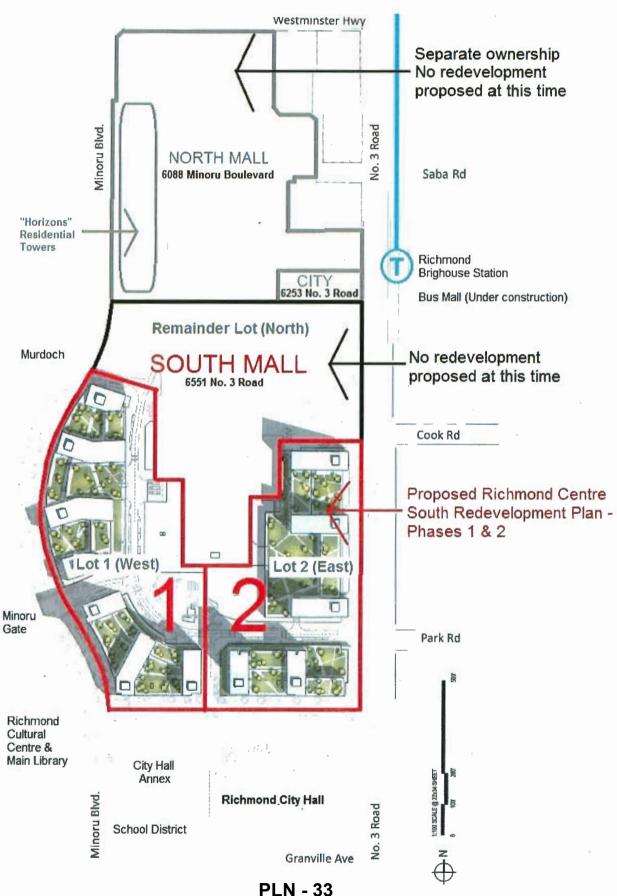
CP 16-752923

Original Date: 03/19/18

Revision Date:

Note: Dimensions are in METRES

ATTACHMENT 3
Site Location & Proposed Phasing Boundaries





# **Development Application Data Sheet**

**Development Applications Department** 

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Address: 6551 No. 3 Road (Richmond Centre / South Mall)

Applicant: GBL Architects Owner: RC (South) Inc. & 7904185 Canada Inc.

Planning Area(s): City Centre (Brighouse Village)

KAK BURE	Existing	Proposed
		<ul> <li>Road dedication: 2,930.4 m² (31,542.6 ft² / 0.7 ac)</li> <li>Minoru Blvd widening: 1,315.7 m² (14,162.1 ft²)</li> <li>No 3 Rd widening: 1,614.7 m² (17,380.5 ft²)</li> </ul>
Site Area	■ 112,283.2 m <sup>2</sup> (1,208,605.8 ft2 / 27.7 ac)	<ul> <li>Net site: 109,352.7 m² (1,177,062.7 ft² / 27.0 ac)</li> <li>Proposed development site: 66,932.1 m² (16.5 ac)</li> <li>Lot 1 (West): 36,497.7 m² (392,858.0 ft²)</li> <li>Lot 2 (East): 30,434.4 m² (327,593.2 ft²)</li> <li>Remainder Lot (North): 42,420.6 m² (456,611.5 ft²)</li> </ul>
Land Uses	Auto-oriented commercial	High-rise, mixed use
OCP Designation	Downtown Mixed Use	■ No change
CCAP Designation	<ul> <li>Urban Centre T6 (45 m)</li> <li>Village Centre (commercial) Bonus</li> <li>Pedestrian-Oriented Retail Precinct – "High Street" &amp; "Secondary"</li> <li>Proposed Streets</li> <li>Pedestrian Linkages</li> </ul>	<ul> <li>As existing, EXCEPT:         <ul> <li>Revised street network to create smaller blocks</li> <li>Revised pedestrian network</li> <li>Expanded "High Street" designation</li> <li>New "Park"</li> <li>Related DP Guideline changes</li> </ul> </li> </ul>
Aircraft Noise Sensitive Development	<ul> <li>Aircraft Noise Notification Area "Area 4" – All uses may be considered. (Covenant, acoustic report &amp; noise mitigation as required)</li> </ul>	As required
Zoning	<ul> <li>Downtown Commercial (CDT1)</li> <li>Gas &amp; Service Stations (CG1)</li> </ul>	No change (Rezoning is NOT proposed)
Number of Dwellings	• Nil	<ul> <li>+/-2,000 units, including:</li> <li>Market housing: +/-1,850</li> <li>Affordable (LEMR) housing: +/-150, based on 5% of total residential floor area on Lot 1 (West) &amp; Lot 2 (East)</li> </ul>
Dwelling Unit Types	■ N/A	<ul> <li>50% Bachelor &amp; 1-BR (+/-1,000 units)</li> <li>50% 2-BR &amp; 3-BR (+/-1,000 units)</li> </ul>
Accessible Dwellings	■ N/A	<ul> <li>25% Basic Universal Housing units (+/-500 units), including 100% of affordable (LEMR) units</li> <li>100% of units shall include aging-in-place features (e.g., handrails, lever handles &amp; blocking in walls for future grab bar installation)</li> </ul>

	Existing CDT1 Zone Requirement	Proposed (No Rezoning Required)	Variance
Floor Area Ratio (Max.)	<ul> <li>3.15 FAR, including a 0.15 FAR Affordable Housing bonus (as per City policy for applications considered prior to July 24, 2018)</li> </ul>	<ul> <li>+/-2.1 FAR, including new construction &amp; remaining portion of the mall building on the subject site</li> </ul>	None permitted
Buildable Floor Area (Max.)*	<ul> <li>Based on site area net of road dedications: 339,106 m² (3.65 million ft²), including:</li> <li>Lot 1 (West): 114,968 m² (1.24 million ft²)</li> <li>Lot 2 (East): 95,868 m² (1.03 million ft²)</li> <li>Remainder Lot (North), excluding CG1 zoned site: 128,270 m² (1.38 milliopf²)</li> </ul>	<ul> <li>232,258 m² (2.5 million ft²), including:</li> <li>Lot 1 (West): 105,259 m² (1,133,000 ft²)</li> <li>Lot 2 (East): 93,023 m² (1,001,290 ft²)</li> <li>Remainder Lot (North): 32,168 m² (346,257 ft²)</li> <li>34</li> </ul>	None permitted

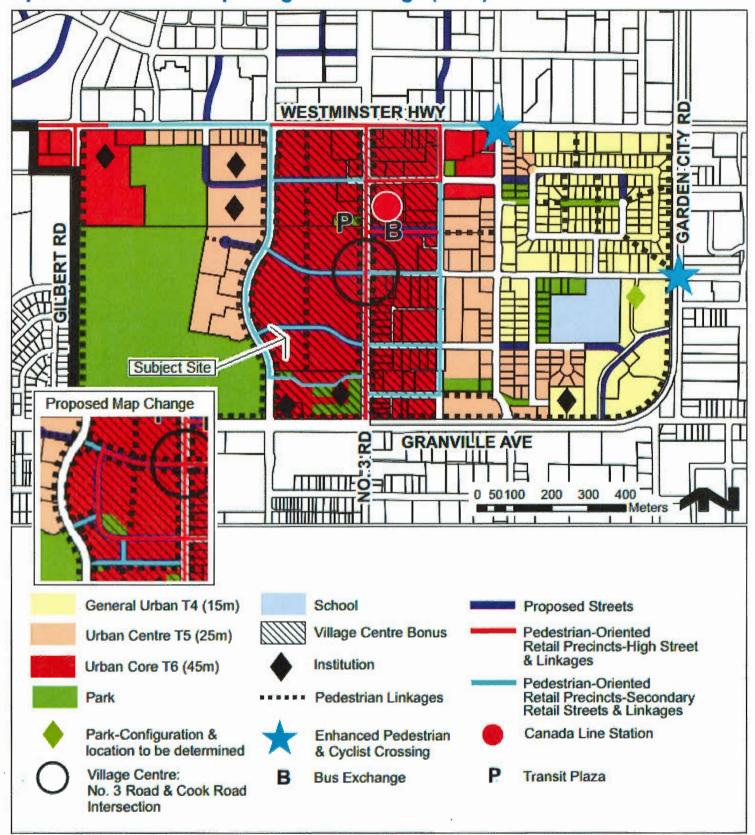
- 26 -

	Existing CDT1 Zone Requirement	Proposed (No Rezoning Required)	Variance
Height (Max.)	■ 45.0 m (148 ft.) to finished grade	■ 45.0 m (148 ft.) max. to finished grade	None
Lot Coverage (Max.)	90% for buildings and landscaped roofs over parking spaces	90% for buildings and landscaped roofs over parking spaces	None
Lot Size (Min.)	■ N/A	<ul> <li>Lot 1 (West): 36,497.7 m² (392,858.0 ft²)</li> <li>Lot 2 (East): 30,434.4 m² (327,593.2 ft²)</li> <li>Remainder Lot (North): 42,420.6 m² (456,611.5 ft²)</li> </ul>	None
Setbacks (Min.)	<ul> <li>City Street: Min. 6 m (20 ft.), but may be reduced to 3 m (10 ft.) with a proper sidewalk interface</li> <li>Private Street (SRW): N/A</li> <li>Publicly-Accessible Open Space (SRW): 1.5 m (5 ft.)</li> <li>Interior Property Line: Nil</li> </ul>	<ul> <li>City Street: 3 m (10 ft.) or greater, except:         <ul> <li>Underground parking: Nil</li> <li>New City street: 0.5 m (1.6 ft.)</li> </ul> </li> <li>Private Street: Nil to SRW</li> <li>Publicly-Accessible Open Space: 1.5 m (5 ft.) to SRW</li> <li>Interior Property Line: Nil</li> </ul>	Reduce from 3 m (10 ft.) to: Nil @ underground parking & 0.5 m (1.6 ft.) @ new City street
Off-Street Parking – Rates (Min.)	<ul> <li>Based on the provision of Affordable Housing &amp; Transportation Demand Management (TDM) Measures:         <ul> <li>Market Housing: 0.9/unit</li> <li>Affordable Housing: 0.81/unit</li> <li>Commercial Uses: 3.375/100 m<sup>2</sup> GLA</li> </ul> </li> </ul>	<ul> <li>Market Housing: 0.9/unit</li> <li>Affordable Housing: 0.81/unit</li> <li>Commercial Uses: 3.375/100 m<sup>2</sup> GLA</li> </ul>	None
Off-Street Parking – Number of Spaces (Min.)	<ul> <li>3,896 spaces, including:</li> <li>Market Housing: 1,665</li> <li>Affordable Housing: 122</li> <li>Commercial Uses: 2,109</li> </ul>	<ul> <li>4,000 spaces, including:</li> <li>Market Housing: 1,769</li> <li>Affordable Housing: 122</li> <li>Commercial Uses: 2,109</li> </ul>	None
Tandem Parking Spaces	<ul> <li>Market Housing: Maximum of 50% of required spaces</li> <li>Affordable Housing: Nil</li> <li>Commercial Uses: Limited to valet parking, as per legal agreement on title</li> </ul>	<ul> <li>Market Housing: Less than 50% of required spaces</li> <li>Affordable Housing: Nil</li> <li>Commercial Uses: Limited to valet parking, as per legal agreement on title</li> </ul>	None
Amenity Space – Indoor (Min.)	<ul> <li>Rate: 2 m² (22 ft²) / unit</li> <li>Rate x 2,000 units = 4,000 m² (43,056 ft²)</li> </ul>	■ 4,000 m² (43,056 ft²)	None
Amenity Space – Outdoor (Min.)	<ul> <li>Rate: 6 m² (65 ft²) / unit</li> <li>Rate x 2,000 units = 12,000 m² (3 acres)</li> </ul>	■ 12,000 m² (3 acres)	None
CCAP Additional Landscaped Space (Min.)	<ul> <li>10% of net site</li> <li>6,693 m² (1.7 acres), including:</li> <li>Lot 1 (West): 3,650 m² (0.9 acres)</li> <li>Lot 2 (East): 3,043 m² (0.8 acres)</li> </ul>	<ul> <li>6,693 m² (1.7 acres), including:</li> <li>Lot 1 (West): 3,650 m² (0.9 acres)</li> <li>Lot 2 (East): 3,043 m² (0.8 acres)</li> </ul>	None

Other: Tree replacement compensation required for loss of significant trees.

<sup>\*</sup> Preliminary estimate, not including enclosed parking. The exact building size will be determined through zoning bylaw compliance reviews at Development Permit and Building Permit stages.

# Specific Land Use Map: Brighouse Village (2031)





# Proposed CF Richmond Centre South Development Plan

# Here's your opportunity to share your input

You are invited to share your input on the proposed redevelopment of the south portion of the CF Richmond Centre shopping centre located at 6551 No. 3 Road.

The property owner has applied to the City to construct a two-phase redevelopment of the south end of the existing mall including an outdoor retail precinct, approximately 2,000 dwellings, and new streets and public spaces.

# **Public Display & Open Houses**

Residents and interested parties are invited to visit the public display at CF Richmond Centre, at the No. 3 Road entrance to the Galleria, from Tuesday, May 22 to Sunday, June 3, 2018.

The developer and City staff will be at the display to answer questions at two **Open House** events:

Sunday, May 27, 2018 1 p.m. to 4 p.m.

Thursday, May 31, 2018 5 p.m. to 8 p.m.

# Have your say!

# LetsTalkRichmond: 3 easy steps



- Step 1: Go to LetsTalkRichmond.ca
   Step 3: Glisters (GE Richmond Cont
- Step 2: Click on 'CF Richmond Centre South Development Plan'
- Step 3: Tap on 'TAKE SURVEY'

# Not registered with LetsTalkRichmond?

- Tap the register button
- Enter your name, email & postal code
- · Enjoy the display while you wait for a confirmation email
- Respond to the email & you are ready to go!

#### No cell phone? No problem!

- Fill in the survey on LetsTalkRichmond.ca at home
- At the Open House events, fill in a paper survey

Be sure to submit your survey no later than 11:59 p.m. on Sunday, June 3, 2018.



# For more information

Visit: www.letstalkrichmond.ca/richmond-centre-south-development-plan Contact: Suzanne Carter-Huffman, Senior Planner/Urban Design

Phone: 604-276-4228

Email: communityplanning@richmond.ca



# INTRODUCTION **OVERVIEW & DESCRIPTION**

#### CF RICHMOND CENTRE SOUTH

CF Richmond Centre is proposing a 2-phase redevelopment of a horseshoe-shaped portion of the south end of the existing mell, "CF Richmond Centre South."

The proposed Development Plan includes the replacement of the former Sears building, nearby shops, the existing multi-storey parkade, and adjacent surface parking with a highrise, urban neighbourhood comprising:

- approximately 2,000 dwellings:
- new public streets and outdoor spaces;
- · two levels of underground parking;
- 40,900 m² (440,000 ft²) of new retail space, which represents a net retail increase of approximately 9,290 m7 (100,000 ft2).

The proposed high-rise, mixed use buildings are permitted under the mall's existing zoning and Richmond's City Centre Area Plan (CCAP), the long-range development plan for Richmond's downtown (approved in 2009).



# What does FAR mean?

FAR [floor area ratio] is a measure of building density. For example, 2.1 FAR means that a building's floor area equals 2.1 times the size of the property on which it is located.

As the property is pre-zoned to permit high-rise, high density development, no rezoning is required and the City's ability to secure development features, such as affordable housing, is compromised. Nevertheless, the developer has submitted an application to amend the City Centre Area Plan (CCAP) to permit changes to various circulation, public realm, and building design requirements of the Plan. Through this CCAP amendment review process, City staff are working with the developer to address community objectives and secure amenities, including ones not generally achievable through the development application processes applicable to pre-zoned sites.

# PROPOSED FOCUS OF CCAP CHANGES

# Circulation

- Bike paths
- Transit access

#### Innovative parking

# Public Realm

# **Buildings**

- Family housing
   Accessible housing
- Innovative design
  Reduced greenhouse gas



# INTRODUCTION **CURRENT CONTEXT PLAN**





Richmond Library & Cultural Centre

Richmond City Hall

City Centre Community Centre

Canada Line Station

Minoru Centre for Active Living Under construction













Existing South Mall & Development Area

**PLN - 39** 



# RE-CONNECTING TO OUR CITY KEY COMMUNITY INITIATIVES

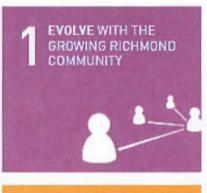
# RE-CONNECTING TO OUR CITY

CF Richmond Centre has been a key part of Richmond's core for decades. As it evolves, the Centre is poised to bring new life to Richmond's downtown and to reconnect key elements of the city. With its retail expansion, its mix of uses, and its public space additions, the CF Richmond Centre South Redevelopment aims to connect our streets, connect to transit, and connect to our open space network.

Most importantly, it will connect our people . . . inviting everyone to come together and experience the new heart of Richmond.

# KEY COMMUNITY INITIATIVES

The vision for the redevelopment plan of CF Richmond Centre South focuses on six key community initiatives.













# **EVOLVE** WITH THE GROWING RICHMOND COMMUNITY





1964 RICHMOND POPULATION APPROXIMATELY SQ.000
Richmond Square opens to public



1966 RICHMOND POPULATION
APPROXIMATELY SOURD
Hudson's Bay plans a location for site
north of Richmond Square



1973 RICHMOND POPULATION
APPROXIMATELY 75,000
View across Richmond Square from
the south west



1974 APPROXIMATELY \$1,000
Photos taken from Minoru Blvd. Park Towers - Richmond's first high-rise buildings. The Twin Theatres and Municipal Hall are shown in the image farthest right.







1989 RICHMOND POPULATION 115,000 Hudson's Bay and Richmond Square combine into Richmond Centre



1996 RICHMOND FORMATION 149,000 Construction of Horizons Towers brings residential units to Centre





2009 RICHMOND POPULATION
MR.600 Brighouse Station on new Canada Line
opens in advance of 2010 Olympic Games



2012 RICHMOND POPULATION 199,000 Dirang Terrace opens

**PLN - 41** 





# 2 CONNECT THE CITY CENTRE GRID







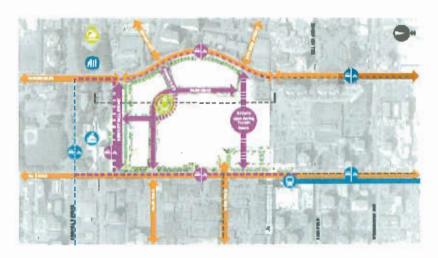


Off Street Bike Lanes



The Park Road extension connects the West and East side of the Development





# **CONNECT THE CITY CENTRE GRID**

Relocating the parking below ground allows for expanded development and new connections to be established between No. 3 Road to Minoru through a new street next to City Hall and an extension of Park Road. A new road will also connect Park Road to the new City Hall Street, while Minoru Gate and Murdoch Road will tie into the new street grid. New off street bike paths will be created on No. 3 Road, Minoru Boulevard, and the New City Hall Street. The existing mall galleria will stay open during transit hours to create more permeability from Brighouse Station.



Richmené Brighowa Station



Richmond Only Hell.



Richmond Library & Cultural Centra



Minoru Park



Existing Streets





OH Street Bike Lene







# 3 EXPAND RICHMOND'S OPEN SPACE AMENITIES





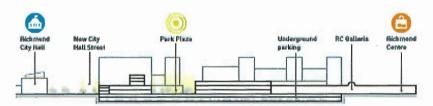
1 Transit Station Crosswalk



2 No. 3 Road Plaza



3 Park Plaza





# EXPAND RICHMOND'S OUTDOOR SPACE

A network of open spaces of varying scales provide a variety of places to relax, socialize, and be entertained throughout the public realm, strengthening the connectivity of the City Centre.

- Transit Station Crosswalk
  Weather protected connection from No. 3 Road to Galleria
- 2 No. 3 Road Plaza
  Provides a green respite with author neuting stong No. 3
- 3 Park Plaza
  Premier gethering place & center of activity
- Public Art
  Public art will be located in key locations to engage visitors
- 5 Additional Public Art Arteuries and artist infrastructure will enhance and aremate the public realm
- 6 Residential Entry Court first areas along the townhouses and tolely interlage that delineate residential entries



# 3 EXPAND RICHMOND'S OPEN SPACE AMENITIES





















# PUBLIC AMENITIES

CF Richmond Centre will provide a wide erray of public amenities, enriching the retail and residential experience of the place. It includes landmark public art, enhanced sidewalks, crosswalks, and outdoor seating. A new plaza will become the heart of the City Centre, offering outdoor dining, events, and moments of relexation.









# **REVITALIZE** A CITY CENTRE 4 RETAIL DESTINATION





Over 100,000 ft<sup>2</sup> of new retail



New retail high street on Park Road



Strong retail presence on No. 3 Road





# CITY CENTRE RETAIL DESTINATION

An expanded Commercial Centre creates a more connected, walkable, and attractive indoor/outdoor shopping experience characterized by pedestrian-scaled streets lined with shops, small plazes, continuous weather protection, street furnishings, public art, and special architectural and landscape features. The parkades are located for convenient access and can be entered from multiple locations to allow for better flow.

- Over 100,000 ft² of new retail

  Food & Beverage

  Entertelement

  Fashlen & Services
- New retail high street on Park Road
- 3 Strong retail presence on No. 3 Road
- New mall entry on Park Plaza
- **New Outdoor Shopping Precinct**
- Richmond Centre Mall

# 4 RETAIL DESTINATION







# OUTDOOR SHOPPING PRECINCT

The new additions along No. 3 Road & the new Park Road extension will transform CF Richmond Centre into a vibrant outdoor shopping precinct. To entiven the sidewalk activity, the shops and restaurants will spill their spaces to sidewalk seating, entries, and displays. The amenities of weather coverage, landscaping, lighting, and sidewalk furnishings will also add to the pedestrian shopping experience or those passing through on their commutes.

# **NEW RETAIL**

The retail expansion looks to integrate new restaurants, entertainment, fashion & service retail into the existing mall experience. The variety of retail choices will help support a true Live, Shop, Play environment for CF Richmond Centre's visitors & inhabitants.













# **INTEGRATE** A VARIETY





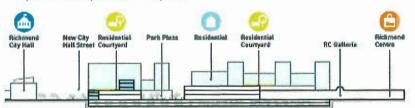
Slender tower design maximizes daylight into Park Plaza and Retail



 Amenity roof gardens integrate private patios & serni-public outdoor spaces.



Over 2,000 new homes



# MINORU BOLLEVARD Na 3 Republic

# HOUSING VARIETY

The redevelopment of CF Richmond Centre South will bring over 2,000 new hornes spread across 12 towers. The towers take on a courtyard form that is unique to the City Centre. This slender form allows more sunlight into Richmond Centre and creates large amenity roof gardens. The new homes will meet a diverse range of demands for housing in the City Centre, including affordable rental, family homes, and accessible housing for people in wheelchairs and with mobility challenges.

- Ourtyard building form contributes to a varied streetscape and public realm.
- 2 Amenity roof gardens enhance livability and complement public outdoor spaces

  Over 130,000 ft<sup>2</sup> of roaf guide
- Over 2,000 new homes
   Approximately 150 homes to be secured as affordable rental

  - rentel

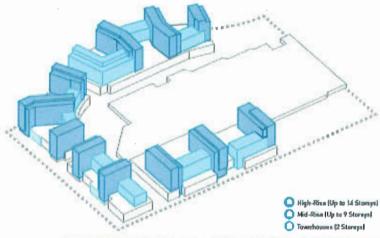
    50% of homes designed for families (bue-5 three badrooms 5 teenhames)

    25% of hymna designed to their University Hessing standards for extenced second-lifty



# **INTEGRATE** A VARIETY





# HOUSING FORM

Townhouses wrap the buildings at street level along Minoru Blvd and New City Hall street.

Mid-rise buildings line the new retail street, Minoru Blvd, and No. 3 Road to help define these important routes and soften the transition to high-rise forms.

High-rise towers are thin and elongated to visually connect with the mid-rises and create courtyard building forms. The slender courtyard building form creates a variety of architectural expressions while increasing tower separation and daylight. Large balconies wrap the exterior of the towers and provide residents with a true sense of indoor/outdoor living.







# **PRIVATE AMENITIES**

Residents will be able to enjoy over  $42,000\ ft^2$  of indoor amenities and  $130,000\ ft^2$  of outdoor facilities distributed throughout the proposed residential buildings.

Facilities include fitness areas, outdoor lounges, guest suites, community gardens, outdoor barbecues and more.







# 6 CONTINUE TO SERVE THE COMMUNITY DURING CONSTRUCTION





# PHASE 1 CONSTRUCTION

The CF Richmond Centre South
Development Plan will take a number of
years to complete, starting with the Minoru
Boulevard side of the mall [Phase 1] and
ending with the No. 3 Road side of the mall
[Phase 2].

#### CONSTRUCTION OF PHASE 1

BEGINS SPRING 2019

# PRESENTATION CENTRE

**OPENS FALL 2018** 



# PHASE 2 CONSTRUCTION

**NEW PARKING ENTRY** 

**LATE 2022** 

PHASE 1 SHOPS & STREETS OPEN

LATE 2022

#### **NEW PLAZA & MALL ENTRY**

**LATE 2022** 

CONSTRUCTION OF PHASE 2

BEGINS LATE 2022

PRESENTATION CENTER DEMOLITION AND PARKING RECONFIGURATION

ATE 2023

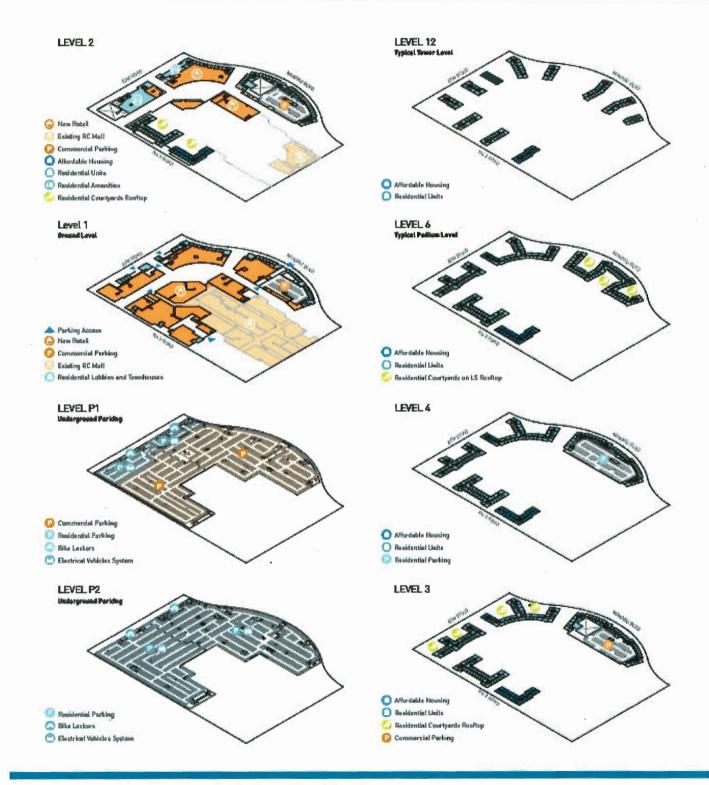


# DEVELOPMENT COMPLETION

LATE 2026

Public pedestrian and vehicle access to the mall's shops and services will be maintained throughout both phases of the redevelopment process. Noise, dirt, worker parking, and other things related to the mall's demolition and construction must comply with City Bylaws.

# REDEVELOPMENT OVERVIEW





Over the next 100 years, Richmond's City Centre population is expected to triple to 120,000 and its jobs may more than double to 80,000. To accommodate this growth, Richmond's City Centre Area Plan (CCAP), adopted in 2009, proposes that the downtown develops as a connected network of urban villages focused on the Canada Line's 4 existing stations, the future Capstan Canada Line station, and the Richmond Olympic Oval.

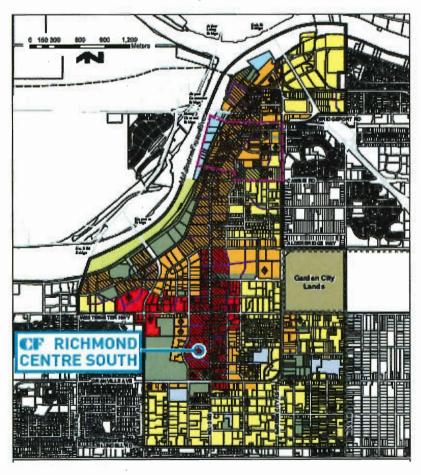
The CF Richmond Centre South Development Plan is consistent with the CCAP's goals, but proposes changes to how those goals will be achieved (e.g., new street locations).

Through this OCAP amendment process, City staff are working with the developer to address 10 key community objectives and secure amenities, including ones not generally achievable through the development application processes applicable to pre-zoned sites.

# What does FAR mean?

FAR (floor area ratio) is a measure of building density. For example, 2.1 FAR means that a build no's floor area equals 2.1 times the size of the property on which it is located.

# City Centre Area Plan (CCAP) Generalized Land Use Map



# Typical Characteristics:



falls not permitted a next inset and due to proved only

# Objective #1: A More Connected Street Network

# TODAY

The CCAP aims to reduce the barrier posed by the existing mall by requiring the developer extend Park Road west from No. 3 Road to Minoru Boulevard.

# PROPOSED CHANGE

In addition to extending Park Road to Minoru Boulevard, the CF Richmond Centre South Development Plan proposes to create a more walkable neighbourhood comprised of smaller city blocks by establishing a connected network of local streets and off-street bike







On-street bike lanes



New off-street bike lanes



No. 3 Road Sidewalk



New sidewalks & pedestrian seating areas



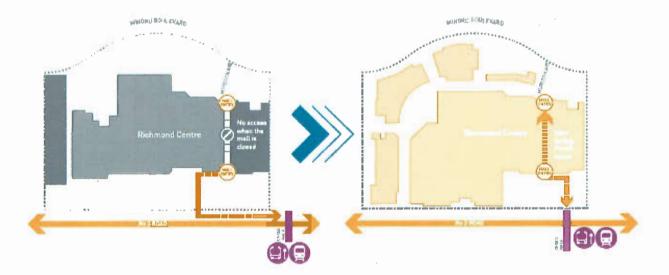
# Objective #2: Better Transit Access

# TODAY

Pedestrian access to/from Brighouse Station can be inconvenient when the mall is closed and the No. 8 Road crosswalk near the station is congested.

# PROPOSED CHANGE

The CF Richmond Centre South Development Plan proposes to improve public access to/from buses and the Canada Line by keeping the mell's Galleria open during transit hours, installing rain protection between the Galleria and No. 3 Road, upgrading the No. 3 Road crosswalk, and widening the No. 3 Road sidewalk along the entire frontage of the mall.











Weather protection from No. 3 Road to RC Galleria open during transit hours

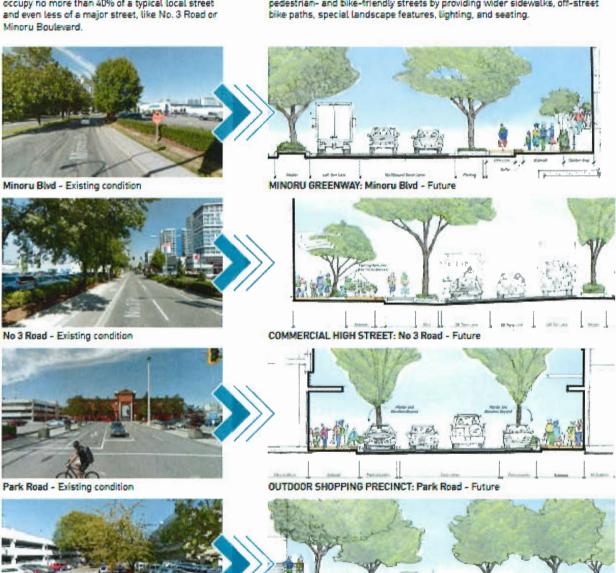
# Objective #3: Friendlier Streets for Pedestrians & Cyclists

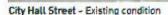
# TODAY

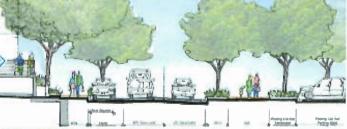
In the City Centre, sidewalks and boulevards occupy no more than 40% of a typical local street

# PROPOSED CHANGE

The CF Richmond Centre South Development Plan aims to create more pedestrian- and bilks-friendly streets by providing wider sidewalks, off-street







CIVIC GREENWAY: New City Hall Street - Future



# Objective #4: A More Connected Parking Strategy

# TODAY

Unattractive parking lots ring the mall and are a barrier to pedestrians and cyclists, unpleasant in bad weather, and, at times, inconvenient.

# PROPOSED CHANGE

The CF Richmond Centre South Development Plan proposes to improve on the current situation with a 2-level underground parking structure with direct vehicle access to No. 3 Road and Minoru Boulevard and "mobility hubs" designed to provide easy access for shoppers and the general public, linking the existing mall and new retail with parking, electric vehicle (EV) charging stations, secure bike storage, and car- and bike-share facilities.





**PLN - 55** 

# Objective #5: A New Outdoor Shopping Precinct

# TODAY

The mail is inwardly focused and contributes little to the amenity or vitality of the downtown's public realm.

# PROPOSED CHANGE

The CF Richmand Centre South Development Plan proposes to create a more connected, walkable, and attractive indoor/outdoor shopping precinct characterized by pedestrian-scaled streets lined with shops, small plazas, continuous weather protection, street furnishings, public art, and special architectural and landscape features.



Interior Mall



Future Outdoor Shopping Precinct



Existing Park Road



Future Park Road



Existing Surface Parking



**Future Outdoor Shopping Precinct** 



# Objective #6: New Outdoor Public Spaces

# TODAY

The mall provides no outdoor public space.

# PROPOSED CHANGE

The CF Richmond Centre South Development Plan proposes to enhance the proposed outdoor shopping precinct with special landscape treatments along No. 3 Road and a central public plaza (roughly 0.5 acres in size or twice Lang Park), for relaxation, public gathering, and seasonal events and activities.



# Objective #6: New Outdoor Public Spaces

# TODAY

The mall provides no outdoor public space.

# PROPOSED CHANGE

The CF Richmond Centre South Development Plan proposes to enhance the proposed outdoor shopping precinct with special landscape treatments along No. 3 Road and a central public plaza (roughly 0.5 acres in size or twice Lang Park), for relaxation, public gathering, and seasonal events and activities.



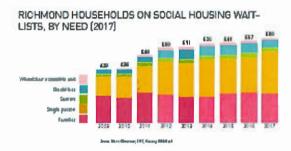
# Objective #8: New Affordable Housing

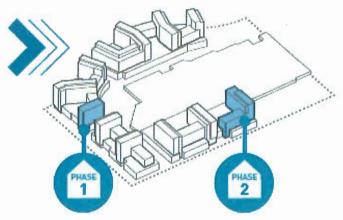
# TODAY

The mall and other pre-zoned sites that do not require a change to their existing zoning are not obligated to provide affordable housing.

# PROPOSED CHANGE

The CF Richmond Centre South Development Plan proposes approximately 150 dwellings for low-income, workforce households (e.g., retail sales employees, teachers, nurses, etc.) in 2 purposebuilt rental buildings suitable for operation by non-profit housing providers.





# **EXAMPLES OF AFFORDABLE HOUSING DESIGN QUALITY & SCALE**



Jubilee House (Yaletown, Vancouver) 162 units



McLaren House (Downtown, Vancouver) 110 units



First Place [Mt Pleasant, Vancouver] 129 units

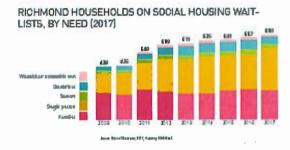
# Objective #8: New Affordable Housing

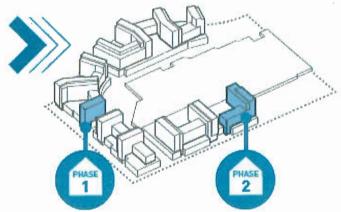
# **TODAY**

The malt and other pre-zoned sites that do not require a change to their existing zoning are not obligated to provide affordable housing.

# PROPOSED CHANGE

The CF Richmond Centre South Development Plan proposes approximately 150 dwellings for low-income, workforce households (e.g., retail sales employees, teachers, nurses, etc.) in 2 purposebuilt rental buildings suitable for operation by non-profit housing providers.





# **EXAMPLES OF AFFORDABLE HOUSING DESIGN QUALITY & SCALE**



Jubilee House (Yaletown, Vancouver) 162 units



McLaren House (Downtown, Vancouver) 110 units



First Place [Mt Pleasant, Vancouver) 129 units

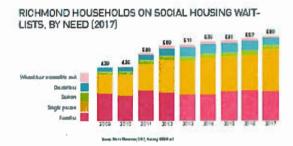
# Objective #8: New Affordable Housing

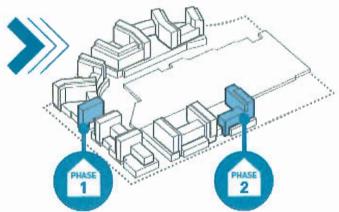
#### TODAY

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# **EXAMPLES OF AFFORDABLE HOUSING DESIGN QUALITY & SCALE**



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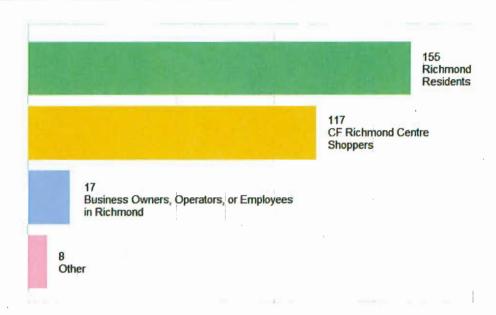


# Proposed CF Richmond Centre South Development Plan COMMUNITY CONSULTATION – FEEDBACK FORM SUMMARY

Tuesday, May 22<sup>nd</sup> to Sunday, June 3<sup>rd</sup>, 2018

164 feedback forms were submitted to the City via LetsTalkRichmond.ca, mail, and in person.

Respondents primarily identified themselves as Richmond residents and/or CF Richmond Centre shoppers.

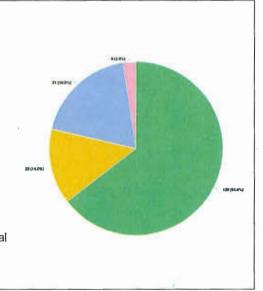


# Objective #1: A More Connected Street Network

- Today: The CCAP aims to reduce the barrier posed by the existing mall by requiring the developer to
  extend Park Road west from No. 3 Road to Minoru Boulevard.
- Proposed Change: In addition to extending Park Road to Minoru Boulevard, the CF Richmond Centre South Development Plan proposes to create a more walkable neighbourhood comprised of smaller city blocks by establishing a connected network of local streets and off-street bike paths.

# #1 Public Response Overview:

- a) Number of Responses: 164
- b) How did respondents feel about the proposed change:
  - 65% liked the change (106 responses)
  - 14% were neutral (23 responses)
  - 19% did not like the change (31 responses)
  - 2% did not know (4 responses)
- Respondents who did <u>NOT</u> like the proposed change expressed concern regarding:
  - Increased traffic congestion & delays
  - New roads not needed
  - Not enough parking
  - Skeptical that people will walk & bike
  - Need a transit priority lane on No. 3 Road
  - Growth will further strain infrastructure, transit & hospital
  - City Centre is overcrowded & has too many high-rises
  - City is losing doctors & small businesses
  - Soil conditions

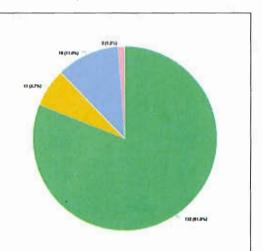


# Objective #2: Better Transit Access

- Today: Pedestrian access to/from Brighouse Station can be inconvenient when the mall is closed and the No. 3 Road crosswalk near the station is congested.
- Proposed Change: The CF Richmond Centre South Development Plan proposes to improve public
  access to/from buses and the Canada Line by keeping the mall's Galleria open during transit hours,
  installing rain protection between the Galleria and No. 3 Road, upgrading the No. 3 Road crosswalk, and
  widening the No. 3 Road sidewalk along the entire frontage of the mall.

#### #2 Public Response Overview:

- a) Number of Responses: 163
- b) How did respondents feel about the proposed change:
  - \$ 81% liked the change (132 responses)
  - 7% were neutral (11 responses)
  - 11% did not like the change (18 responses)
  - 4 1% did not know (2 responses)
- Respondents who did <u>NOT</u> like the proposed change expressed concern regarding:
  - Canada Line is too busy
  - Wider sidewalks are needed
  - Bus mall & other transit improvements are needed
  - Will add to traffic congestion on No. 3 Road
  - Need cars & trucks (not transit) to do business
  - May increase panhandling

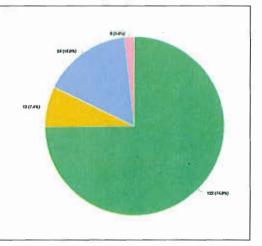


# Objective #3: Friendlier Streets for Pedestrians & Cyclists

- Today: In the City Centre, sidewalks and boulevards occupy no more than 40% of a typical local street and even less of a major street, like No. 3 Road or Minoru Boulevard.
- Proposed Change: The CF Richmond Centre South Development Plan aims to create more pedestrianand bike-friendly streets by providing wider sidewalks, off-street bike paths, special landscape features, lighting, and seating.

#### #3 Public Response Overview:

- a) Number of Responses: 163
- b) How did respondents feel about the proposed change:
  - 75% liked the change (122 responses)
  - 7% were neutral (12 responses)
  - 4 16% did not like the change (26 responses)
  - 2% did not know (3 responses)
- Respondents who did <u>NOT</u> like the proposed change expressed concern regarding:
  - Skeptical that people will ride bikes
  - Skeptical that there is enough space for multiple modes
  - More bike lanes/paths are not needed
  - Widen sidewalks for shared pedestrian/bike use
  - Features will only benefit the development's residents

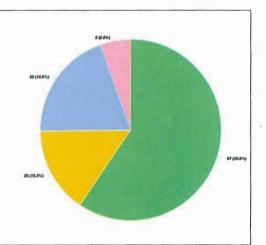


# Objective #4: A More Connected Parking Strategy

- Today: Unattractive parking lots ring the mall and are a barrier to pedestrians and cyclists, unpleasant in bad weather, and, at times, inconvenient.
- Proposed Change: The CF Richmond Centre South Development Plan proposes to improve on the current situation with a 2-level underground parking structure with direct vehicle access to No. 3 Road and Minoru Boulevard and "mobility hubs" designed to provide easy access for shoppers and the general public, linking the existing mall and new retail with parking, electric vehicle (EV) charging stations, secure bike storage, and car- and bike-share facilities.

#### #4 Public Response Overview:

- a) Number of Responses: 163
- b) How did respondents feel about the proposed change:
  - 60% liked the change (97 responses)
  - 15% were neutral (25 responses)
  - 20% did not like the change (32 responses)
  - 6% did not know (9 responses)
- Respondents who did <u>NOT</u> like the proposed change expressed concern regarding:
  - City Centre is overcrowded
  - Traffic congestion
  - Difficulty finding parking
  - Bikes are for California
  - Electric vehicles are for the rich

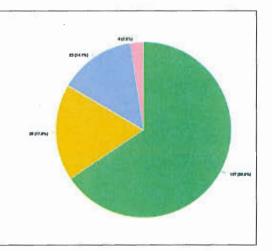


# Objective #5: A New Outdoor Shopping Precinct

- Today: The mall is inwardly focused and contributes little to the amenity or vitality of the downtown's
  public realm.
- Proposed Change: The CF Richmond Centre South Development Plan proposes to create a more connected, walkable, and attractive indoor/outdoor shopping precinct characterized by pedestrian-scaled streets lined with shops, small plazas, continuous weather protection, street furnishings, public art, and special architectural and landscape features.

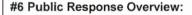
# #5 Public Response Overview:

- a) Number of Responses: 163
- b) How did respondents feel about the proposed change:
  - 66% liked the change (107 responses)
  - 18% were neutral (29 responses)
  - 14% did not like the change (23 responses)
  - 2% did not know (4 responses)
- Respondents who did <u>NOT</u> like the proposed change expressed concern regarding:
  - Prefer a weather protected indoor mall
  - Mall fitness groups (seniors) will be displaced
  - Potential empty street-fronting storefronts ("slum")
  - Richmond Centre is unaffordable for normal tenants
  - Should be a shopping centre, not a gathering place

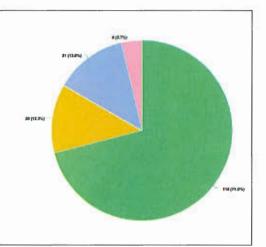


# Objective #6: New Outdoor Public Spaces

- Today: The mall provides no outdoor public space.
- Proposed Change: The CF Richmond Centre South Development Plan proposes to enhance the
  proposed outdoor shopping precinct with special landscape treatments along No. 3 Road and a central
  public plaza (roughly 0.5 acres in size or twice Lang Park) for relaxation, public gathering, and seasonal
  events and activities.



- a) Number of Responses: 162
- b) How did respondents feel about the proposed change:
  - 71% liked the change (115 responses)
  - 12% were neutral (20 responses)
  - 13% did not like the change (21 responses)
  - 4% did not know (6 responses)
- Respondents who did <u>NOT</u> like the proposed change expressed concern regarding:
  - Skeptical that public space will be provided
  - Plaza is good, but would prefer a large park
  - Plaza will be noisy
  - Plaza is not needed (People should use Minoru Park)
  - Costly for taxpayers

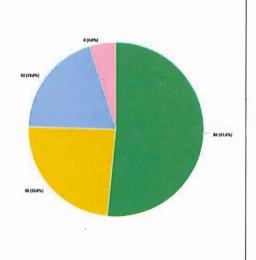


# Objective #7: A New Architectural Character

- Today: Much of the high-rise area surrounding the existing mall can be characterized as one- and twotower residential and mixed-use developments with varied, individual identities.
- Proposed Change: The CF Richmond Centre South Development Plan proposes a cohesive neighbourhood identity characterized by a series of slim towers framing rooftop courtyards that fan out along the edges of the mall property like spokes on a wheel to frame the proposed public plaza and shopping precinct, provide for attractive commercial and residential streetscapes, allow sunlight and views through to public and private spaces, and create sunny rooftop courtyards for residents.

#### #7 Public Response Overview:

- a) Number of Responses: 163
- b) How did respondents feel about the proposed change:
  - 51% liked the change (84 responses)
  - \* 24% were neutral (39 responses)
  - 20% did not like the change (32 responses)
  - 5% did not know (8 responses)
- Respondents who did <u>NOT</u> like the proposed change expressed concern regarding:
  - Do not like high-rises
  - Too many high-rises in City Centre
  - Tall buildings will block views & sunlight
  - Existing units are vacant / New units not needed
  - Form is unattractive
  - Rationale needed for large tower floorplates
  - Buildings do not mean "neighbourhood"
  - Allow public access to podium-level outdoor spaces
  - Need for master plan for entire mall

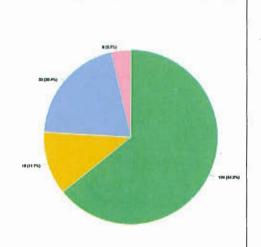


# Objective #8: New Affordable Housing

- Today: The mall and other pre-zoned sites that do not require a change to their existing zoning are not
  obligated to provide affordable housing.
- Proposed Change: The CF Richmond Centre South Development Plan proposes approximately 150
  dwellings for low-income, workforce households (e.g., retail sales employees, teachers, nurses, etc.) in 2
  purpose-built rental buildings suitable for operation by non-profit housing providers.

#### #8 Public Response Overview:

- a) Number of Responses: 162
- b) How did respondents feel about the proposed change:
  - 4 64% liked the change (104 responses)
  - 12% were neutral (19 responses)
  - 20% did not like the change (33 responses)
  - 4% did not know (6 responses)
- Respondents who did <u>NOT</u> like the proposed change expressed concern regarding:
  - Skeptical that units will be affordable
  - More affordable housing is needed
  - Affordable housing is not needed
  - Something like Storeys should be included
  - Affordable units should be dispersed
  - Teachers & nurses are not low income earners
  - Too dense
  - Shopping centre will not be able to expand

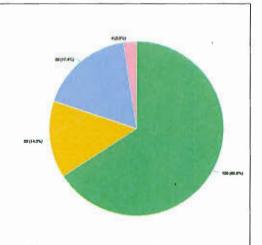


# Objective #9: Housing for a Diverse Downtown Community

- Today: There is a growing need for new housing near transit, schools, and services that is designed to meet the needs of families with children, seniors, and people with disabilities.
- Proposed Change: The CF Richmond Centre South Development Plan proposes that roughly 50% of dwellings will be family-friendly, 2- or 3-bedroom units and at least 25% of dwellings will meet Richmond's Basic Universal Housing standards (making them suitable for people with wheelchairs and mobility challenges).

#### #9 Public Response Overview:

- a) Number of Responses: 161
- b) How did respondents feel about the proposed change:
  - 66% liked the change (109 responses)
  - 4 14% were neutral (23 responses)
  - 17% did not like the change (28 responses)
  - 3% did not know (4 responses)
- c) Respondents who did <u>NOT</u> like the proposed change expressed concern regarding:
  - Skeptical that units can be family-friendly
  - Basic Universal Housing standards throughout
  - Too much development / Too much traffic
  - Too expensive
  - School & child care capacity
  - Housing is replacing Richmond's shopping precinct

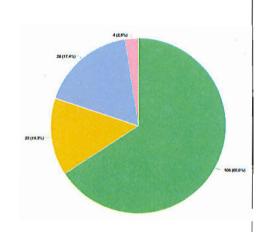


# Objective #10: Reduced Greenhouse Gas (GHG)

- Today: Richmond's Official Community Plan (OCP) aims to support the development of a cleaner, greener, and healthier community by reducing greenhouse gas (GHG) emissions, but does not set specific directions or targets for the City Centre.
- Proposed Change: The CF Richmond Centre South Development Plan proposes to adopt specific strategies supportive of the City's GHG reduction objectives, which may include the fast-tracking of the City's District Energy Utility (DEU) plans by constructing a central energy plant on the mall property to heat/cool the proposed development and connect to a future City system.

#### #10 Public Response Overview:

- a) Number of Responses: 163
- b) How did respondents feel about the proposed change:
  - 4 66% liked the change (108 responses)
  - ❖ 20% were neutral (33 responses)
  - \* 8% did not like the change (13 responses)
  - 6% did not know (9 responses)
- Respondents who did <u>NOT</u> like the proposed change expressed concern regarding:
  - Skeptical that GHG levels will be reduced
  - Why not geo-thermal?
  - What will be the DEU energy source?
  - Higher building standards encouraged (e.g., LEED-ND)
  - Install green roofs on the mall
  - Increased noise pollution
  - Costly for taxpayers



#### **Additional Comments**

#### A. Growth/Change Impacts

- Richmond Centre is great now, but the proposed development will ruin / over-populate it.
- I don't like how Richmond is changing. It is too busy already.
- More density doesn't mean a better place to live.

# B. Shopping Impacts

Redevelopment of Richmond Centre and Lansdowne is threatening Richmond's centralized shopping.

#### C. Transportation Impacts

- Too much congestion.
- Not enough parking.

#### D. Built Form Impacts

- I expect bland streetscapes and over-priced and empty shops.
- Don't allow towers along No. 3 Road. Limit No. 3 Road to 4-6 storeys.
- Need more green space for families and children, not towers.

#### E. Construction Impacts

As a nearby resident, I object to the noise, dirt, and other construction impacts the development will bring.

Item #1

From: Bill Sorenson [mailto:billmel36@gmail.com]

Sent: Friday, 13 April 2018 21:33

To: MayorandCouncillors

Subject: Richmond City Centre South Redevelopment Plan

I read in the Richmond News, April 12, 2018 edition, that what was the Sears Building and mall parkade will be demolished as well as the southern-most parking lots. In their place will be a dozen new towers and about 2,000 new dwellings adding to the almost intolerable density that has been, and continues to fostered by the City. To suggest these changes are not subject to usual City demands, because the enabling zoning was put in place in the 1980's is beyond belief! The owners of this site were allowed to build two large residential towers in the vicinity of The Bay some years ago, which had to equate to a significant financial windfall at that time, but nothing compared to what is now going forward.

In January 2011 Richmond Centre applied for a Development Permit to undertake renovations to add second floor space to house their food court, and free up valuable ground floor space to be converted into retail stores. This had to represent yet another significant windfall, given the lease rates being charged to their store operators. The only good news I can see in all of this, is a commitment to keep the malls galleria open to the public during transit hours to allow residents to flow easily between Minoru Blvd. and No. 3 Road. I would hope the City will get a covenant registered to cover this, so it can't be changed in the future without the City's approval.

The average Richmond resident could not be faulted for thinking someone is getting a kick back or compensation in some form for letting this proceed unchallenged.

We've already lost the liveability of Richmond, our children can't afford to live here and there is a crisis whereby employees, clerks, waiters and waitresses can't afford to live here, and are seeking work elsewhere. When is it all going to stop? When will someone step forward to inject some common sense into the situation? Respectfully,

Bill Sorenson 604-278-9770

Item #2

From: Nadine Iwata [mailto:nadineiwata@gmail.com]

Sent: Saturday, 7 July 2018 21:21

To: MayorandCouncillors

Subject: CF Richmond Centre South Development Proposal

Please consider:

There is no major supermarket on this end of town. (At #3 Rd and Granville) There is no elementary school that will have to accommodate all those new condos.

There are only TWO electric car plug ins for this area of town.

From: Elizabeth Purves [mailto:burroug@telus.net]

Sent: Monday, 28 May 2018 3:08 PM

To: Community Planning

Subject: CF Richmond Centre South Development Plan

Dear Madam,

2 aspects of the above Development Plan are lacking answers:

1. Is the project being built on 'airspace'?

2. Where is the location of the proposed 'geothermal' plant?

Your response will be much appreciated!

Elizabeth Purves

# City Response

From: "Carter-Huffman, Suzanne" < SCarter@richmond.ca>

To: "Elizabeth Purves" <burroug@telus.net>
Sent: Monday, May 28, 2018 5:39:12 PM

Subject: RE: CF Richmond Centre South Development Plan

Hello.

Thanks for your interest in the Richmond Centre redevelopment. In answer to your guestions:

- 1) Cadillac Fairview (CF) proposes to utilize an "air space subdivision" to create multiple legal parcels within the existing south mall property, including:
  - Several air space parcels containing the development's proposed market residential buildings (which buildings will be divided multiple strata units):
  - Two air space parcels containing the development's proposed affordable housing buildings, which will be owned by Cadillac Fairview; and
  - The remainder of the site, which will include the remaining portion of the existing south mall, together with the development's proposed new shops and parking, all of which will be owned by Cadillac Fairview.
- A central energy plant is proposed for the roof of the mall, generally in the vicinity of Sportchek. The central energy plant is proposed to be part of a District Energy System operated by the Lulu Island Energy Company (LIEC). The Lulu Island Energy Company is a wholly-owned City of Richmond corporation (established to operate district energy utility systems in Richmond) that is fully supported by user fees, and has no impact on Richmond property taxes. Current service areas include the Alexandra area (geothermal) and Oval Village (currently natural gas with plans to change over to sewer heat recovery). Additional City Centre areas (including the CF Richmond Centre site) will be added to the system as development occurs. For more information about District Energy or LIEC, please contact Alen Postolka, Manager District Energy (apostolka@luluislandenergy.ca or 604-276-4283).

If you have any other questions, please let me know.

Suzanne Carter-Huffman | Senior Planner/Urban Design | Planning & Development City of Richmond | 6911 No. 3 Road, Richmond, BC, V6Y 2C1 | www.richmond.ca

# **General Comments, Compliments and Questions**

Category: Question

#### Comment/Compliment/Question:

Right now in Richmond Centre there is a show on the plan for the future development. There will be more than ten high-rise buildings to be built within the centre area. And right now the sky trans are getting full all the time. I wonder whether the city has any plan for such a growth of the population in Richmond?

#### Personal Information:

Ray Wong

778-384-1233

RWong218@hotmail.com

#### Tech Information:

Submitted By: 172.29.0.6

Submitted On: Jun 04, 2018 06:26 PM

# City Response

Operation of the Canada Line is the responsibility of TransLink (regional transportation authority) not the City of Richmond. TransLink's 10-Year Vision for transportation upgrades across the region (https://tenyearvision.translink.ca/) identifies a number of Canada Line and bus improvements including:

#### Phase 1 (2017-2019)

- increase of passenger capacity on the Canada Line during peak periods by 11% in January 2017 via increased frequency of trains
- acquisition of 24 new Canada Line cars to allow further frequency of service improvements
- upgrade of selected Canada Line stations to enhance passenger access/egress

# Phase 2 (2020-2021)

- new B-Line service between Richmond-Brighouse Station and Metrotown Station
- increased service on Canada Line during rush hours, evenings and weekends

Should you wish to contact TransLink directly, you can use the online feedback form at https://feedback.translink.ca/.

# **CANADIAN STYLE BASKETBALL**

205-7388 Gollner Ave., Richmond, BC, V6Y 0H4, Tel. No. 604-241-1271, Email: [ypestano181@gmail.com

May 27, 2018

Ms. Suzanne Carter-Huffman

Senior Planner / Urban Design Planning and Development Division City of Richmond 6911 No. 3 Road Richmond, BC V6Y 2C1

Subject: Public Consultation for the Proposed CF Richmond Centre South Development Plan

Dear Ms. Huffman,

**Thank you** very much for this opportunity to present my thoughts and ideas for the "Proposed CF Richmond Centre South Development Plan" as follows:

- Lagree with the proposed Development Plan that includes the removal and replacement of the
  former Sears building, nearby shops, the existing multi-storey parkade, and adjacent surface
  parking with high-rise, urban neighborhood comprising approximately 2,000 dwellings, new
  public streets and outdoor spaces, two levels of underground parking, and 40,900 sq.m.
  (440,000 sq. ft.) of new retail space, the latter of which represents a net retail increase of
  approximately 9,290 sq. m. (100,00 sq. ft.).
- In addition may I suggest and include construction of multipurpose indoor stadium and arena
  for concerts, cultural shows, and indoor sports like basketball, ice hockey, volleyball, boxing,
  wrestling, martial arts and gymnastics tournaments with retail facilities for fast food
  restaurants, cafes, boutiques and gift shops concessionaires to serve spectators and at the same
  attract more shoppers to Richmond Centre.

Thank you and more power to you and your staff. Best regards,

Yours truly,

Jaime Y. Pestano

# 1. CP 16-752923 - OCP AMENDMENT TO PERMIT MIXED USE REDEVELOPMENT OF THE SOUTH PART OF RICHMOND CENTRE SHOPPING CENTRE

ARCHITECT:

**GBL** Architects

PROPERTY LOCATION:

6551 No. 3 Road

# **Applicant's Presentation**

Joey Stevens, GBL Architects, David Chamness, Callison RTKL, and Kris Snider, Hewitt Landscape, presented the project and answered queries from the Panel.

#### **Panel Discussion**

Comments from Panel members were as follows:

- appreciate the applicant's intention to incorporate public art into the project; applicant needs to pay attention to the future location of public art and how it facilitates the pedestrian aspect of the project, e.g. wayfinding and differentiation between public versus private realms;
- No. 3 Road is the main public road in Richmond; consider locating public art at the Park Road entrance along No. 3 Road or widening up the area of the pedestrian space to emphasize the publicness of this important corner;
- appreciate the different textures of paving on each block in the proposed development;
- the project will improve the current street network connection; however, controlling the speed of vehicles in the proposed internal streets is a concern; consider installing clearly marked crosswalks in busy areas to enhance pedestrian safety;
- opening of the mall Galleria during transit hours will significantly improve public access to transit;
- applicant should address and not underestimate wayfinding concerns in the underground parkade as it is more challenging to navigate in the parkade than on the ground;
- not supportive of the outdoor sidewalks for the proposed outdoor shopping precinct as it may not provide adequate weather protection for pedestrians during the rainy season;
- appreciate the provision for a public plaza; however, it may not be adequate to serve the needs of the proposed development;
- east-west orientation of some proposed buildings will not provide protection from the cold west winds for pedestrians walking in the vicinity of these buildings;
- appreciate the proposed location of affordable housing units;

- proposed diverse mix of dwellings is well thought out and meets the needs of families with children, seniors and people with mobility challenges;
- the applicant is encouraged to look into the thermo-energy demand of the proposed building forms in order to meet the energy-efficiency requirements of the BC Energy Step Code (as Step Code requirements may make it necessary to reconsider the proposed residential built form concept);
- significant size of the proposed development requires a District Energy Utility (DEU) plant; however, the applicant is advised that advance planning is needed in terms of the plant's location, serviceability, gas connections, location of cooling towers, and other important considerations;
- review proposed floor to floor height of the underground parking levels as it appears too low to accommodate necessary services for the buildings; also ensure adequate provision for space for service corridor considering that a DEU system is proposed for the project;
- required service connections for the size of the project would be massive; two service connections will not be adequate; water stagnation may also pose a challenge due to the magnitude of required services for the proposed towers;
- appreciate the comprehensive package provided by the applicant; however, a sustainability section could have been included in the package considering the size of the project;
- commend the applicant for the package provided to the Panel;
- proposed project has many positives, e.g., replacing the expansive surface parking lots with high-rise towers and amenity roof gardens;
- building lay-out is good in terms of solar aspect; outdoor amenity spaces are well done and usable to residents;
- larger scale plans would be useful for the public presentation of the project; families would be interested to see the project's site context in terms of its location relative to transit, schools, parks and other community amenities;
- proposed towers on the subject site will overlook the north portion of Richmond
   Centre; consider introducing green treatment to the existing roof;
- appreciate the permeability of the connected street network; hope that the richness of the design and materials of the proposed development will not be lost through the detailing; appreciate the open mall strategy; hope that the applicant will devote necessary resources for public spaces and public interface;
- appreciate the applicant's presentation of the project which is located in an important and central part of Richmond;
- a larger context plan would be helpful for the project's public presentation;
   statistical data included in the applicant's submission regarding visitors coming
   to Richmond Centre Mall are useful for designing the project;

- Minoru Park is a major regional destination for people coming from Brighouse Canada Line station through Richmond Centre; the applicant is advised to acknowledge more the Park destination and give more attention to wayfinding from the northeast surface parking lot to Minoru Park through the Galleria;
- hope that the City's Parks Department will respond to the proposed development through programming Minoru Park in order to serve the broader needs of visitors/users in addition to current active sports uses;
- appreciate the proposed weather protected connection from No. 3 Road to the Galleria; ensure that the canopies along the building face are generous and consider making the weather-protected walkway through the parking lot more ample, e.g., widening it if possible to five meters to provide a more public feel to it;
- appreciate the provision for bicycle parking in the project as there is huge demand for it; will complement bicycle parking at Brighouse Canada Line station; also appreciate the proposed off-street bicycle paths along No. 3 Road and Minoru Boulevard;
- appreciate the proposed on-site at grade planting and proposed structures to support large trees;
- the applicant is encouraged to install as much as possible a continuous row of street trees along the internal streets especially at the Park Plaza area;
- notice that there are no sight lines to the proposed Park Plaza from public streets, e.g. from the new City Hall street, Minoru Gate and No. 3 Road; applicant is advised not to oversell the Park Plaza as a public space if it is intended to be a commercial space rather than a public/civic space;
- shadow diagrams could have been helpful in determining the extent of park area that will be in shade; concerned that the southwest edge of the park will be in shade for a significant period; applicant could consider locating the gathering space on the northeast side of the plaza where there would be more sun exposure;
- notice that the proposed affordable housing units are segregated in individual buildings/blocks; consider distributing the affordable housing units in different places throughout the residential component of the project to make them less conspicuous;
- agree with comment from the Panel for the applicant to introduce roof planting on the north portion of Richmond Centre; applicant may also consider the alternative of hiring a graphic designer to introduce design/colour on the roof to make it more visually appealing for residents of adjacent high-rise towers on the south side;
- appreciate the applicant having a public art consultant on board for the project; a public art plan is more critical at this stage of the project rather than identifying public art location as all other public art decisions will flow from the public art plan;

- suggest that the applicant clarify the presentation board for public consultation Question 1 (i.e., More Connected Street Network) and break out vehicular, bicycle and pedestrian movements along the proposed network of internal streets;
- consider asking neutral as opposed to leading questions for public consultation;
- for public consultation Question 3 (i.e., Friendlier Streets for Pedestrian and Cyclists), the applicant needs to correct the image and section drawing for new City Hall Street as the photograph is looking east while the section drawing is looking west;
- commend the applicant's presentation of the project which will transform an existing development with vast expanse of surface parking to a pedestrianfriendly community;
- proposed street connections for vehicular and pedestrian circulation are logical from an urban design point of view;
- scale of the main and connecting streets are pedestrian-friendly;
- appreciate the proposed Park Plaza; support the proposal to externalize the shopping experience which is becoming the norm in North America;
- selection of retailers in terms of type and scale is crucial for the proposed development; activating the second floor is important for animating the whole street;
- the northeast corner of the subject development is not well resolved; has the potential to become a gateway into the site from Brighouse Canada Line station; consider creating a mini plaza to focus attention to this corner and connect to the Galleria; also consider creating a mini plaza at the northwest corner of the site and connect the two mini-plazas through the Galleria to create a loop rather than a destination to the main plaza;
- incorporate images of precedents for the proposed Park Plaza in the presentation board for public display/consultation to help the public visualize the design of the future plaza and its public amenities; also incorporate the connection of the two mini-plazas with the main plaza (i.e, showing a loop) and their connection to transit and other public amenities;
- the proposed Park Plaza lacks visual connection from external public streets; consider shifting the location of the plaza to provide visual connection to the corner of the plaza from City Hall through the north-south connector road (connecting the new City Hall Street to Park Road extension) to encourage more pedestrian traffic from City Hall to the plaza and making it more of a public than a mainly commercial space;
- support the proposed underground parking considering the challenges associated with such proposal in Richmond; the approach is in the right direction towards Richmond becoming a more sustainable city;
- commend the design team and the developer for a significant and well thought out project;

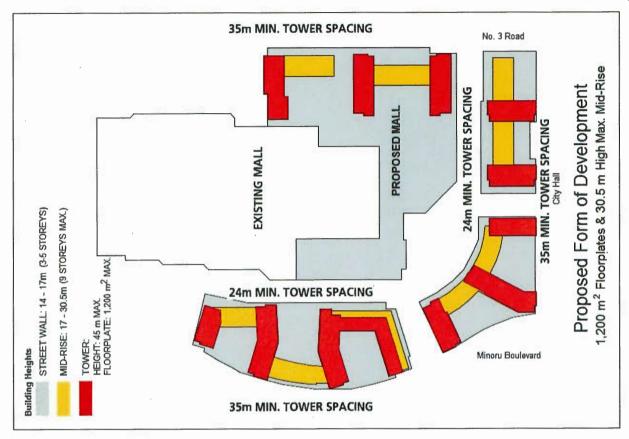
- appreciate the provision for affordable housing in the proposed development;
   also appreciate the applicant working within the existing City Centre Area Plan
   (CCAP) guidelines in terms of density and height of towers;
- support Panel comments for the applicant to address the overlook from the proposed high-rise towers onto the north portion of Richmond Centre; consider introducing appropriate architectural and landscaping treatments to the roof of the existing north portion of Richmond Centre;
- appreciate the applicant addressing the pedestrian movement to transit through the Galleria;
- package provided by the applicant lacks details regarding the public realm; significant amount of work and details still needs to be done (e.g., in terms of public realm details, loading, and architectural design) which the Panel would look forward to see when the applicant comes back to the Panel;
- consider larger and more detailed plans for public presentation/consultation for the project and also for future presentation to the Panel;
- recommend a small portion of parking should be used for park-and-ride;
- applicant is advised to give attention to the interface between City Hall and the proposed development; review the proposed location of the loading area and other things happening at the southern edge of the development;
- suggest that the applicant provide more presentation boards and details for the public consultation; agree with Panel comment that vehicular, bicycle and pedestrian circulation on the site should be demonstrated more graphically; applicant is also advised to provide more presentation boards for the public realm; also integrate architectural and landscaping precedents; and
- applicant and City staff are advised to consider installing an iconic art piece at the northeast corner of the site similar to the one at Brentwood Town Centre considering the huge number of people coming into the site from Brighouse Canada Line station.

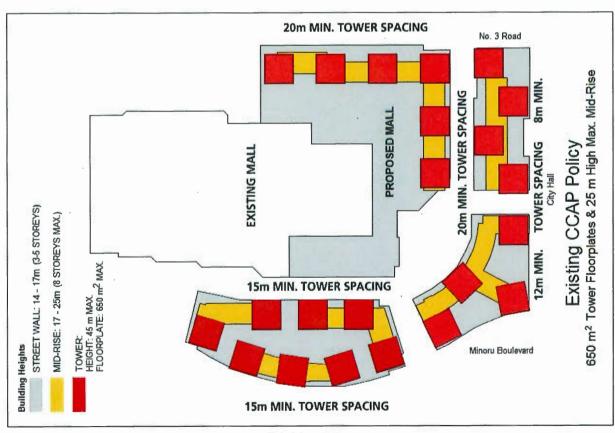
#### **Panel Decision**

It was moved and seconded

That CP 16-752923 be supported to move forward to the Planning Committee subject to the applicant giving consideration to the comments of the Panel.

**CARRIED** 





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# **OCP Amendment Considerations**

Development Applications Department 6911 No. 3 Road, Richmond, BC V6Y 2C1

Address: 6551 No 3 Road File No.: CP 16-752923

Prior to final adoption of Richmond Official Community Plan Bylaw 7100, Amendment Bylaw 9892, the developer is required to satisfy the following requirements:

#### 1. Site Contamination:

- 1.1. <u>Development Approval Requirements</u>: Submission to the City of a contaminated sites legal instrument from the Ministry of Environment and Climate Change Strategy (e.g. Certificate of Compliance (COC) or Final Site Determination (FSD)) showing no contamination within the subject site or an alternative notification from the Ministry confirming that the City may approve the owner's OCP amendment, development, subdivision, and demolition applications.
- 1.2. <u>Road Dedication Requirements</u>: Submission to the City of a contaminated sites legal instrument from the Ministry of Environment and Climate Change Strategy (e.g., COC or FSD) showing no contamination within the portion of the lands required to be dedicated to the City for road or an alternative form of assurance satisfactory to the City, in the City's sole discretion; which alternative assurance shall include, but may not be limited to, registration of a legal agreement on title to the lands requiring that:
  - 1.2.1. Prior to Building Permit\* issuance for the first building to be constructed on the lands (i.e. excluding existing buildings), in whole or in part, the owner shall submit:
    - a) Evidence that the environmental condition of the required road dedication is satisfactory, as determined at the sole discretion of the City; and
    - b) A contaminated sites legal instrument from the Ministry of Environment and Climate Change Strategy (e.g., COC or FSD) with respect to the required road dedication; and
  - 1.2.2. The owner will release and indemnify the City from and against any and all claims or actions that may arise in connection with any environmental contamination upon the lands, in whole or in part, including the required road dedication.
- 2. Subdivision: Registration of a Subdivision Plan to the satisfaction of the City.

Prior to the registration of a Subdivision Plan, the following conditions shall be satisfied:

- 2.1. <u>Road Dedication</u>: Dedication of 2,930.45 m<sup>2</sup> (31,542.6 ft<sup>2</sup>) for road and related purposes, as per the Preliminary Subdivision Plan (**Schedule A**), including:
  - 2.1.1. Minoru Boulevard Widening: "Road A", comprising 1,315.7 m² (14,162.1 ft²) in the form of a 3.2 m (10.5 ft.) wide strip of land along the subject site's entire Minoru Boulevard frontage, excluding the portion north of the Murdoch Avenue intersection, together with an additional 5.0 m (16.4 ft.) wide strip of land and 4.0 m by 4.0 m (13.1 ft. by 13.1 ft.) corner cuts at the Murdoch Avenue intersection; and
  - 2.1.2. **No. 3 Road Widening**: "Road D", comprising 1,614.7 m<sup>2</sup> (17,380.5 ft<sup>2</sup>) in the form of a 3.55 m (11.7 ft.) wide strip of land along the subject site's entire No. 3 Road frontage, together with an additional 5.0 m (16.4 ft.) wide strip of land and 4.0 m by 4.0 m (13.1 ft. by 13.1 ft.) corner cuts at the Cook Road intersection.

NOTE: The required Minoru Boulevard and No. 3 Road dedications shall not be used for density calculation purposes and are not eligible for Development Cost Charge (road acquisition) credits.

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- 2.2. <u>Lot Subdivision</u>: The creation of three (3) lots for development purposes, as per the Preliminary Subdivision Plan (**Schedule A**), including:
  - 2.2.1. Lot 1 (West): 36,497.7 m<sup>2</sup> (392,858.0 ft<sup>2</sup>), including future "Road B";
  - 2.2.2. Lot 2 (East): 30,434.4 m<sup>2</sup> (327,593.2 ft<sup>2</sup>), including future "Road C"; and
  - 2.2.3. Remainder Lot (North): 42,420.6 m<sup>2</sup> (456,611.5 ft<sup>2</sup>).
- 2.3. Coordination with Existing Uses & Structures:
  - 2.3.1. General Requirements: Completion of requirements necessary to facilitate the owner's proposed subdivision, as determined to the satisfaction of City of Richmond Building Approvals Division, which may include, but may not be limited to, registration of a restrictive covenant(s), registration of a blanket Statutory Right-of-Way(s), and/or submission of a Building Demolition Bond(s).
  - 2.3.2. *Cross-Access*: Delivery of a registered cross-access easement(s) and/or other legal agreement(s), as determined to the satisfaction of the Director of Development, Director of Transportation, and the City Solicitor, over the internal drive-aisles, pedestrian circulation, utilities, and related linkages between Lot 1 (West), Lot 2 (East), and Remainder Lot (North), as applicable.
- 2.4. Future City Street: Measures to secure the lot-by-lot dedication of the Future City Street across Lot 1 (West) and Lot 2 (East) and related improvements, to the satisfaction of the City. The City agrees that the owner's dedication of the Future City Street may occur after adoption of the subject OCP Amendment to facilitate the interim retention of the owner's existing multi-storey parking structure and its lot-by-lot (phase-by-phase) demolition as part of necessary enabling works (i.e. clearing, excavating, and related site preparation) for the development of Lot 1 (West) and Lot 2 (East) respectively. Measures required to facilitate the proposed process shall include the following items, as determined to the satisfaction of the City.
  - 2.4.1. **Demolition Covenant**: Registration of a restrictive covenant and blanket Statutory Right-of-Way (SRW) over Lot 1 (West) and Lot 2 (East) to ensure that the lot-by-lot demolition of the owner's existing multi-storey parking structure is completed, at the sole cost of the owner, prior to the lot-by-lot issuance of any Building Permit\* for Lot 1 (West) or Lot 2 (East), in whole or in part, that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion. For clarity, demolition of the portion of the existing parking structure on:
    - a) Lot 1 (West) shall occur prior to Building Permit\* issuance for Lot 1 (West); and
    - b) Lot 2 (East) shall occur prior to Building Permit\* issuance for Lot 2 (East).

If the owner does not demolish the existing parking structure according to the provisions of the agreement, the covenant and SRW shall allow the City to enter the property and demolish the structure.

- 2.4.2. Demolition Bond: Provision of a Building Demolition Bond for the owner's existing multi-storey parking structure located on Lot 1 (West) and Lot 2 (East), the value of which Building Demolition Bond shall be 105% of the estimated cost or as otherwise determined to the satisfaction of the City of Richmond Building Approvals Division.
- 2.4.3. **Public Rights of Passage**: Registration of a Statutory Right-of-Way (SRW) to provide for the establishment of the Future City Street between No. 3 Road and Minoru Boulevard, along the south side of Lot 1 (West) and Lot 2 (East), as per the Preliminary Statutory Right-of-Way Plan (**Schedule B**), together with an option for the City to dedicate the SRW area on a lot-by-lot basis (at a nominal cost to the City) following the demolition of the owner's existing multi-storey parking structure on the subject site.

The SRW shall, as determined to the satisfaction of the City:

- a) Be at least 3,487.6 m<sup>2</sup> (37,540.2 ft<sup>2</sup>) in size, in the form of a 14.7 m (48.2 ft.) wide strip of land along the entire south edge of Lot 1 (West) and Lot 2 (East), together with 4.0 m by 4.0 m (13.1 ft. by 13.1 ft.) corner cuts at No. 3 Road and Minoru Boulevard, and shall include, as per the Preliminary Subdivision Plan (Schedule A) and Preliminary Statutory Right-of-Way Plan (Schedule B):
  - i) Lot 1 (West): "Road B", comprising an area of 1,518.7 m<sup>2</sup> (16,347.2 ft<sup>2</sup>); and
  - ii) Lot 2 (East): "Road C", comprising an area of 1,968.9 m<sup>2</sup> (21,193.0 ft<sup>2</sup>);
- b) Provide for unrestricted, 24-hour-a-day, public access including, but not limited to, pedestrians (universally accessible), bicycles, emergency and service vehicles, and general purpose traffic, together with related uses, features, City and private utilities, and City bylaw enforcement, as typically required in respect to the design, construction, and operation of a public road, except as otherwise permitted through a City-approved Construction Traffic Management Plan;
- c) Prohibit building encroachments above, at, or below the finished grade of the SRW area;
- d) Require the owner to be solely responsible for maintenance of the SRW area;
- e) Require the owner to be solely responsible for design and construction of the SRW, as determined via the City's standard permitting\* and Servicing Agreement (SA)\* processes; and
- f) Restrict the City's ability to exercise its right to unrestricted public access until, on a lot-bylot basis, demolition of the owner's existing multi-storey parking structure on the subject site is complete.
- 2.4.4. *No Development Covenant*: Registration of a restrictive covenant(s) on title to Lot 1 (West) and Lot 2 (East) securing that "no development" will be permitted and restricting Development Permit\* issuance, on a lot-by-lot basis, in whole or in part, for any Development Permit\* that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion, until the following is complete to the satisfaction of the City:
  - a) For Lot 1 (West), the Development Permit\* includes the "Road B" SRW area, complies with the SRW agreement, and, as applicable, satisfies requirements with respect to the developer's future dedication, design, and construction of the SRW area as City road; and
  - b) For Lot 2 (East), the Development Permit\* includes the "Road C" SRW area, complies with the SRW agreement, and, as applicable, satisfies requirements with respect to the developer's future dedication, design, and construction of the SRW area as City road.

NOTE: For clarity, site area for density calculation purposes for a Development Permit\* for:

- Lot 1 (West) shall include "Road B"; and
- Lot 2 (East) shall include "Road C".
- 2.4.5. *No Build Covenant*: Registration of a restrictive covenant(s) on title to Lot 1 (West) and Lot 2 (East) securing that "no building" will be permitted and restricting Building Permit\* issuance, on a lot-by-lot basis, in whole or in part, for any Building Permit\* that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion, until the following is complete to the satisfaction of the City:
  - a) The developer must:
    - i) For Lot 1 (West), dedicate the "Road B" portion of the Future City Street; and
    - ii) For Lot 2 (East), dedicate the "Road C" portion of the Future City Street;

NOTE: The dedication of "Road B" and "Road C" shall not be eligible for Development Cost Charge credits for road acquisition or construction purposes.

- b) The developer must enter into a Servicing Agreement (SA)\* for the design and construction, at the developer's sole cost, of the Future City Street along the frontage of the applicable lot, including all related transportation, engineering, and parks works;
- c) Prior to Building Permit\* issuance, all works identified via the SA\* with respect to the applicable lot must be secured via a Letter(s) of Credit, to the satisfaction of the Director of Development, Director of Engineering, Director of Transportation, and Director, Parks Services.
- 2.4.6. No Occupancy Covenant: All SA\*works identified by the City with respect to the Future City Street shall be completed prior to final Building Permit\* inspection granting occupancy for the first building, in whole or in part, on the applicable lot (excluding parking and commercial uses that can be accessed directly from the inside of the existing shopping centre) or as otherwise determined at the sole discretion of the City (i.e. via the Development Permit\*, Building Permit\*, and/or SA\* processes) and specifically provided for via "no build" covenant(s) and/or other legal agreement(s) registered on title.
- 2.4.7. East-West Connectivity During Construction: Registration of a restrictive covenant and blanket Statutory Right-of-Way (SRW) over Lot 1 (West) and Lot 2 (East) to ensure that a publicly-accessible route for vehicles and pedestrians is provided and maintained, at the developer's sole cost, providing continuous public access (with limited temporary interruptions) between Minoru Boulevard and No. 3 Road to the south of the retail portion of the existing CF Richmond Centre mall throughout pre-construction, construction, and post-construction stages, as determined to the City's satisfaction.
  - a) The required east-west vehicle and pedestrian connectivity shall provide for two (2) vehicle travel lanes, designed and operated to provide for simultaneous two-way traffic movements in a form consistent with City standards, together with a designated, safe, universally-accessible path for pedestrians with a minimum clear width of at least 1.5 m (4.9 ft.). (Note that the vehicle and/or pedestrian route may vary over the course of their operation to accommodate various construction-related activities, provided that such changes do not compromise required connectivity and are pre-approved by the City.)
  - b) "No building" will be permitted, restricting Building Permit\* issuance, on a lot-by-lot basis, in whole or in part, until the developer submits a Construction Traffic Management Plan that provides for the required east-west vehicle and pedestrian connectivity, to the City's satisfaction. The Plan shall include, among other things, strategies for maintaining safe, continuous operation of the required access throughout all stages of construction, except in the case of emergencies, temporary interruptions pre-approved by the City through the Plan, or, in the case of other temporary interruptions, with the written pre-approval of the City.
- 2.4.8. Discharge: Discharge of the agreement(s) may occur on a lot-by-lot basis upon the lot-by-lot completion of the Future City Street and Private (SRW) Streets, as determined to the City's satisfaction.
- 2.5. Statutory Right-of-Way (SRW) Public Rights of Passage: Registration of Statutory Right-of-Ways (SRW), as per the Preliminary Statutory Right-of-Way Plan (Schedule B), to facilitate public access and open space uses, together with related landscaping and infrastructure (which may include, but may not be limited to, vehicle travel lanes, parking, bike facilities, street furnishings, street lighting, decorative paving, trees and plant material, public art, special mobility features, recreation amenities, innovative storm water management measures, and City utilities), to the satisfaction of the City. The specific location, configuration, design, and related terms of the SRWs shall be confirmed via the development's Development Permit\*, Servicing Agreement\*, and/or other City approval processes, to the satisfaction of the City, taking into account the following items.

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Any works essential for public access within the required SRW areas are to be included in the Servicing Agreement\*. The SRW agreement must clearly describe responsibilities with respect to maintenance and

liability. Moreover, the design of the SRW areas must be prepared in accordance with good engineering practice with the objective of optimizing public safety. After completion of the SRW works, the owner is required to provide a certificate of inspection for the works or equivalent, prepared and sealed by the owner's engineer, architect, and/or landscape architect, as determined to the City's satisfaction, in a form and content acceptable to the City, certifying that the works have been constructed and completed in accordance with the accepted design.

Prior to OCP Amendment application adoption, the agreements shall be registered as blanket SRWs (accompanied by sketch plans) and shall include provisions for replacement agreements at Development Permit\*, Building Permit\*, and/or occupancy, as determined to the satisfaction of the City, at the owner's cost, for the purpose of accurately reflecting the City-approved permits and replacing the sketch plans with survey plans (which may be volumetric).

#### 2.5.1. General SRW Requirements:

- a) The right-of-ways shall provide for:
  - 24 hour-a-day, universally accessible, public access in the form of vehicle route(s), paved walkway(s), off-street bike path(s), and/or related landscape features, which may include, but may not be limited to, lighting, furnishings, street trees and planting, decorative paving, and storm water management measures, to the satisfaction of the City;
  - ii) Public art;
  - iii) Public access to fronting commercial, residential, public open space, and other onsite uses:
  - iv) Emergency and service vehicle access, City bylaw enforcement, and any related or similar City-authorized activities;
  - City utilities, such as streetlights, traffic control infrastructure (e.g., signals, detector loops, equipment kiosks), and related and/or similar features;
  - vi) The owner-developer's ability to close a portion of the SRW area to public access to facilitate maintenance, repairs, or construction to the SRW area or the fronting uses, provided that adequate public access is maintained and the duration of the closure is limited, as determined through the applicable Development Permit\* process and specified in the SRW agreement(s) or approved by the City in writing in advance of any such closure;
  - vii) The owner-developer's ability to close a portion of the SRW area to public access for the purpose of hosting special events, provided that adequate public access is maintained and the duration of the closure is limited, as determined through the applicable Development Permit\* process and specified in the SRW agreement(s) or approved by the City in writing in advance of any such closure;
  - viii) Design and construction of the SRW area, via a Servicing Agreement\* (undertaken in coordination with a Development Permit\*), at the sole cost and responsibility of the developer, as determined to the satisfaction of the City;
  - ix) Maintenance of the SRW area at the sole cost of the owner-developer, except for City utilities and any other City property to be maintained by the City following the expiry of the Servicing Agreement\* maintenance period;
    - Existing site features (e.g., parking, driveways, signage, utilities, furnishings) where such features are not required to be removed or altered through an approved Development Permit\*, Servicing Agreement\*, and/or other City approval process;
  - xi) Encroachments, provided that such features do not conflict with the design, construction, operation, or intended quality or public amenity of the right-of-way area (e.g., tree planting, accessible grades, underground utilities) or, as applicable, potential future road dedication, as determined to the satisfaction of the City, and the encroachments are included in a Development Permit\*, Servicing Agreement\*,

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and/or other permit approved by the City and specified in the applicable SRW agreement(s), including:

- Permanent encroachments in the form of:
  - Parking concealed below the finished grade of the SRW area;
  - Driveway crossings;
  - Weather protection, architectural appurtenances, and building projections, typically located at least 2.5 m (8.2 ft.) clear above the finished grade of the SRW area; and
  - Signage; and
- Temporary encroachments in the form of:
  - Outdoor restaurants (e.g., food trucks, coffee kiosks, café seating);
  - Commercial uses (e.g., pop-up shops, sidewalk sales); and
  - Special event and recreation features (e.g., amusement rides, tents and shelters, event signage); and
  - Movable furnishings, planters, displays, railings, partitions, and similar features.

NOTE: Outdoor space(s) designated for the exclusive year-round use of restaurant and/or commercial use(s) shall not be considered to be a "temporary encroachment(s)" and will is not be permitted within the SRW area.

- b) "No development" shall be permitted, on a lot-by-lot basis, on Lot 1 (West), Lot 2 (East), or Remainder Lot (North) that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion, restricting Development Permit\* issuance for any such building on the lot, in whole or in part, unless the Development Permit\* and Servicing Agreement\* include the design of the SRW area, to the City's satisfaction.
- c) No Building Permit\* shall be issued, on a lot-by-lot basis, for a building on Lot 1 (West), Lot 2 (East), or Remainder Lot (North) that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion, in whole or in part (excluding parking intended as an ancillary use to non-parking uses), unless the permit includes the design of the SRW area, to the City's satisfaction.
- d) "No occupancy" shall be permitted, on a lot-by-lot basis, for a building on Lot 1 (West), Lot 2 (East), or Remainder Lot (North) that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion, restricting final Building Permit\* inspection granting occupancy for any such building on the lot, in whole or in part except:
  - i) For Lot 1 (West), parking and commercial uses that can be directly accessed from the inside of the existing shopping centre; and
  - ii) For Lot 2 (East), parking, until the SRW area is completed to the satisfaction of the City, the owner has provided a certificate of inspection for the works or equivalent, prepared and sealed by the owner's engineer, architect, and/or landscape architect, as determined to the City's satisfaction, in a form and content acceptable to the City, certifying that the works have been constructed and completed in accordance with the accepted design, and has received, as applicable, if required by the City, a Certificate of Completion and/or final Building Permit\* inspection granting occupancy have been issued.

#### 2.5.2. Private Streets:

Park Road, Minoru Gate & New North-South Street: At least 10,038 m<sup>2</sup> (108,047 ft<sup>2</sup>), in the form of an irregular, linear strip with a minimum width of 18.0 m (59.1 ft.), for the purpose of seamlessly extending the City road network between Minoru Boulevard and No. 3 Road to facilitate unrestricted public access (as if this was a City road), together with related

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landscaping, street furnishings and lighting, City utilities, and other features as determined to the satisfaction of the City. Permitted encroachments shall be confirmed, on a lot-by-lot basis, through the Development Permit\* and Servicing Agreement\* approval processes for Lot 1 (West) and Lot 2 (East).

b) Cook Road: At least 1,395 m<sup>2</sup> (15,016 ft<sup>2</sup>), in the form of a linear strip with a minimum width of 31.0 m (101.7 ft.), for the purpose of seamlessly extending Cook Road west of No. 3 Road to facilitate unrestricted public access (as if this was a City road), together with related landscaping, street furnishings and lighting, City utilities, and other features as determined to the satisfaction of the City. Permitted encroachments shall be limited to weather protection, architectural appurtenances, building projections, and temporary encroachments within the sidewalk portion of the SRW area, the specifics of which shall be confirmed through the Development Permit\* and Servicing Agreement\* approval processes for Lot 2 (East).

NOTE: Cook Road shall be designed and constructed to City standards, to the satisfaction of the City, to facilitate its future potential dedication as a City road. In addition, prior to OCP amendment bylaw adoption, a covenant shall be registered on title to the Remainder Lot (North) securing the owner's commitment to dedicate the Cook Road SRW area prior to any future subdivision of the lot and/or issuance of a Development Permit\* for the lot, in whole or in part, that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion.

width of 25.0 m (82.0 ft.), for the purpose of seamlessly extending Murdoch Avenue east of Minoru Boulevard to facilitate unrestricted public access (as if this was a City road), together with related landscaping, street furnishings and lighting, City utilities, and other features as determined to the satisfaction of the City. Permitted encroachments shall be limited to parking below finished grade, weather protection, architectural appurtenances, building projections, and temporary encroachments within and a 2.5 m (8.2 ft.) wide strip along the north and south sides of the SRW area, the specifics of which shall be confirmed through the Development Permit\* and Servicing Agreement\* approval processes for Lot 1 (West).

NOTE: The central 20.0 m (65.6 ft.) wide portion of Murdoch Avenue (that is unencumbered by permitted encroachments) shall be designed and constructed to City standards, to the satisfaction of the City, to facilitate its future potential dedication as a City road. In addition, prior to OCP amendment bylaw adoption, a covenant shall be registered on title to the Remainder Lot (North) securing the owner's commitment to dedicate the central 20.0 m (65.6 ft.) wide portion of the Murdoch Avenue SRW area prior to any future subdivision of the lot and/or issuance of a Development Permit\* for the lot, in whole or in part, that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion.

#### 2.5.3. Sidewalk Widening:

- a) Minoru Boulevard: At least 804 m<sup>2</sup> (8,654 ft<sup>2</sup>), in the form of a linear strip with a minimum width of 2.5 m (8.2 ft.), for the purpose of a City sidewalk, together with related landscaping, street furnishings and lighting, City utilities, and other features as determined to the satisfaction of the City. Permitted encroachments shall be limited to parking below finished grade, weather protection, architectural appurtenances, and building projections, the specifics of which shall be confirmed through the Development Permit\* and Servicing Agreement\* approval processes for Lot 1 (West).
- b) Future City Street: At least 102 m<sup>2</sup> (1,094 ft<sup>2</sup>), in the form of a linear strip with a minimum width of 0.5 m (1.6 ft.), for the purpose of a City sidewalk, together with related landscaping, street furnishings and lighting, City utilities, and other features as determined to the satisfaction of the City. Permitted encroachments shall be limited to parking below finished grade, weather protection, architectural appurtenances, and building projections, the specifics of which shall be

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confirmed, on a lot-by-lot basis, through the Development Permit\* and Servicing Agreement\* approval processes for Lot 1 (West) and Lot 2 (East).

- 2.5.4. **Park Road Plaza**: At least 1,996.0 m<sup>2</sup> (0.5 acres), in the form of an irregular area fronting Park Road along approximately 50% of its perimeter, for the purpose of public open space uses, together with related landscaping, street furnishings and lighting, City utilities, mobility hub, and other features as determined to the satisfaction of the City. Permitted encroachments shall be confirmed, on a lot-by-lot basis, through the Development Permit\* and Servicing Agreement\* approval processes for Lot 1 (West) and Lot 2 (East).
- 2.6. Statutory Right-of-Way (SRW) Canada Line Connectivity Improvements: Registration of a statutory right-of-way(s) on Remainder Lot (North), 6253 No. 3 Road, and 6060 Minoru Boulevard, together with restrictive covenants on Lot 1 (West), Lot 2 (East), and Remainder Lot (North) and/or other legal agreement(s) or measures, as determined to the satisfaction of the Director of Development, Director of Transportation, and the City Solicitor, for the purpose of securing the owner's commitment to improving public access across the owner's property to improve public pedestrian access to/from the Canada Line and proposed bus mall along No. 3 Road.
  - 2.6.1. **No. 3 Road Sidewalk Widening**: A linear strip with a minimum width of 3.55 m (11.7 ft.) along the entire No. 3 Road frontage of 6253 No. 3 Road and 6060 Minoru Boulevard for the purpose of a City sidewalk, together with related landscaping, street furnishings and lighting, City utilities, and other features as determined to the satisfaction of the City. The SRW area shall provide for public access and related activities and uses generally as per a City street (as generally set out in the "General SRW Requirements" in the previous section).

Prior to OCP Amendment application adoption, registration of this SRW agreement(s) shall include a survey plan(s).

- a) Permitted encroachments shall be confirmed through the Servicing Agreement\* and related permit\* approval processes required with respect to the development of Lot 1 (West) and may include, but may not be limited to, signage.
- b) Implementation of the required public access shall be completed via the City's standard Servicing Agreement\* process, to the satisfaction of the City, prior to final Building Permit inspection granting occupancy of the first building on Lot 1 (West) (excluding parking and commercial uses that can be directly accessed from the inside of the existing shopping centre).

NOTE: The SRW agreement shall have no financial or other impacts on the City with respect to the terms of the existing lease over the City-owned lot at 6253 No. 3 Road.

2.6.2. *Cross-Mall Public Pedestrian Access*: A continuous route across the Remainder Lot (North), providing convenient, universal, public pedestrian access, during transit operating hours within 400 m (1,312.3 ft.) of the subject site, between the Murdoch Avenue SRW area and No. 3 Road (at the signalized pedestrian crossing at the bus mall), which route shall include passage through the owner's existing retail building and across the outdoor spaces surrounding the existing retail building (e.g., surface parking lots and walkways) via a generally weather protected route, as determined to the satisfaction of the City.

Prior to OCP Amendment application adoption, this agreement shall be registered as blanket SRW accompanied by a sketch plan.

- a) Maintenance of the SRW area shall be at the sole cost of the owner-developer.
- b) Encroachments shall be permitted, provided that they do not conflict with public access, as determined to the mutual satisfaction of the City and the owner as set out in the SRW.
- c) Implementation of the required public access shall be completed in two stages:
  - i) <u>Interim Connection</u>: Prior to final Building Permit inspection granting occupancy of the first building on Lot 1 (West), the required public access shall be complete, EXCEPT that the opposition between the existing retail building and No. 3

- Road shall be permitted to be in an interim form to coordinate with the owner's temporary sales centre; which interim form shall be confirmed, to the City's satisfaction, through the Lot 1 (West)/Phase 1 Development Permit\* and related Servicing Agreement\*; and
- ii) <u>Ultimate Connection</u>: Prior to final Building Permit inspection granting occupancy of the first building on Lot 2 (East), the required public access shall be completed in its final form, which shall be confirmed to the City's satisfaction through the Lot 2 (East)/Phase 2 Development Permit\* and related Servicing Agreement\*.
- 2.7. <u>Statutory Right-of-Way (SRW) City Utilities:</u> Registration of right-of-ways for the purpose of securing City utilities, together with the City's ability to access, install, replace, alter, remove, operate, and maintain such utilities and related features, all as determined to the satisfaction of the City.
  - Prior to OCP Amendment application adoption, the agreements may be registered as blanket SRWs (which may be accompanied by sketch plans) and shall include provisions for replacement agreements at Development Permit\*, Building Permit\*, and/or occupancy, as determined to the satisfaction of the City, at the owner's cost, for the purpose of accurately reflecting the City-approved permits and attaching survey plans.
  - 2.7.1. Parkade Driveway Traffic Signal Infrastructure (Minoru Boulevard): Traffic signal infrastructure (e.g., signal poles, lights, detector loops, and traffic signal kiosks) and related features on Lot 1 (West) in the vicinity of the developer's proposed Minoru Boulevard parkade driveway;
  - 2.7.2. Existing Sanitary Sewer (Minoru Boulevard): The existing City sanitary sewer serving the existing CF Richmond Centre mall, in the form of a 6.0 m (19.7 ft.) wide strip of land generally extending the length of the existing sewer line, which right-of-way shall be discharged (at the developer's sole cost) upon the developer's removal of the existing sewer and the installation of new (replacement) City services in an alternative location, together with the registration of right-of-ways and/or other legal agreements, as required to accommodate the subject development and existing mall; and
  - 2.7.3. Additional City Utilities (No. 3 Road): An additional utility SRW on Lot 2 (East) and Remainder Lot (North) to facilitate the developer's installation, at the developer's sole cost, of a new City sanitary sewer along approximately 330 m (1,083 ft.) of the lots' No. 3 Road frontages, as determined to the satisfaction of the City. The SRW area may include the required sanitary sewer, other City utilities, and/or related features, as determined to the City's sole satisfaction, to provide for the developer's installation of the required sanitary sewer. For clarity, as determined to the City's satisfaction the SRW agreement shall include, among other things:
    - a) No Development Covenant: Registration of a restrictive covenant(s) on title to Lot 2 (East) and Remainder Lot (North) securing that "no development" will be permitted and restricting Development Permit\* issuance, in whole or in part, for any Development Permit\* that includes any residential use, increase in gross leasable floor area on the lot, and/or structure (including underground parking) along the No. 3 Road frontage of one or both lots, as determined in the City's discretion, until the blanket SRW is replaced with a survey plan (registered on both lots), to the satisfaction of the Director of Engineering; and
    - b) No Build Covenant: Registration of a restrictive covenant(s) on title to Lot 2 (East) and Remainder Lot (North) securing that "no building" will be permitted and restricting Building Permit\* issuance, in whole or in part, for any Building Permit\* that includes any residential use, increase in gross leasable floor area on the lot, and/or structure (including underground parking) along the No. 3 Road frontage of one or both lots, as determined in the City's discretion, until the developer enters into a Servicing Agreement\* for the design and construction of the City utilities (on both lots), to the satisfaction of the City Director of Engineering.

- 2.8. <u>Driveway Crossings</u>: Registration of a restrictive covenant(s) and/or alternative legal agreement(s) on title to limit vehicle access to/from the subject site along City-owned streets. Requirements shall be confirmed to the satisfaction of the City, on a lot-by-lot basis, prior to Development Permit\* and Servicing Agreement\* issuance.
  - 2.8.1. Lot 1 (West): Six (6) driveway crossings, including along:
    - a) Minoru Boulevard: Three (3) permanent crossings, including those at the Murdoch Avenue SRW, Minoru Gate SRW, and one on-site parking access between Murdoch Avenue and Minoru Gate, and one (1) interim crossing at the Future City Street SRW; and
    - b) Future City Street: Two (2) crossings, including the North-South Street SRW and one on-site parking access;
  - 2.8.2. Lot 2 (East): Three (3) driveway crossings, including along:
    - a) No. 3 Road: One (1) permanent crossing at the Park Road SRW and one (1) interim crossing at the Future City Street SRW; and
    - b) Future City Street: One (1) on-site parking access; and
  - 2.8.3. Remainder Lot (North): Four (4) driveway crossings, including:
    - a) Minoru Boulevard: Two (2) crossings, including one (1) at the Murdoch Avenue SRW and one (1) on-site parking access; and
    - b) No. 3 Road: Two (2) crossings, including one (1) at the Cook Road SRW and one (1) on-site parking access.
- 2.9. No Separate Sale: Registration of legal agreements on title on Lot 1 (West), Lot 2 (East), and the Remainder Lot (North), as per the Preliminary Subdivision Plan (Schedule A), requiring that the lots may not be sold or otherwise transferred separately without prior approval of the City, to ensure that legal agreements and business terms related to financial, legal, development, and other obligations assigned to each lot as a result of the subject OCP Amendment application are transferred and secured to the satisfaction of the Director of Development and the City Solicitor. The City acknowledges that (i) a limited partnership for each lot will be created to facilitate the funding/financing of the development; (ii) following the initial subdivision, each lot will be transferred to a related limited partnership; (iii) following the registration of an airspace subdivision for the applicable lot, the remainder will be transferred back to the owners of the enclosed shopping centre; and (iv) one or more nominees may be used as registered owners in connection with the aforementioned transfers. The City approves in advance the noted transfers and the developer will cause each new owner to assume the legal agreements and obligations in respect of the applicable lot(s).
- 3. Affordable Housing: The City's acceptance of the developer's offer to voluntarily contribute affordable housing, in the form of low-end market rental (LEMR) units, constructed to a turnkey level of finish on Lot 1 (West) and Lot 2 (East) at the sole cost of the developer, the terms of which voluntary contribution shall include, but will not be limited to, the registration of the City's standard Housing Agreement and Covenant on title to each lot to secure the affordable housing units. The form of the Housing Agreements and Covenants shall be agreed to by the developer and the City prior to final adoption of the subject OCP Amendment application; after which time, only the Housing Covenants may be amended or replaced and any such changes will only be permitted for the purpose of accurately reflecting the specifics of the Development Permit\* for Lot 1 (West) and Lot 2 (East) and other non-materials changes resulting thereof and made necessary by the Lot 1 (West) and Lot 2 (East) Development Permit\* approval requirements, as determined to the satisfaction of the Director of Development and Manager of Community Social Development. The terms of the Housing Agreements and Covenants shall indicate that they apply in perpetuity and provide for, but will not be limited to, the requirements set out in **Schedule C**.
- 4. <u>District Energy Utility (DEU)</u>: Registration of a restrictive covenant and statutory right of way and/or alternative legal agreement(s) on title to Lot 1 (West) and Lot 2 (East), to the satisfaction of the City, securing the owner's commitment to connect to District Energy Utility (DEU) and granting the statutory right of way(s) necessary for

- supplying the DEU services to the building(s), which covenant and statutory right of way and/or legal agreement(s) will include, at minimum, the terms and conditions set out in **Schedule D**.
- 5. No Development Omnibus: Registration of a restrictive covenant(s) and/or alternative legal agreement(s) on title to Lot 1 (West) and Lot 2 (East) securing that "no development" will be permitted and restricting Development Permit\* issuance, on a lot-by-lot basis, in whole or in part, for any Development Permit\* that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion, (together with various Building Permit\* and occupancy restrictions, as determined to the satisfaction of the City), until the following is complete to the satisfaction of the City:
  - 5.1. <u>Development Staging</u>: Development of Lot I (West) and Lot 2 (East) shall comprise a maximum of two (2) stages or phases (i.e. one per lot), the comprehensive design and development of which shall be approved through two (2) Development Permits\* (i.e. one for each lot), unless otherwise determined to the satisfaction of the Director of Development. Moreover:
    - 5.1.1. Development Permit\* issuance for the entirety of Lot 1 (West), shall:
      - a) Comprise a single Development Permit\*, generally as per the Lot 1 Development Permit
         (DP) Scope Diagram (Schedule M) (exclusive of Development Permits that do not include
         any residential use and/or increase in gross leasable floor area on the lot, as determined in the
         City's discretion);
      - b) Include, among other things, Canada Line Connectivity Improvements (e.g., No. 3 Road Sidewalk Widening, Cross-Mall Public Pedestrian Access "Interim Connection", pedestrian crossing improvements at the No. 3 Road/Bus Mall intersection); and
      - c) Occur prior to Development Permit\* issuance for the first building on Lot 2 (East);
    - 5.1.2. Development Permit\* issuance for the entirety of Lot 2 (East), which shall:
      - a) Comprise a single Development Permit\* (exclusive of Development Permits that do not include any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion); and
      - Include, among other things, Canada Line Connectivity Improvements (e.g., Cross-Mall Public Pedestrian Access "Ultimate Connection");
    - 5.1.3. Building Permit\* issuance for the entirety of Lot 1 (West) (exclusive of Building Permits that do not include any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion), which may include multiple Building Permits\*, shall occur prior to issuance of the first Building Permit\* for Lot 2 (East);
    - 5.1.4. Final Building Permit(s)\* inspection granting occupancy for the entirety of Lot 1 (West) (exclusive of Building Permits that do not include any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion) shall occur prior to final Building Permit\* inspection granting occupancy for the first building, in whole or in part, on Lot 2 (East); and
    - 5.1.5. Notwithstanding the above, the City will permit occupancy of the building on Lot 1 (West) and/or Lot 2 (East) to proceed in stages (e.g., tower-by-tower), provided that "no occupancy" shall be permitted of any stage except as expressly provided for with legal agreements registered on title and other measures (e.g., security), for the purpose of ensuring that the completion of affordable housing, publicly-accessible streets and open spaces, residential amenities, City utilities, public art, parking, end-of-trip facilities, mobility hubs, off-site transportation improvements, and other features are appropriately coordinated with the completion of the developer's market residential and non-residential uses, as determined to the satisfaction of the Director of Development, Director of Transportation, Director, Parks Services, Director of Arts, Culture, and Heritage, Manager of Community Social Development, Manager of Environmental Sustainability, Director of Engineering, and City Solicitor.

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- 5.2. Remainder Lot (North): "No development" shall be permitted on the Remainder Lot (North), restricting Development Permit\* issuance for any building on the lot, in whole or in part, that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion, unless, as determined to the sole satisfaction of the City:
  - 5.2.1. The Development Permit\* and any related permit(s) include the design of any required SRW area on the lot, to the City's satisfaction;
  - 5.2.2. The owner provides road dedications in compliance with the Murdoch Avenue and Cook Road SRW agreements, as determined to the City's satisfaction; and
  - 5.2.3. The required "Canada Line Connectivity Improvements" are complete or as otherwise determined to the City's satisfaction.
- 5.3. Servicing Agreement (SA)\* Requirements:
  - 5.3.1. Prior to Building Permit\* issuance for the first building to be constructed on a lot (that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion), in whole or in part, the owner shall:
    - a) For Lot 1 (West), enter into Servicing Agreement #1\* for the design and construction, at the developer's sole cost, of full upgrades across the Lot 1 (West) street frontages, together with other engineering, transportation, and parks works, as determined to the satisfaction of the City, which shall include, but shall not be limited to:
      - Road widening along Minoru Boulevard, together with various intersection improvements;
      - ii) Construction of the portion of the Future City Street along the south side of Lot 1 (West);
      - iii) Interim improvements with respect to Murdoch Avenue on the Remainder Lot (North);
      - iv) Canada Line connectivity enhancements in the form of frontage improvements across the Remainder Lot (North), 6253 No. 3 Road, and 6060 Minoru Boulevard;
      - Construction of the portion of Park Road and related private (SRW) streets located on Lot 1 (West);
      - vi) Construction of the Park Road Plaza; and
      - vii) Various utility upgrades; and
    - b) For Lot 2 (East), enter into Servicing Agreement #2\* for the design and construction, at the developer's sole cost, of full upgrades across the Lot 2 (East) street frontages, together with other engineering, transportation, and parks works, as determined to the satisfaction of the City, which shall include, but shall not be limited to:
      - i) Road widening along No. 3 Road, together with various intersection improvements;
      - ii) Construction of the portion of the Future City Street along the south side of Lot 2 (East);
      - iii) Construction of Cook Road on the Remainder Lot (North);
      - iv) No. 3 Road frontage improvements across Lot 2 (East) and the Remainder Lot (North);
      - v) Construction of the portion of Park Road and related private (SRW) streets located on Lot 2 (East); and
      - vi) Pump station improvements and various utility upgrades.
  - 5.3.2. Except as expressly provided for and in compliance with the subject development's approved "Development Staging", related legal agreement(s), and security, to the satisfaction of the Director of Development, Director of Transportation, Director, Parks Services, and Director of Engineering:
    - a) Prior to Building Permit\* issuance, all Servicing Agreement (SA)\* works must be secured via a Letter(s) of Credit;

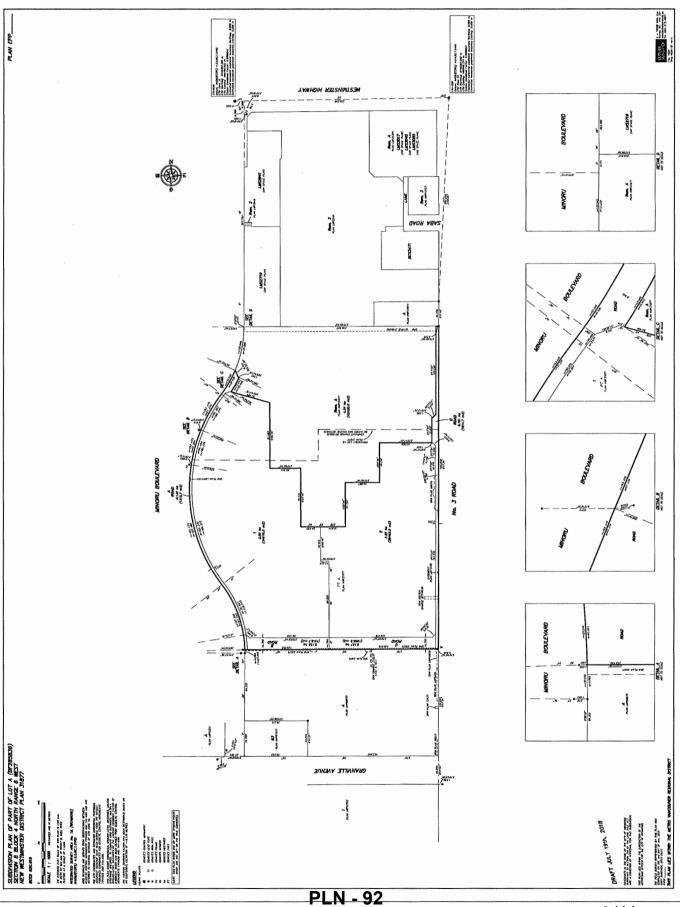
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- b) Except as expressly determined in the sole discretion of the City and secured with legal agreement(s) registered on title to the lot(s), all works shall be completed, on a stage-by-stage (phase-by-phase) basis, prior to final Building Permit\* inspection granting occupancy of the first building in the stage (phase) (excluding parking intended as an ancillary use to non-parking uses), in whole or in part; and
- c) Development Cost Charge (DCC) credits may apply.
- 5.3.3. Servicing Agreement (SA)\* works will include, but may not be limited to, the following:
  - a) Parks: The developer shall be responsible, at the developer sole cost, for the design and construction of the Park Road Plaza SRW area, based on a developer-prepared/City-approved functional program for the plaza (completed as part of the Lot 1 (West) Development Permit\* design review process prior to preparation of the Development Permit\* staff report), as determined to the satisfaction of the Director of Development, Director, Parks Services, Director of Arts, Culture, and Heritage Services, and Director of Engineering. For clarity, the Parks SA\* works shall only include the Park Road Plaza, EXCEPT if otherwise determined by the Director of Development through the Development Permit\* process for Lot 1 (West) or Lot 2 (East);
  - b) Engineering Servicing: Requirements as set out in Schedule E and Schedule F; and
  - <u>Transportation</u>: Requirements as set out in **Schedule G** and the Preliminary Functional Road Plan (**Schedule H**).
- 5.4. City Centre "Parking Zone 1" & TDM Strategy Requirements: Prior to Development Permit\* issuance for Lot 1 (West) and Lot 2 (East), on a lot-by-lot basis, legal agreements shall be registered on title to Lot 1 (West), Lot 2 (East), and Remainder Lot (North) securing the developer's voluntary commitment to provide, at the developer's sole cost, various transportation-related improvements and transportation demand management (TDM) measures for the purpose of satisfying Zoning Bylaw requirements for reducing the development's required parking rates (i.e. from CDT1 rates to Parking Zone 1 rates) and permitting a further parking reduction of up to 10% for the provision of TDM measures, as determined to the satisfaction of the Director of Transportation..
  - 5.4.1. Actual parking rates shall be confirmed prior to Development Permit\* issuance, on a lot-by-lot basis, to the satisfaction of the Director of Transportation.
    - NOTE: Required parking may be provided collectively (i.e. the required need may be determined and satisfied across two or more lots) provided that the affected parking facilities are located not more than 150 m (492 ft.) from any building or use being served and use of the parking facilities is secured with legal agreements to the satisfaction of the City.
  - 5.4.2. The development's required transportation-related improvements and TDM measures shall include, but may not be limited to those items set out in **Schedule I** and the Mobility Hub Vision (**Schedule J**).
- 5.5. Additional Development Requirements: Prior to Development Permit\* issuance for Lot 1 (West) and Lot 2 (East), on a lot-by-lot basis, the developer shall satisfy the following items, as set out in **Schedule K**, to the satisfaction of the City:
  - 5.5.1. NAV Canada Building Heights;
  - 5.5.2. Family-Friendly Housing Unit Mix;
  - 5.5.3. Public Art:
  - 5.5.4. Electric Vehicle (EV) Charging Infrastructure for Vehicles & "Class 1" Bicycle Storage; and
  - 5.5.5. Tree Removal and Replacement.

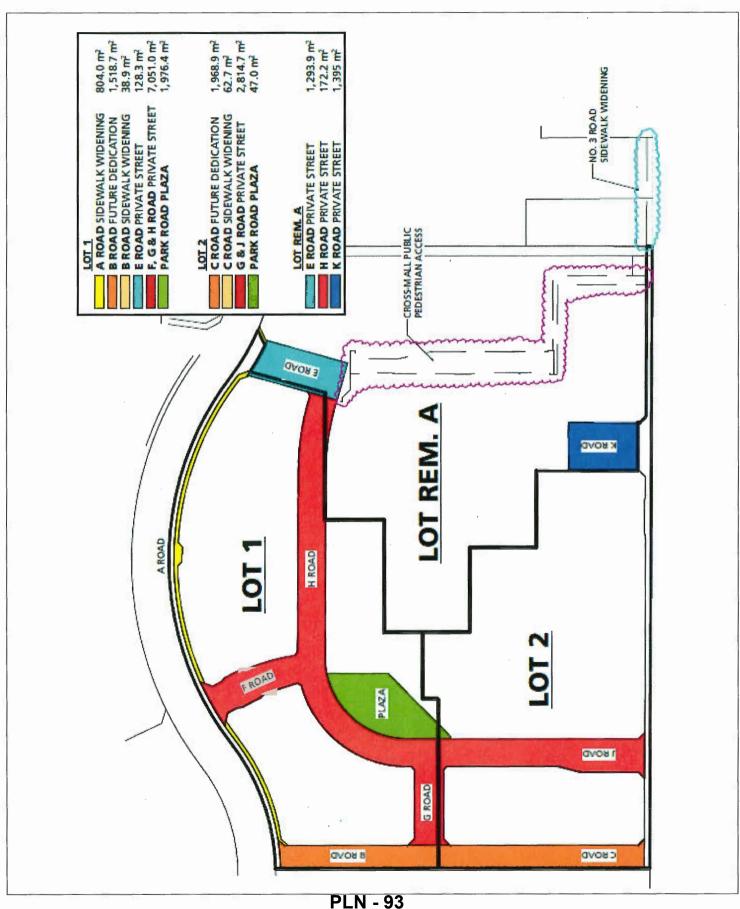
- 5.6. <u>Standard City Legal Requirements</u>: Prior to Development Permit\* issuance for Lot I (West) and Lot 2 (East), on a lot-by-lot basis, the developer shall satisfy the following items, as set out in **Schedule L**, to the satisfaction of the City:
  - 5.6.1. Flood Construction Covenants;
  - 5.6.2. Aircraft Noise Covenants;
  - 5.6.3. Canada Line Covenants;
  - 5.6.4. View Blockage & Other Development Impacts Covenants; and
  - 5.6.5. Tandem Parking Covenants.
- 6. Development Permit\* Readiness for Lot 1 (Phase 1): The submission and processing of a Development Permit\* for Lot 1 (West), generally as per the Lot 1 Development Permit (DP) Scope Diagram (Schedule M), shall be completed to a level deemed acceptable by the Director of Development, which shall include, among other things, the non-redeveloping portion of the existing shopping centre (e.g., walls, roof, ground plane, landscape, and/or related features) where the City determines that its form and character will impact the character, quality, and/or livability of the redeveloping portion of the site due to, for example, its prominence along proposed private-owned, publicly-accessible streets.

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#### Affordable Housing Terms & Conditions

The City's acceptance of the developer's offer to voluntarily contribute affordable housing, in the form of low-end market rental (LEMR) units, constructed to a turnkey level of finish on Lot 1 (West) and Lot 2 (East) at the sole cost of the developer, the terms of which voluntary contribution shall include, but will not be limited to, the registration of the City's standard Housing Agreement and Covenant on title to each lot to secure the affordable housing units. The form of the Housing Agreements and Covenants shall be agreed to by the developer and the City prior to final adoption of the subject OCP Amendment application; after which time, only the Housing Covenants may be amended or replaced and any such changes will only be permitted for the purpose of accurately reflecting the specifics of the Development Permit\* for Lot 1 (West) and Lot 2 (East) and other non-materials changes resulting thereof and made necessary by the Lot 1 (West) and Lot 2 (East) Development Permit\* approval requirements, as determined to the satisfaction of the Director of Development and Manager of Community Social Development. The terms of the Housing Agreements and Covenants shall indicate that they apply in perpetuity and provide for, but will not be limited to, the following requirements.

NOTE: In accordance with Richmond's Affordable Housing Strategy, effective July 24, 2017, the subject OCP amendment application shall be grandfathered under the City's built unit requirement of 5% of total residential building area on the basis that it was (i) submitted prior to July 24, 2017, and (ii) presented for consideration by Council prior to July 24, 2018 (i.e. April 9, 2018). For clarity, the developer's affordable contribution and the grandfathering of City's built unit (5%) requirement applies only to Lot 1 (West) and Lot 2 (East) and does not apply to any future development of Remainder Lot (North).

- 1. **Stand-Alone Buildings** & **Non-Profit Operator**: The applicant has indicated to the City that it plans to pursue an agreement with a non-profit organization(s) to manage the development's required LEMR units on Lot 1 (West) and Lot 2 (East). To support this partnership, the City is willing to accept lot-by-lot clustering of the required units in the form of stand-alone buildings, together with the clustering of other building features intended for the exclusive use of the affordable housing tenants (e.g., parking, Class 1 bike storage, waste management features).
  - a) The affordable housing shall occupy two (2) stand-alone buildings, including:
    - i) One near the southeast corner of Lot 1 (West), fronting the Future City Street; and
    - ii) One near the northeast corner of Lot 2, fronting Cook Road.
  - b) Both stand-alone buildings shall be integrated with the development's underground parking structure, roof deck, and related features, but will be designed to function as independent buildings that do not share common circulation (e.g., lobbies, hallways, elevators, stairs) or indoor residential amenity spaces with the market-residential or commercial uses on Lot 1 (West) or Lot 2 (East).
  - c) The affordable housing shall be distributed such that a proportional share of the required habitable space for the affordable housing units will be located on each of Lot 1 (West) and Lot 2 (East).
- 2. Minimum Required Floor Area: The required minimum floor area of the affordable housing buildings, exclusive of parking, bike storage, and ancillary uses not intended for the exclusive use of the affordable housing occupants (e.g., visitor parking, waste management areas, any amenity spaces or other uses shared with the market residential dwelling occupants, landscaping) shall comprise the combined total area of the following ,as determined to the satisfaction of the Director of Development and Manager of Community Social Services and set out in an approved Development Permit\*:
  - a) 5% of the subject development's total residential building area, calculated on a lot-by-lot basis, on Lot 1 (West) and Lot 2 (East), as specified in the Development Permit\* approved by the City for each lot, all of which area is to be allocated for the net floor area of the affordable housing dwelling units;
  - b) Circulation (e.g., lobbies, hallways, elevators, stairs) intended for the exclusive use of the affordable housing occupants;
  - c) Indoor amenity space within and around the affordable housing building, designed and secured for the exclusive use of the affordable housing occupants, the size of which space shall comply, on a lot-by-lot basis,

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- with standard City OCP and City Centre Area Plan (CCAP) policy as applicable to a "stand alone" building without access to amenities shared with another building; and
- d) All walls, mechanical, electrical, and similar spaces required to facilitate the owner's provision of the proposed "stand alone" affordable housing building on each lot.
- 3. Housing Requirements: The developer shall, on a lot-by-lot basis, as generally indicated in the table below:
  - a) Ensure that the types, sizes, rental rates, and occupant income restrictions for the affordable housing units are in accordance with the City's Affordable Housing Strategy and guidelines for Low End Market Rental (LEMR) housing, unless otherwise agreed to by the Director of Development and Manager, Community Social Development; and
  - b) Achieve the Project Targets for unit mix and Basic Universal Housing (BUH) standard compliance or as otherwise determined to the satisfaction of the Manager, Community Social Development through an approved Development Permit\*.

Unit Type Minimum Maximum		Maximum Monthly	Total Maximum	Project Targets	
Unit Type	Unit Area	LEMR Unit Rent***	Household Income**	Unit Mix**	BUH Units*
Bachelor	400 ft2	\$811	\$34,650 or less	10%	100%
1-Bedroom	535 ft2	\$975	\$38,250 or less	30%	100%
2-Bedroom	741 ft2	\$1,218	\$46,800 or less	30%	100%
3-Bedroom	980 ft2	\$1,480	\$58,050 or less	30%	100%

- \* BUH units means those units that are designed and constructed to satisfy the Zoning Bylaw's Basic Universal Housing standards. (NOTE: The Zoning Bylaws permits a floor area exemption of 1.86 m² / 20 ft² per BUH unit.)
- \*\* The unit mix will be confirmed to the satisfaction of the City, on a lot-by-lot basis, through the Development Permit\* processes for each lot. The recommended unit mix is indicated in the table; however, based on approved design, which may take into account non-profit housing operator input, the unit mix may be varied provided that at least 50% of total affordable housing units are some combination of "family friendly", 2- and 3-bedroom units.

NOTE: The targeted unit mix is intended to apply to each lot on a stand-alone basis; however, the City, in its sole discretion, may apply the targeted unit mix to the comprehensive development of Lot 1(West) and Lot 2 (East) such that, for example, one lot may have a lesser percentage of family-friendly units and the other may have a higher percentage, provided that, as determined to the City's satisfaction, through the Development Permit\* approval processes:

- A non-profit housing provider(s) is involved (e.g., memorandum of understanding);
- The Housing Covenant on each lot is revised to accurately reflect the specifics of the affordable housing units
  and ancillary spaces and uses, as per the approved Development Permit\* for each lot; and
- Additional legal agreement(s) are registered on title to the lot(s) to secure the developer's commitment to the
  phased (lot-by-lot) implementation of City-approved unit mix across the comprehensive development of Lot
  1(West) and Lot 2 (East).
- \*\*\* Rate shall be adjusted periodically as provided for under adopted City policy.
- c) Occupants of the affordable housing units shall, on a lot-by-lot basis, to the satisfaction of the City (as determined prior to Development Permit\* approval), enjoy full and unlimited access to and use of all on-site indoor and outdoor amenity spaces provided with respect to the affordable housing building as per OCP, City Centre Area Plan, and Development Permit\* requirements, at no additional charge to the affordable housing tenants (i.e. no monthly rents or other fees shall apply for the casual, shared, or exclusive use of any amenities).
- d) On-site parking, "Class 1" bike storage, and related electric vehicle (EV) charging stations shall be provided, on a lot-by-lot basis, for the use of affordable housing occupants as per the OCP, Zoning Bylaw, and approved Development Permit\* at no additional charge to the affordable housing tenants (i.e. no monthly rents or other fees shall apply for the casual, shared, or exclusive use of the parking spaces, bike storage, EV charging stations, or related facilities by affordable housing tenants), which features may be secured via legal agreement(s) on title prior to Development Permit\* issuance or as otherwise determined to the satisfaction of the City. (For clarity, those occupants of the affordable units who utilize the vehicle EV charging stations may be required to pay for the cost of their utility usage, but not for their use of the EV charging equipment or associated parking.)

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- 4. Building Features: The affordable housing units, related uses (e.g., parking, garbage/recycling, hallways, amenities, lobbies), and associated landscaped areas shall be completed, on a lot-by-lot basis, to a turnkey level of finish, at the sole cost of the developer, to the satisfaction of the Director of Development an Manager, Community Social Development. Building features shall include, but may not be limited to the following items.
  - a) Indoor amenity space shall be provided, on a lot-by-lot basis, within and around the affordable housing buildings; which spaces shall be designed and secured for the exclusive use of the affordable housing occupants and satisfy standard City OCP and City Centre Area Plan (CCAP) policies with respect to minimum amenity size, which for clarity shall:
    - i) Be calculated based on a rate of at least 100 m<sup>2</sup> (1,076 ft<sup>2</sup>) per affordable housing building or 2.0 m<sup>2</sup> (21.5 ft<sup>2</sup>) per affordable housing unit, whichever is greater, for some combination of social, recreational, cultural, and/or educational purposes; and
    - ii) In addition to the above, include at least 19 m<sup>2</sup> (200 ft<sup>2</sup>) per building for as administrative (e.g., office) space for the use of the housing operator.
  - b) Outdoor residential amenity space shall be provided for the shared use of the affordable housing occupants, on a lot-by-lot basis, in compliance with standard City OCP and City Centre Area Plan (CCAP) policies (e.g., at least 6 m<sup>2</sup> / 65 ft<sup>2</sup> per affordable housing unit, together with additional landscaped space).
  - c) The affordable housing buildings, including their housing units and common areas (e.g., circulation, lobbies, indoor/outdoor amenity spaces, parking, bike storage, and waste management areas), shall be accessible to people with disabilities, in compliance with the BC Building Code or as otherwise determined to the satisfaction of the Manager of Community Social Development and Manager of Building Approvals.
  - d) The affordable housing buildings, including their common areas and housing units, shall be equipped with an audio/visual alarm systems.
- 5. "No development" shall be permitted on Lot 1 (West) or Lot 2 (East), restricting Development Permit\* issuance on a lot-by-lot basis for a building on Lot 1 (West) and Lot 2 (East), in whole or in part, that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion (excluding parking intended as an ancillary use to non-parking uses), until the developer, to the City's satisfaction:
  - a) Submits, for consideration by the City, a memorandum of understanding with a non-profit operator demonstrating, among other things, support for the developer's proposed clustered affordable housing unit arrangement and unit mix on the lot; and
  - b) Designs the lot to provide for the affordable housing units and ancillary spaces and uses;
  - c) Amends or replaces the Housing Covenant to accurately reflect the specifics of the affordable housing units and ancillary spaces and uses as per the approved Development Permit\*; and
  - d) As required, registers additional legal agreements on title to the lot(s) to facilitate the detailed design, construction, operation, and/or management of the affordable housing units and/or ancillary spaces and uses (e.g., parking) as determined by the City via the Development Permit\* review and approval processes.
- 6. No Building Permit\* shall be issued for a building on Lot 1 (West) or Lot 2 (East) that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion, in whole or in part (excluding parking intended as an ancillary use to non-parking uses), until, on a lot-by-lot basis, the developer provides for the required affordable housing units and ancillary spaces and uses to the satisfaction of the City.
- 7. "No occupancy" shall be permitted on Lot 1 (West) or Lot 2 (East), restricting final Building Permit\* inspection granting occupancy for any residential uses on Lot 1 (East Lot) and /or Lot 2 (West Lot), in whole or in part (except for parking), until, on a lot-by-lot basis, the required affordable housing units and ancillary spaces and uses are completed to the satisfaction of the City and have received final Building Permit\* inspection granting occupancy.

### **District Energy Utility (DEU)**

Terms & Conditions

Registration of a restrictive covenant and statutory right of way and/or alternative legal agreement(s) on title to Lot 1 (West) and Lot 2 (East), to the satisfaction of the City, securing the owner's commitment to connect to District Energy Utility (DEU) and granting the statutory right of way(s) necessary for supplying the DEU services to the building(s), which covenant and statutory right of way and/or legal agreement(s) will include, at minimum, the following terms and conditions:

- 1. No Building Permit will be issued for a building on the subject site (excluding any commercial portions of the existing enclosed mall) unless;
  - a) the building is designed with the capability to connect to and be serviced by a DEU; and
  - b) the owner has provided an energy modelling report satisfactory to the Director of Engineering.
- 2. If a district energy utility service area bylaw which provides for owner construction of an energy generation plant (a "DEU Bylaw"), and which applies to the site, has been adopted by Council prior to the issuance of the development permit for the subject site, no building permit will be issued for a building on the subject site unless:
  - a) the owner designs, to utility grade specification and the satisfaction of the City and the City's DEU service provider, Lulu Island Energy Company Ltd. (LIEC), a low carbon energy plant(s) which provides a minimum 70% of space heating, space cooling and domestic hot water annual energy use from a renewable (non-carbon) energy source, to be constructed and installed on the site, with the capability for the low carbon energy plant(s) and the building side HVAC systems for the site (excluding any commercial portions of the enclosed mall) to connect to and be serviced by a DEU; and
  - b) the owner enters into an asset transfer agreement with the City and/or the City's DEU service provider on terms and conditions satisfactory to the City, which provides, without limitation:
    - that the owner will transfer ownership of the low carbon energy plant(s), the distribution piping system, and all other ancillary components on the subject site used to generate or convey space heating, space cooling and domestic hot water heating up to and including energy transfer stations, to the City or as directed by the City, including to the City's DEU service provider, at no cost to the City or City's DEU service provider, LIEC, on a date prior to final building inspection permitting occupancy of the first building on the site; and
    - ii) that the City and/or the City's DEU service provider will have final approval of all design elements, equipment specifications, construction inspections and work approvals for the low carbon energy plants.
- 3. The owner agrees that the building(s) (excluding any commercial portions of the enclosed mall) will connect to a DEU when a DEU is in operation, unless otherwise directed by the City and the City's DEU service provider, LIEC.
- 4. If a DEU is available for connection and the City has directed the owner to connect, no final building inspection permitting occupancy of a building will be granted unless, and until:
  - a) the building (excluding any commercial portions of the enclosed mall) is connected to the DEU;
  - b) the owner enters into a Service Provider Agreement for that building with the City and/or the City's DEU service provider, LIEC, executed prior to depositing any Strata Plan with LTO and on terms and conditions satisfactory to the City which provides, without limitation, that the City or the City's DEU service provider will be the exclusive provider of space heating and domestic hot water heating, and when available space cooling, services for the building (excluding any commercial portions of the enclosed mall), unless otherwise agreed to by the City Engineer and set out in the Service Provider Agreement; and
  - c) prior to subdivision (including Air Space parcel subdivision and Strata Plan filing, but excluding the subdivision to create the Lot 1(West) and Lot 2 (East)), the owner grants or acquires, and registers, all Statutory Right-of-Way(s) and/or easements necessary for supplying the DEU services to the building.

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- 5. If a DEU is not available for connection, but a DEU Bylaw which applies to the site has been adopted by Council prior to the issuance of the development permit for the subject site, no final building inspection permitting occupancy of a building will be granted unless and until:
  - a) the City receives a professional engineer's certificate stating that the building (excluding any commercial portions of the enclosed mall) has the capability to connect to and be serviced by a DEU;
  - b) the building (excluding any commercial portions of the enclosed mall) is connected to a low carbon energy plant(s) supplied and installed by the owner, at the owner's sole cost, to provide space heating, space cooling and domestic hot water heating to the building(s), which energy plant(s) will be designed, constructed and installed on the subject site to the satisfaction of the City and the City's service provider, LIEC;
  - c) the owner transfers ownership of the low carbon energy plant(s), the distribution piping system, and all other ancillary components on the subject site used to generate or convey space heating, space cooling and domestic hot water heating up to and including energy transfer stations, to the City or as directed by the City to the City's DEU service provider, LIEC, at no cost to the City or the City's DEU service provider, LIEC, on terms and conditions satisfactory to the City;
  - d) prior to depositing a Strata Plan, the owner enters into a Service Provider Agreement for the building with the City and/or the City's DEU service provider, LIEC, on terms and conditions satisfactory to the City which provides, without limitation, that the City or the City's DEU service provider will be the exclusive provider of space heating, space cooling and domestic hot water heating services for the building (excluding any commercial portions of the enclosed mall), unless otherwise agreed to by the City Engineer and set out in the Service Provider Agreement; and
  - e) prior to subdivision (including Air Space parcel subdivision and Strata Plan filing, but excluding the subdivision to create the Lot 1(West) and Lot 2 (East)), the owner grants or acquires, and registers, all additional Covenants, Statutory Right-of-Way(s) and/or easements necessary for supplying the services to the building and the operation of the low carbon energy plant(s) by the City and/or the City's DEU service provider, LIEC.
- 6. If a DEU is not available for connection, and a DEU Bylaw which applies to the site has not been adopted by Council prior to the issuance of the Development Permit for the subject site, no final building inspection permitting occupancy of a building will be granted until:
  - a) the City receives a professional engineer's certificate stating that the building (excluding any commercial portions of the enclosed mall) has the capability to connect to and be serviced by a DEU; and
  - b) the owner grants or acquires any additional Statutory Right-of-Way(s) and/or easements necessary for supplying DEU services to the building, registered prior to subdivision (including Air Space parcel subdivision and strata plan filing).
- 7. The City, at the City's sole discretion can elect to exclude all of the commercial floor space of the buildings (including the common HVAC system of the commercial floor space of the residential buildings) from the conditions set out in sections 1 to 6 above, provided that:
  - a) the owner agrees that, subject to any exceptions agreed to by the City, the HVAC system(s) of all such excluded new commercial floor space in the buildings and the entirety of the southern portion of the enclosed mall (comprising of approximately 440,00ft<sup>2</sup> existing space plus new construction area (the "South Commercial HVAC Loop") will connect to a DEU to provide available heat rejection, at no cost to the City or the City's service provider, for the benefit of the City's service provider, LIEC, to utilize in its DEU, when a DEU is in operation, unless otherwise directed by the City and the City's DEU service provider, LIEC. For clarity, all mechanical equipment for commercial space will remain the property of the owner, and the owner will not be required to transfer ownership of same.
  - b) no building permit will be issued for a building on the subject site unless the South Commercial HVAC Loop is designed with the capability to reject heat to a DEU system (which includes, without limitation, the low carbon energy plant(s) in each of the residential buildings on the site) to the satisfaction of the City and the City's DEU service provider, LIEC;

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- c) if a DEU Bylaw which applies to the site has been adopted by Council prior to the issuance of the development permit for the subject site, no building permit will be issued for a building on the subject site unless the owner designs, to the satisfaction of the City and the City's DEU service provider, LIEC, a heat rejection system from the South Commercial HVAC Loop. Connection points from the South Commercial HVAC Loop will be provided by the owner to enable the City or the City's service provider to capture and transfer the available commercial rejected heat to a DEU system(s) (which includes, without limitation, the low carbon energy plant(s) in residential buildings on the site);
- d) if a DEU is available for connection and the City has directed the owner to connect, no final building inspection permitting occupancy of a building will be granted unless, and until:
  - i) the South Commercial HVAC Loop is connected to a DEU (which includes, without limitation, the low carbon energy plant(s) in residential buildings on site) to provide available rejected heat to the DEU;
  - the owner enters into a Service Provider Agreement for such excluded commercial floor space in the building and the entire enclosed mall with the City and/or the City's DEU service provider, LIEC, executed prior to depositing any Strata Plan with LTO and on terms and conditions satisfactory to the City which provides, without limitation, that the City or the City's DEU service provider will be the exclusive recipient of available rejected heat, at no cost to the City or the City's DEU service provider, from the South Commercial HVAC Loop; and
  - iii) prior to subdivision (including Air Space parcel subdivision and Strata Plan filing, but excluding the subdivision to create the Lot 1(West) and Lot 2 (East)), the owner grants or acquires, and registers, all Statutory Right-of-Way(s) and/or easements necessary for the City or the City's DEU service provider to receive available rejected heat from the South Commercial HVAC Loop;
- e) if a DEU is not available for connection, but a DEU Bylaw which applies to the site has been adopted by Council prior to the issuance of the Development Permit for the subject site, no final building inspection permitting occupancy of a building will be granted unless and until:
  - i) the City receives a professional engineer's certificate stating that the South Commercial HVAC Loop has the capability to, and will immediately, connect to and provide rejected heat to a DEU (which includes, without limitation, the low carbon energy plant(s) in residential buildings on the site);
  - ii) prior to depositing a Strata Plan, the owner enters into a Service Provider Agreement for such excluded commercial floor space of the building and the entire enclosed mall with the City and/or the City's DEU service provider, LIEC, on terms and conditions satisfactory to the City which provides, without limitation, that the City or the City's DEU service provider will be the exclusive recipient of available rejected heat, at no cost to the City or the City's DEU service provider, from the South Commercial HVAC Loop; and
  - iii) prior to subdivision (including Air Space parcel subdivision and Strata Plan filing, but excluding the subdivision to create the Lot 1(West) and Lot 2 (East)), the owner grants or acquires, and registers, all Statutory Right-of-Way(s) and/or easements necessary for the City or the City's DEU service provider to receive available rejected heat from the South Commercial HVAC Loop; and
- f) if a DEU is not available for connection, and a LCDEU service area bylaw which applies to the site has not been adopted by Council prior to the issuance of the Development Permit for the subject site, no final building inspection permitting occupancy of a residential building will be granted until:
  - the City receives a professional engineer's certificate stating that the South Commercial HVAC Loop has
    the capability to, and will immediately, connect to and provide available rejected heat to a DEU (which
    includes, without limitation, the low carbon energy plant(s) in residential buildings on the site); and
  - ii) the owner grants or acquires, and registers, all Statutory Right-of-Way(s) and/or easements necessary for the City or the City's DEU service provider to receive available rejected heat from the South Commercial HVAC Loop.
- 8. The owner may on notice to the City elect to opt out of Section 7 above, and in such case, sections 1 through 6 above shall govern.

#### Servicing Agreement Requirements – Engineering Servicing Terms & Conditions

These requirements were written with the intention of being constructed in two phases, with phase 1 (generally located on the west side of the site) preceding phase 2 (generally located on the east side of the site). The developer is required to enter into Servicing Agreement 1 (outlined below) prior to the Building Permit for phase 1 being issued. The works under Servicing Agreement 1 must be completed prior to the occupancy of the first building of phase 1 unless otherwise determined to the City's sole satisfaction and secured with legal agreement(s) on title. Similarly, the developer is required to enter into Servicing Agreement 2 (outlined below) prior to the Building Permit for phase 2 being issued. The works under Servicing Agreement 2 must be completed prior to the occupancy of the first building of phase 2 unless otherwise determined to the City's sole satisfaction and secured with legal agreement(s) on title.

# Servicing Agreement #1

### 1) Water Works:

- a) Using the OCP Model, there is 326.0 L/s of water available at a 20 psi residual at the Minoru Boulevard frontage. Based on your proposed development, your site requires a minimum fire flow of 220 L/s.
- b) The Developer is required to:
  - 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) Upgrade the existing 250 mm AC water main to 300 mm PVC along the entire Minoru Boulevard frontage of the development site, approximately 450 m.
  - iii) Install approximately 135 m of new 300 mm water main along the new east-west road, complete with fire hydrants to achieve City spacing requirements, from the proposed water main in Minoru Boulevard to the extent of the phase 1 roadworks, complete with blow-off.
  - iv) Review hydrant spacing on all road frontages and install new fire hydrants as required to meet City spacing requirements for commercial land use.
  - v) Install one new water service connection, complete with meter and meter box, for each new parcel. Meters to be located onsite (i.e. in a mechanical room).
  - vi) Confirm which existing service connections are not required to serve the existing mall that is to remain and cut, cap, and remove unused connections.
- c) At Developer's cost, the City is to:
  - i) Complete all tie-ins for the proposed works to existing City infrastructure.

### 2) Storm Sewer Works:

- a) The Developer is required to:
  - i) Perform a drainage analysis to the major conveyance along Murdoch Avenue at Minoru Boulevard. Upgrade the existing storm sewer along the Minoru Boulevard frontage as necessary to address OCP flows, and reconnect all existing connections. The drainage analysis shall be included in the servicing agreement drawing set.
  - ii) Install approximately 140 m of minimum 600 mm or OCP size storm sewer along the new east-west road, complete with catch basins, from the proposed storm sewer in Minoru Boulevard to the extent of the phase 1 roadworks.
  - iii) Install one new storm service connection, complete with inspection chamber, for each new parcel.
- b) At Developer's cost, the City is to:
  - i) Complete all tie-ins for the proposed works to existing City infrastructure.

## 3) Sanitary Sewer Works:

- a) The Developer is required to:
  - i) Install approximately 175 m of new 250 mm sanitary sewer, 195 m of new 300 mm sanitary sewer, and 25 m of new 375 mm sanitary sewer along the Minoru Boulevard frontage from approximately the new east-west road to tie-in to the existing main along Murdoch Avenue. The main shall be designed to accommodate for the future sanitary flows from lots 6551/6631/6651 Minoru Boulevard, the City Hall, and 7811 Granville Avenue, based on OCP densities. The upstream invert shall be designed so that an extension of the main to service

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- 7811 Granville Avenue & the City Hall, with adequate slopes and cover, is possible. (Development Cost charge credits may apply.)
- ii) Design the Murdoch Road extension to accommodate the future relocation of the sanitary forcemain from the north property line of the development site.
- iii) There is an existing City sanitary sewer onsite near the Murdoch Road extension that will need to be removed to facilitate site preparation. Prior to start of site preparation (including but not limited to soil densification, excavation, and DSM wall construction), the developer is required to do the following:
  - A. Provide, as part of the phase 1 development permit application, a construction sequence plan for the installation of the new sanitary sewer in Murdoch, relocation of onsite sanitary service, and the removal/abandonment of the existing City sanitary sewer, for City review/approval.
  - B. Ensure that the existing mall remains serviced during and after the removal of the onsite City-owned sanitary sewer.
  - C. Provide a manhole and capped stub at the property line to serve the existing mall on the remainder lot. The sanitary sewer within the Murdoch Road extension required to connect to the existing mall is to be owned and maintained by the developer (i.e. private onsite service)..
  - D. Cut, cap, and remove the existing 200 mm AC sanitary main and manholes located within the development site, and legally dispose offsite. The extents of the removal shall be from manhole SMH587 to SMH588.
  - E. Enter into a legal agreement to transfer ownership, maintenance, and liability from the City to the property owner for any portion of the sanitary sewer that cannot be removed due to proximity to the existing mall.
  - F. Provide a signed and sealed letter from the developer's civil consultant stating that the AC sanitary main and related appurtenances have been removed and properly and legally disposed offsite.
- iv) Install one new sanitary service connection, complete with inspection chamber, for each new parcel.
- b) At Developer's cost, the City is to:
  - i) Complete all tie-ins for the proposed works to existing City infrastructure.

### 4) Frontage Improvements:

- a) The Developer is required to:
  - i) Design the new east-west road to accommodate for a future 4.38 m-wide District Energy Utility corridor. The DEU corridor shall be within the roadway and clear of all other underground utilities.
  - ii) Incorporate future District Energy Utility corridors within the design of the No 3 Road and Minoru Boulevard cross-sections. The Minoru Boulevard DEU corridor width shall be 4.38 m, and the No 3 Road DEU corridor width shall be 4.2 m. The DEU corridors shall be clear of trees and all other underground utilities.
  - iii) Coordinate with BC Hydro, Telus and other private communication service providers:
    - A. To pre-duct for future hydro, telephone and cable utilities along all road frontages.
    - B. When relocating/modifying any of the existing power poles and/or guy wires within the property frontages.
    - C. 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). The locations of the proposed & relocated infrastructure shall be shown on the development permit drawings. 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:
      - a. BC Hydro PMT 4.0 x 5.0 m
      - b. BC Hydro LPT 3.5 x 3.5 m
      - c. Street light kiosk 1.5 x 1.5 m
      - d. Traffic signal kiosk 2.0 x 1.5 m
      - e. Traffic signal UPS 1.0 x 1.0 m
      - f. Shaw cable kiosk 1.0 x 1.0 m
      - g. Telus FDH cabinet 1.1 x 1.0 m

- iv) Provide street lighting along all road frontages according to the following street light types:
  - B. City Streets
    - a. Minoru Boulevard
      - i. Pole colour: Blue
      - ii. Roadway lighting @ median: <u>City Centre Type Roadway/Pedestrian Luminaire Pole</u> (LED) Drawing L12.3 <u>INCLUDING</u> 2 street luminaires (set perpendicular to the direction of travel), banner arms, 1 flower basket holder, 1 duplex receptacle, and irrigation, but <u>EXCLUDING</u> pedestrian luminaires.
      - iii. Pedestrian lighting between sidewalk & bike path: <u>City Centre Type Laneway Luminaire</u>
        <u>Pole</u> (LED) Drawing L12.1 <u>INCLUDING</u> 2 pedestrian luminaires (set perpendicular to the direction of travel), duplex receptacle, and flower basket holder, but EXCLUDING banner arms and irrigation.
    - b. Murdoch Avenue (South side)
      - i. Pole colour: Grey
      - ii. Roadway lighting @ back of curb (Both sides of street): <u>Type 7</u> (LED) <u>INCLUDING</u> 1 street luminaire, banner arms, and 1 duplex receptacle, but <u>EXCLUDING</u> any pedestrian luminaires, flower basket holders, or irrigation.
      - iii. Pedestrian lighting @ back of ultimate bike path: Type 8 (LED) INCLUDING 1 pedestrian luminaire, but EXCLUDING any duplex receptacle, banner arms, flower basket holders, or irrigation.
      - iv. <u>NOTE</u>: Murdoch & Cook will be constructed within SRWs; however, both streets shall be constructed to City standards to facilitate potential future dedication (as per the CCAP). Staff must confirm the streetlight requirements in coordination with cross-section & landscape design. Requirements may change.
    - c. New City Hall Street (Both sides of street)
      - i. Pole colour: Grey
      - ii. Roadway lighting @ back of curb (Both sides of street): <u>Type 7</u> (LED) <u>INCLUDING</u> 1 street luminaire, banner arms, and 1 duplex receptacle, but <u>EXCLUDING</u> any pedestrian luminaires, flower basket holders, or irrigation.
      - iii. Pedestrian lighting @ back of multi-use path (South side of street only): <u>Type 8</u> (LED) <u>INCLUDING</u> 2 pedestrian luminaires and 1 duplex receptacle, but <u>EXCLUDING</u> any banner arms, flower basket holders, or irrigation. (NOTE: "Pedestrian luminaire" arms shall be set perpendicular to the direction of travel to light both the multi-use path and the adjacent City property.)

<u>NOTE</u>: Staff must confirm the New City Hall Street streetlight requirements in coordination with cross-section & landscape design. Requirements may change.

- C. Off-Street Publicly-Accessible Walkways & Open Spaces
  - a. Park Road Plaza (SRW): To be determined through the Development Permit & SA processes (Note: Lighting to be privately owned & operated)
- D. Traffic Signals
  - a. Minoru Boulevard @ Parkade Entrance, and Minoru Gate
    - i. Pole colour: Blue
    - ii. Style: To match <u>City Centre Type Roadway/Pedestrian Luminaire Pole</u> (LED) Drawing L12.3
- E. Private Streets (Secured via SRW) Developer owned/maintained
  - a. Pole colour: Grey
  - b. Roadway lighting: <u>Type 7</u> (LED) <u>INCLUDING</u> 1 street luminaire and MAY INCLUDE banner arms, duplex receptacles, pedestrian luminaires, flower basket holders, and/or irrigation.
  - c. Pedestrian lighting: Type 8 (LED) INCLUDING 1 or 2 pedestrian luminaires and MAY INCLUDE duplex receptacles, flower basket holders, and/or irrigation, but EXCLUDING banner arms.)

    NOTE: Staff must confirm the Private Street streetlight requirements in coordination with cross-section & landscape design through the Development Permit & SA approval processes.

    Requirements may change.

#### 5) General Items:

- a) The Developer is required to:
  - Relocate all private onsite infrastructure outside of the proposed road dedication/utility SRWs and into the development site.
  - ii) Provide, prior to start of site preparation works or within the first servicing agreement submission, whichever comes first, a geotechnical assessment of site preparation (including excavation, preload, dewatering, and soil densification) impacts on the existing utilities fronting the development site and provide mitigation recommendations.
  - iii) Conduct pre- and post-site preparation 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-site preparation 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) 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.

# Servicing Agreement #2

### 1) Water Works:

- a) Using the OCP Model, there is 755.0 L/s of water available at a 20 psi residual at the No 3 Rd frontage. Based on your proposed development, your site requires a minimum fire flow of 220 L/s.
- b) 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 commercial land use.
  - iii) Install a new water service connection, complete with meters and meter boxes, for each new parcel. Meters to be located onsite (i.e. in a mechanical room). Note that the service connections and fire hydrant lead are to tie in to the existing 300 mm water main on the east side of No 3 Road. Service connections are not to tie in to the large diameter water mains (i.e. the 550 mm water main on the west side of No 3 Road), per the Engineering Design Specifications.
  - iv) Install approximately 120 m of new 300 mm water main along the new east-west road, complete with fire hydrants to achieve City spacing requirements, from the new water main built in phase 1 to the existing 300 mm water main in No 3 Road.
  - Confirm which existing service connections are not required to serve the existing mall that is to remain and cut, cap, and remove unused connections.
- c) At Developer's cost, the City is to:
  - i) Complete all tie-ins for the proposed works to existing City infrastructure.

#### 2) Storm Sewer Works:

- a) The Developer is required to:
  - Install approximately 140 m of minimum 600 mm or OCP size storm sewer along the new east-west road, complete with catch basins, from the new storm sewer built in phase 1 to the existing storm sewer in No 3 Road.
  - ii) Install one new storm service connection, complete with inspection chamber, for each new parcel.
- b) At Developer's cost, the City is to:
  - Complete all tie-ins for the proposed works to existing City infrastructure.

### 3) Sanitary Sewer Works:

- a) The Developer is required to:
  - i) Install approximately 330 m of new sanitary sewer along No 3 Road in the roadway. The sizes shall range between 250-375 m based on the existing & future catchment of the pipe, to be confirmed at the servicing agreement stage.
  - ii) Upgrade the Richmond Centre Sanitary Pump Station to accommodate the increased flows from this development, including but not limited to the following:
    - A. A new electrical kiosk and all related appurtenances, including conduits and SCADA antenna. The electrical kiosk shall be located close to the wet well.
    - B. A back-up generator and all related appurtenances, including conduits and exhaust.
    - C. Upgrades to the power supply as required by the upgraded kiosk, including but not limited to new conduits.
    - D. A parking area for the service vehicles (crane truck, vactor truck, etc.) in front of the wet well. The parking area must be located such that the pumps can be removed from the wet well via the crane mounted on the service vehicle. The parking area must provide safe and adequate traffic and pedestrian flow during weekly maintenance, maintaining southbound traffic in the two-way lane, without requiring traffic control.
    - E. An approximately 13 m by 10 m utility right-of-way for the pump station and related equipment and parking area as described above and as shown in **Schedule F**.
    - F. A secondary designated parking stall designed for LSU vehicles, as shown in **Schedule F**, secured by a legal agreement.
  - iii) Design the Cook Road extension and No 3 Road cross-sections, and pump station configuration, to accommodate the future relocation of the sanitary forcemain from the north property line of the development site.
  - iv) Install a new sanitary service connection off of the proposed mains, complete with inspection chambers, for each new parcel.
  - v) Expose and locate all utilities in No 3 Road west of the median, to confirm that there is a suitable alignment available for the proposed sanitary sewer. If the utility locate determines that there is no suitable alignment within the roadway to the satisfaction of Engineering, the developer must either provide an additional right-of-way to accommodate the sanitary sewer as identified under section 2.7.3 Additional City Utilities (No. 3 Road), or relocate such utilities that conflict with the proposed sanitary sewer (as identified by the required utility locate) so that the proposed sanitary sewer can be installed to meet the applicable standards and specifications (particularly in regards to clearance and cover).
- b) At Developer's cost, the City is to:
  - i) Complete all tie-ins for the proposed works to existing City infrastructure.

## 4) Frontage Improvements:

- a) The Developer is required to:
  - i) Incorporate future District Energy Utility corridors within the design of the No 3 Road and Minoru Boulevard cross-sections. The Minoru Boulevard DEU corridor width shall be 4.38 m, and the No 3 Road DEU corridor width shall be 4.2 m. The DEU corridors shall be clear of trees and all other underground utilities.
  - ii) Coordinate with BC Hydro, Telus, and other private utility companies to relocate the existing structures (including, but not limited to, the Telus cabinets and LPT near the bus shelter) along No 3 Road out of the ultimate frontage improvements and into a suitable location onsite (i.e. outside of the public realm). The proposed locations shall be shown on the development permit plans.
  - iii) Coordinate with the City's Traffic and Engineering departments, and the project's lighting and traffic signal consultants, to relocate the existing traffic and street light kiosks located along No 3 Road out of the ultimate frontage improvements and into a suitable location onsite (i.e. outside of the public realm). The proposed locations shall be shown on the development permit plans.
  - iv) Coordinate with BC Hydro to relocate the existing structures (including, but not limited to, Vista Switch and LPT) located within the proposed intersection of the new east-west road and No 3 Road, into the ultimate location within the development site. The estimated BC Hydro right-of-way for the existing above-ground equipment is 14.0 m by 6.0 m; actual dimensions to be provided by BC Hydro following their detailed design. Please note that this does not include the above-ground structures (i.e. Vista Switches, PMTs, etc.) that are required to service the proposed development. The new location should be coordinated with BC Hydro and the City's Planning Department early to avoid future conflicts with the building design, delays, or other expenses for the Developer.

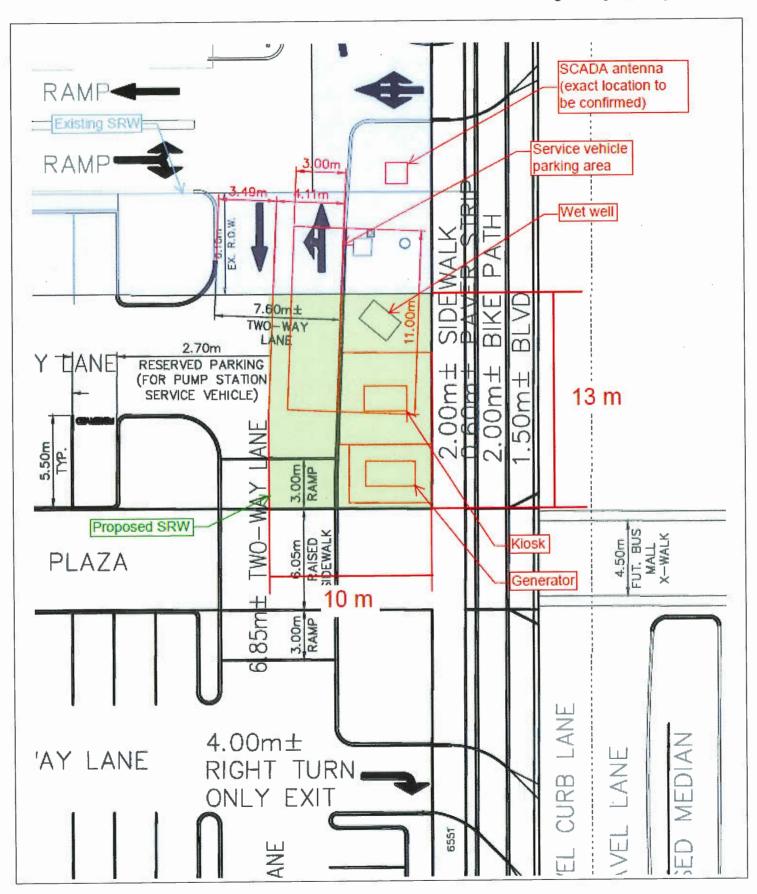
- v) Coordinate with BC Hydro, Telus and other private communication service providers:
  - A. To pre-duct for future hydro, telephone and cable utilities along all road frontages.
  - B. When relocating/modifying any of the existing power poles and/or guy wires within the property frontages.
  - C. 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). The locations of the proposed & relocated infrastructure shall be shown on the development permit drawings. 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:
    - a. BC Hydro PMT 4.0 x 5.0 m
    - b. BC Hydro LPT 3.5 x 3.5 m
    - c. Street light kiosk 1.5 x 1.5 m
    - d. Traffic signal kiosk 2.0 x 1.5 m
    - e. Traffic signal UPS 1.0 x 1.0 m
    - f. Shaw cable kiosk 1.0 x 1.0 m
    - g. Telus FDH cabinet 1.1 x 1.0 m
- vi) Provide street lighting along all road frontages according to the following street light types:
  - A. City Streets
    - a. No 3 Road (West side of street)
      - i. Pole colour: Grey
      - ii. Roadway lighting: N/A (No change to existing lighting in centre median)
      - iii. Pedestrian lighting between sidewalk & bike path: Type 8 (LED) <u>INCLUDING</u> 2 pedestrian luminaires set perpendicular to the roadway, flower basket holders, and 1 duplex receptacle, but <u>EXCLUDING</u> any banner arms or irrigation.
    - b. Cook Road (Both sides)
      - i. Pole colour: Grey
      - ii. Roadway lighting @ back of curb (Both sides of street): Type 7 (LED) INCLUDING 1 street luminaire, banner arms, and 1 duplex receptacle, but EXCLUDING any pedestrian luminaires, flower basket holders, or irrigation.
      - iii. Pedestrian lighting @ back of ultimate bike path: <u>Type 8</u> (LED) <u>INCLUDING</u> 2 pedestrian luminaires and 1 duplex receptacle, but <u>EXCLUDING</u> any banner arms, flower basket holders, or irrigation. (NOTE: "Pedestrian luminaire" arms shall be set perpendicular to the direction of travel to light both the ultimate bike path and the adjacent sidewalk.)
      - iv. <u>NOTE</u>: Murdoch & Cook will be constructed within SRWs; however, both streets shall be constructed to City standards to facilitate potential future dedication (as per the CCAP). Staff must confirm the streetlight requirements in coordination with cross-section & landscape design. Requirements may change.
    - c. New City Hall Street (Both sides of street)
      - i. Pole colour: Grey
      - ii. Roadway lighting @ back of curb (Both sides of street): <u>Type 7</u> (LED) <u>INCLUDING</u> 1 street luminaire, banner arms, and 1 duplex receptacle, but <u>EXCLUDING</u> any pedestrian luminaires, flower basket holders, or irrigation.
      - iii. Pedestrian lighting @ back of multi-use path (South side of street only): <u>Type 8</u> (LED) <u>INCLUDING</u> 2 pedestrian luminaires and 1 duplex receptacle, but <u>EXCLUDING</u> any banner arms, flower basket holders, or irrigation. (NOTE: "Pedestrian luminaire" arms shall be set perpendicular to the direction of travel to light both the multi-use path and the adjacent City property.)
      - iv. <u>NOTE</u>: Staff must confirm the New City Hall Street streetlight requirements in coordination with cross-section & landscape design. Requirements may change.
  - B. Traffic Signals
    - a. No. 3 Road @ Cook Road & Park Road
      - i. Pole colour: Grey
      - ii. Style: To match Type 7

- C. Private Streets (Secured via SRW) Developer owned/maintained
  - a. Pole colour: Grey
  - b. Roadway lighting: <u>Type 7</u> (LED) <u>INCLUDING</u> 1 street luminaire and MAY INCLUDE banner arms, duplex receptacles, pedestrian luminaires, flower basket holders, and/or irrigation.
  - c. Pedestrian lighting: Type 8 (LED) INCLUDING 1 or 2 pedestrian luminaires and MAY INCLUDE duplex receptacles, flower basket holders, and/or irrigation, but EXCLUDING banner arms.)

    NOTE: Staff must confirm the Private Street streetlight requirements in coordination with cross-section & landscape design. Requirements may change.

## 5) General Items:

- a) The Developer is required to:
  - Relocate all private onsite infrastructure outside of the proposed road dedication/utility SRWs and into the development site.
  - ii) Provide, prior to start of site preparation works or within the first servicing agreement submission, whichever comes first, a geotechnical assessment of site preparation (including excavation, dewatering, and soil densification) impacts on the existing utilities fronting the development site and provide mitigation recommendations.
  - iii) Conduct pre- and post-site preparation 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-site preparation 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) 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, ground densification or other activities that may result in settlement, displacement, subsidence, damage or nuisance to City and private utility infrastructure.



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#### Servicing Agreement Requirements - Transportation

Terms & Conditions

Developer is responsible for the design and construction of the following frontage improvements and transition between those improvements and the existing condition outside the development site frontage (at a minimum 30:1 taper rate for No. 3 Road and a minimum 20:1 taper rate for all other roads) to the satisfaction of the City. Note that while the list below provides a general description of the minimum frontage work requirements (which are schematically shown in the Preliminary Functional Road Plan (**Schedule H**), the exact details and scope of the frontage works to be completed by the developer shall be confirmed via the detailed design (SA) process to the satisfaction of the City.

## 1) New City Hall Street Cross-Sections:

- a. Minoru Boulevard, from Murdoch Avenue to the proposed East/West Street (from west to east):
  - Maintain two existing southbound traffic lanes
  - 5.6m wide area for:
    - 1) 3.3m wide intersection turning lanes; and
    - 2) 2.3m wide landscaped/treed median with curb and gutter on both sides
  - 6.6m wide driving surface for two northbound traffic lanes
  - 0.15m wide curb and gutter
  - · 2.4m wide grassed/treed boulevard
  - 1.8m wide asphalt bike path
  - 1.1m wide buffer/lighting strip
  - 2.5m wide concrete sidewalk
- b. Proposed East/West Street, from Minoru Boulevard to No. 3 Road (from south to north):
  - 3.0m wide concrete sidewalk
  - 1.4m wide grassed/treed boulevard
  - 0.15m wide curb and gutter
  - 7.0m wide driving surface for traffic lanes (one in each direction)
  - 0.15m wide curb and gutter
  - 1.5m wide grassed/treed boulevard (a portion of the area would be used as a parking/loading layby)
  - 2.0m wide concrete sidewalk
- c. No. 3 Road, from Saba Road to the proposed East/West Street (from east to west):
  - Maintain two existing southbound traffic lanes
  - 0.15m wide curb and gutter
  - 1.5m wide grassed/treed boulevard
  - 2.0m wide asphalt bike path
  - 0.6m wide buffer/lighting strip
  - 2.0m wide concrete sidewalk
  - Note that the above may be refined in the context of the building setback SRW review to further enhance the
    pedestrian realm

**Note**: Interim works as described below along No. 3 Road, from northern limit of the site to approximately 30m south of the future Bus Mall intersection shall be required prior to 1c) being completed:

- Widen the sidewalk along west side of No. 3 Road to min. 3.0m wide;
- As necessary, removal of the existing hedge and fence at the northern property line to provide a continuous min. 3.0m wide sidewalk to the neighbouring site to the north;
- Modify the existing vehicular access off the parkade ramp to physically restrict egress traffic movements onto No. 3 Road; and
- Install a new vehicular access approximately 30m south which will only allow right-out traffic movement onto No. 3 Road.

### 2) Private (SRW) Street Cross-Sections:

- a. Cook Road, from No. 3 Road to the western limit (from north to south):
  - 2.0m wide concrete sidewalk
  - 0.5m wide buffer/lighting strip
  - 1.8m wide concrete bike path
  - 3.0m wide grassed/treed boulevard

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- 0.15m wide curb and gutter
- 16.1m wide pavement width
- 0.15m wide curb and gutter
- 3.0m wide grassed/treed boulevard
- 1.8m wide concrete bike path
- 0.5m wide buffer/lighting strip
- 2.0m wide concrete sidewalk
- b. Murdoch Avenue, from Minoru Boulevard to the eastern limit (from north to south):

#### Ultimate cross-section

- 2.5m wide concrete sidewalk
- 0.5m wide buffer/lighting strip
- 1.8m wide concrete bike path
- 2.5m wide treed boulevard
- 0.15m curb and gutter
- 9.25m pavement width
- 0.15m curb and gutter
- 2.5m wide treed boulevard (including parking lay-by)
- 0.85m wide buffer
- 1.8m wide concrete bike path
- 0.5m wide buffer/lighting strip
- 2.5m wide concrete sidewalk

<u>Interim</u> cross-section shall be permitted to maintain the existing sidewalk along the street's north side and determine the pavement width based on required traffic operations, as determined to the City's satisfaction.

c. All other internal SRW streets: Generally shown in the preliminary road functional plan attached, with varying pavement widths to accommodate two-way traffic, curb and gutter, on-street parking, on-street lay-bys, treed/grassed boulevards and min. 2.0m wide sidewalk as appropriate.

## 3) Intersection Upgrades:

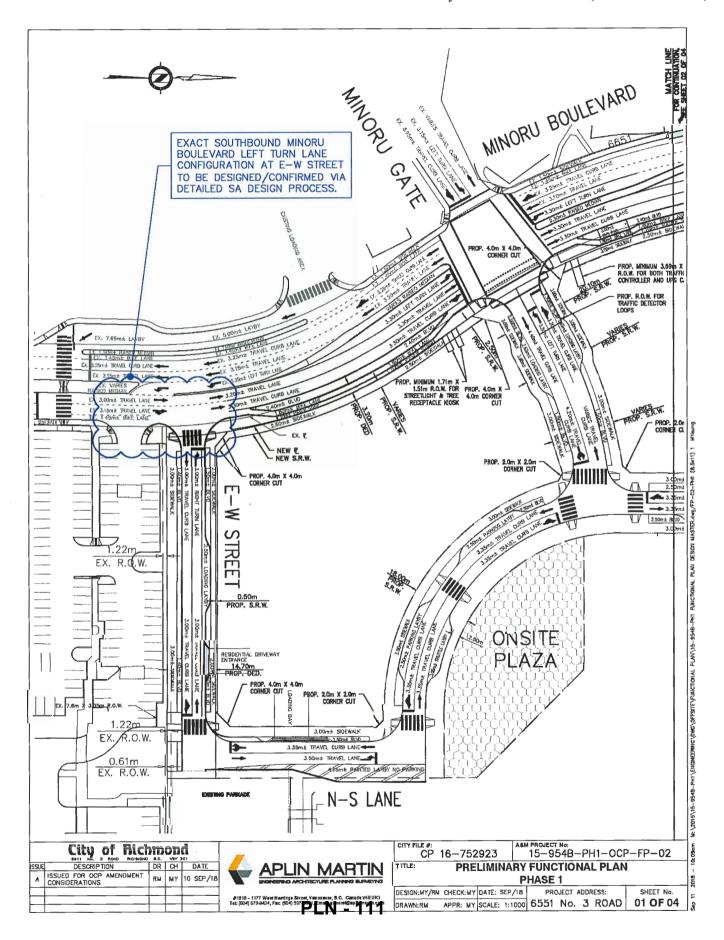
- a. Upgrade of the existing traffic signals / special crosswalks at the following locations to accommodate the road enhancements noted above. Work to include but not limited to: Install new, upgrade and/or replace signal pole, controller, base and hardware, pole base, detection, conduits (electrical & communications), signal indications, communications cable, electrical wiring, service conductors, APS (Accessible Pedestrian Signals) and illuminated street name sign(s).
  - Minoru Boulevard/Minoru Gate: Upgrade of the existing traffic signal
  - Minoru Boulevard/Proposed parkade entrance: Install a new traffic signal (and removal of the existing special crosswalk)
  - Minoru Boulevard/Murdoch Avenue: Upgrade of the existing traffic signal
  - No 3 Road/Park Road: Upgrade of the existing traffic signal
  - No 3 Road/Cook Road: Upgrade of the existing traffic signal
  - No 3 Road/future Bus Mall access: Upgrade of the traffic signal (DCC credits will apply.)
- b. At each of the intersections, all existing pedestrian crosswalks should be upgraded to meet City Centre standards (min. 4.5m wide) as necessary with universal accessibility features (e.g., tactile treatments or equivalent) installed on all wheelchair ramps.

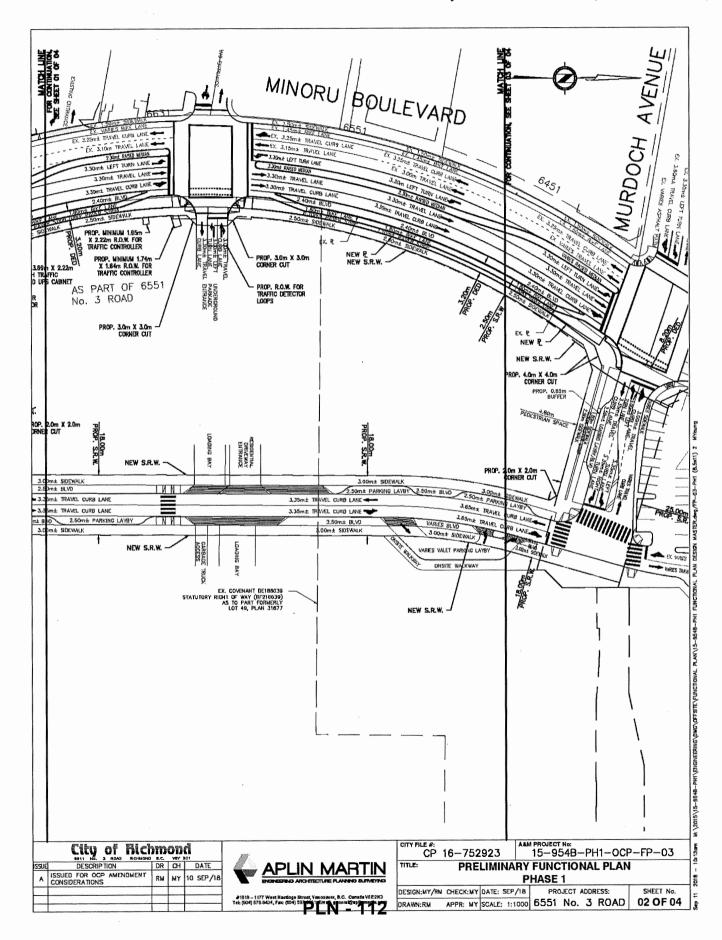
## 4) Timing of Works:

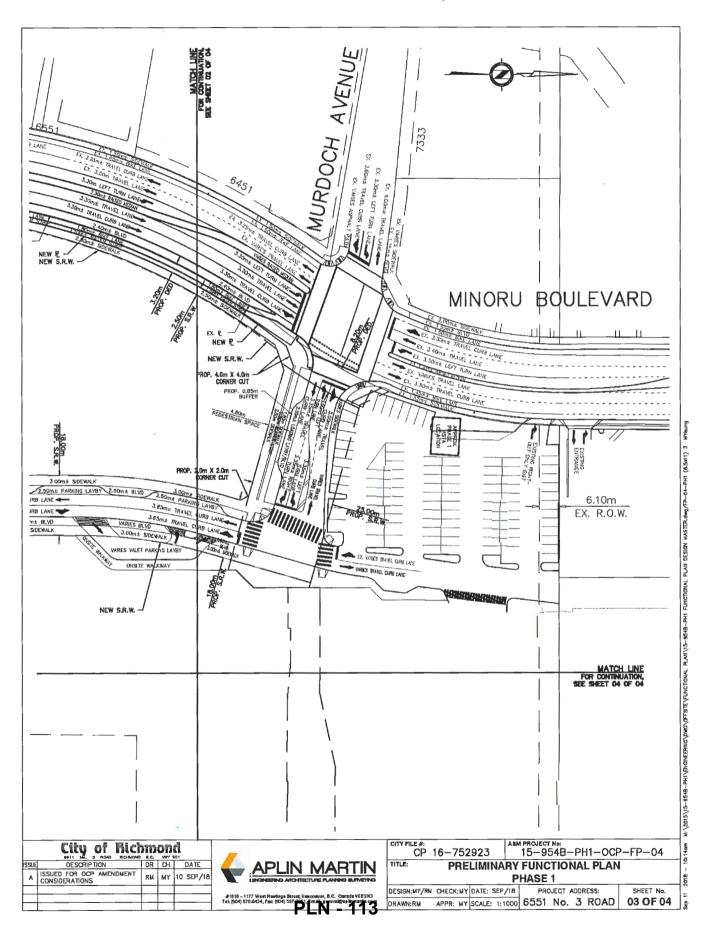
In general, the improvements noted above shall be completed on a phase-by-phase basis as follows:

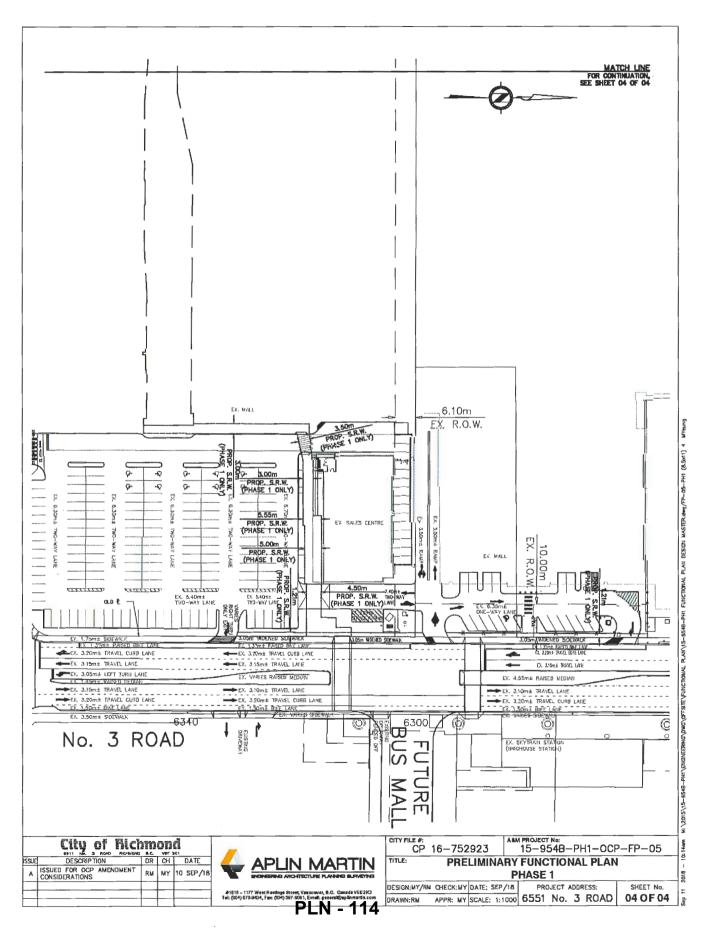
- a. Servicing Agreement #1 (generally works within the western portion of the site):
  - Minoru Boulevard, from Murdoch Avenue to the proposed East/West Street (as described in 1a)
  - Western ½ of the proposed East/West Street, from Minoru Boulevard to No. 3 Road (as described in 1b)
  - Murdoch Avenue, from Minoru Boulevard to the eastern limit (as described in 1e)
  - All other internal SRW streets within the western ½ of the site (as described in 1f)
  - Intersection upgrades, all intersections along Minoru Boulevard (as described in 1g)
  - Interim works along No. 3 Road, from northern limit of 6088 Minoru Boulevard to approximately 30m south of the future Bus Mall intersection:
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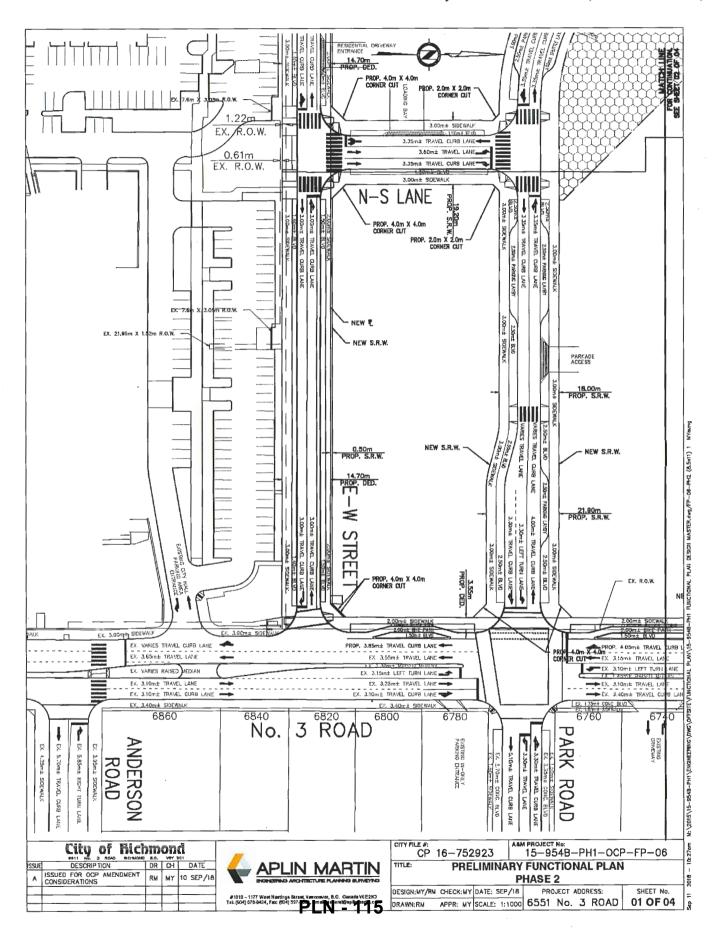
- Widen the sidewalk along west side of No. 3 Road to min. 3.0m wide;
- o As necessary, removal of the existing hedge and fence at the northern property line to provide a continuous min. 3.0m wide sidewalk to the neighbouring site to the north;
- Modify the existing vehicular access off the parkade ramp to physically restrict egress traffic movements onto No. 3 Road; and
- o Install a new vehicular access approximately 30m south which will only allow right-out traffic movement onto No. 3 Road.
- b. Servicing Agreement #2 (generally works within the eastern portion of the site):
  - Eastern ½ of the proposed East/West Street, from Minoru Boulevard to No. 3 Road (as described in 1b)
  - No. 3 Road, from northern limit of the site to the proposed East/West Street (as described in 1c)
  - Cook Road, from No. 3 Road to the western limit (as described in 1d)
  - All other internal SRW streets within the eastern ½ of the site (as described in 1f)
  - Intersection upgrades, all intersections along No. 3 Road (as described in 1g)

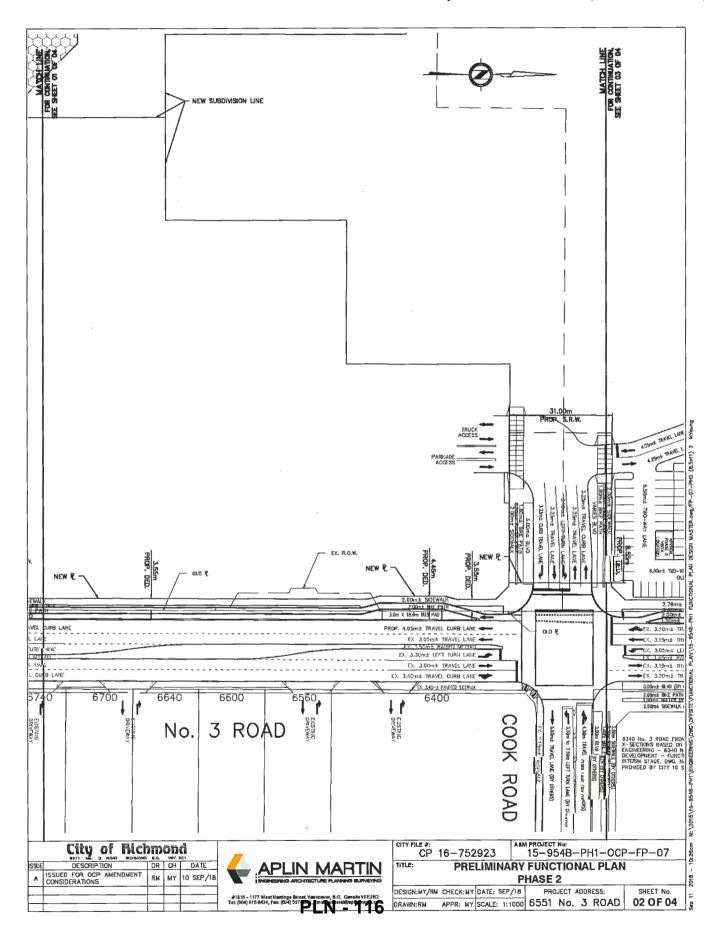


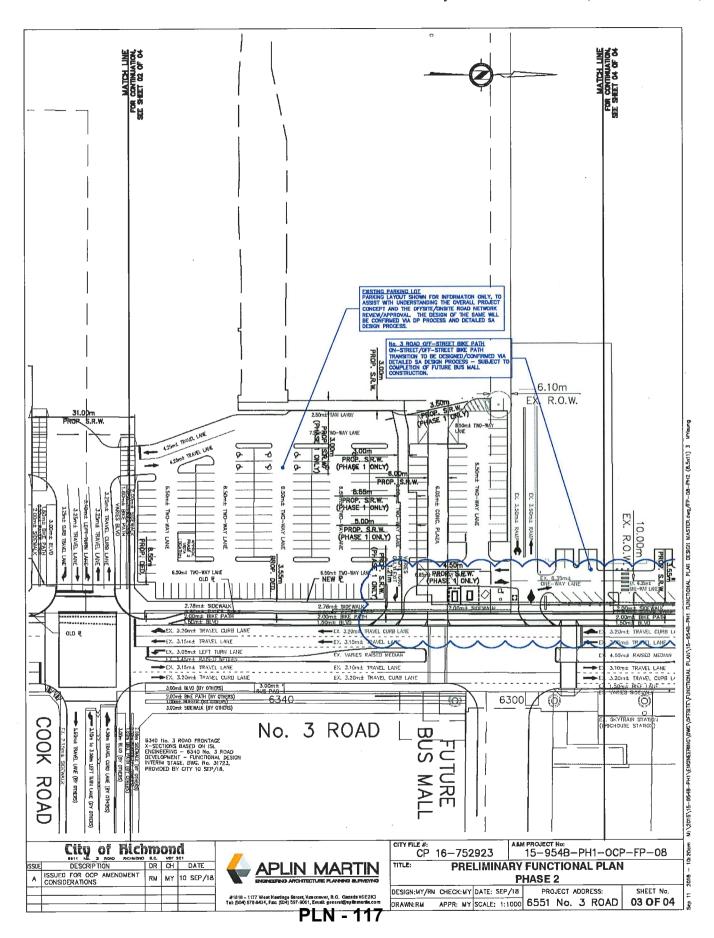


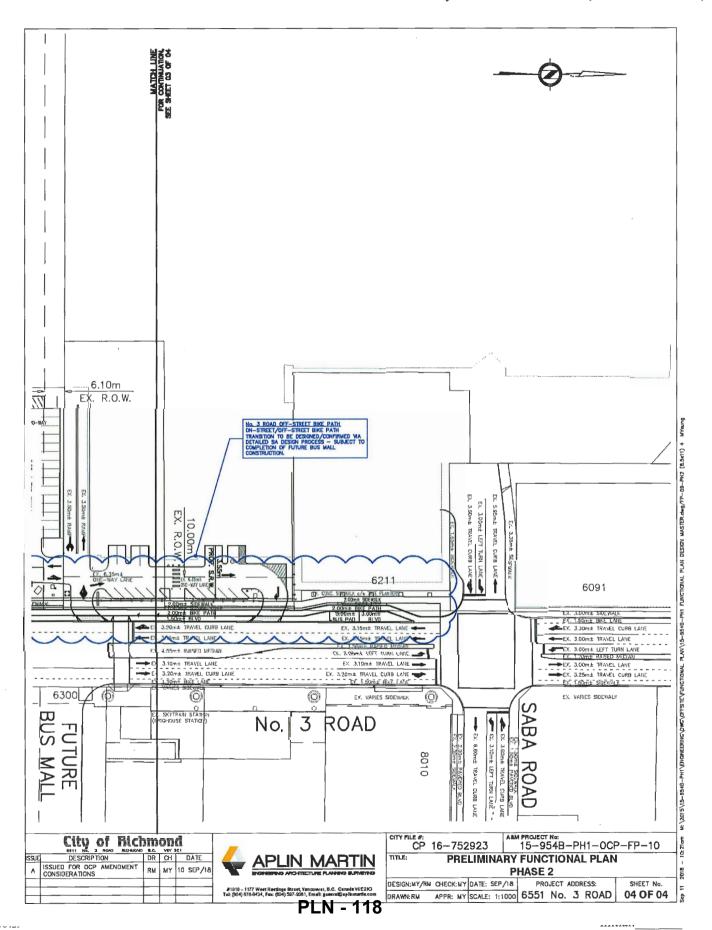












## City Centre "Parking Zone 1" & TDM Strategy Requirements

Terms & Conditions

The following Transportation Demand Management (TDM) measures shall be provided in support of the developer's proposed reduction in parking, as provided for in the Zoning Bylaw (i.e. maximum 10% reduction, based on City Centre Parking Zone 1 rates):

### 1) TDM Measures:

- a. Mobility hubs, including:
  - Mobility Hub 1 (Local Hub) within the western portion of the site, with typical elements/features summarized in the Mobility Hub Vision (Schedule J), with exact details to be finalized as part of the Phase 1 DP application.
  - Mobility Hub 2 (Regional Hub) within the eastern portion of the site, with typical elements/features summarized in the Mobility Hub Vision (Schedule J), with exact details to be finalized as part of the Phase 2 DP application.
- b. For each Phase 1 and Phase 2, provide an end of trip bicycle facilities (showers and changing rooms for retail uses) and maintenance tools located in the bicycle storage area. (Sizes and features to be confirmed through the DP approval processes.)
- c. Bicycle maintenance and repair facilities in each of the residential towers. (Sizes and features to be confirmed through the DP approval processes.)
- d. Transit passes:
  - Residential: monthly transit passes (2-zone for one year) offered to 25% of the market units and 100% of affordable units
  - Retail: \$100,000 for the purchase of 2-zone transit passes or equivalent for use by the employees and customers
- d. Complete off-site improvements to enhance pedestrian walkability at the following locations:
  - Minoru Boulevard/Granville Avenue: Upgrade/enhance existing pedestrian crosswalks and upgrade of the existing traffic signal
  - Minoru Boulevard/Library Crossing: Upgrade of existing pedestrian crosswalk to include stamped and coloured asphalt pavement surface with Duratherm or equivalent
  - No. 3 Road/ Granville Avenue: Upgrade/enhance existing pedestrian crosswalks and upgrade of the existing traffic signal
  - No. 3 Road/ Anderson Road: Upgrade of existing pedestrian crosswalk to include stamped and coloured asphalt pavement surface with Duratherm or equivalent

Note: Pedestrian crosswalk enhancements/upgrades include a wider crosswalk (i.e., min. 4.5m wide) and universal accessibility features installed on all wheelchair ramps. Traffic signal upgrades include the following works but not limited to: install new, upgrade and/or replace signal pole, controller, base and hardware, pole base, detection, conduits (electrical & communications), signal indications, communications cable, electrical wiring, service conductors, APS (Accessible Pedestrian Signals) and illuminated street name sign(s).

## 2) Timing of TDM Implementation:

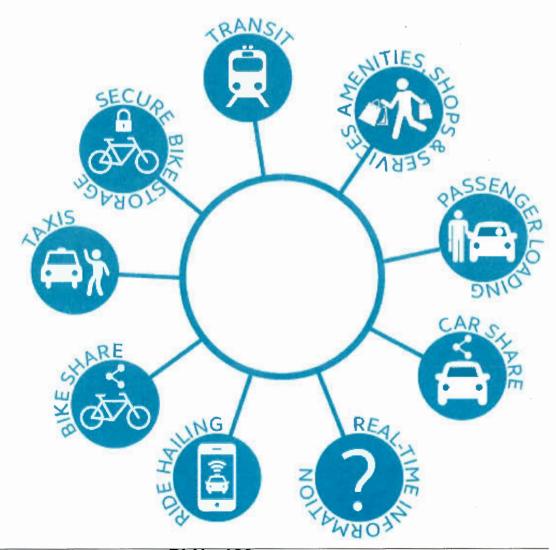
- a. Phase 1:
  - Mobility Hub 1- Local Hub
  - Minoru Boulevard/Granville Avenue: Upgrade/enhance existing pedestrian crosswalks and upgrade of the existing traffic signal
  - Minoru Boulevard/New City Hall Street: Upgrade of existing pedestrian crosswalk to include stamped and coloured asphalt with Duratherm or equivalent
- b. Phase 2:
  - Mobility Hub 2- Regional Hub
  - No. 3 Road/ Granville Avenue: Upgrade/enhance existing pedestrian crosswalks and upgrade of the existing traffic signal
  - No. 3 Road/ Anderson Road: Upgrade of existing pedestrian crosswalk to include stamped and coloured asphalt pavement surface with Duratherm or equivalent

# **CF** Richmond Centre

# **MOBILITY HUB VISION**

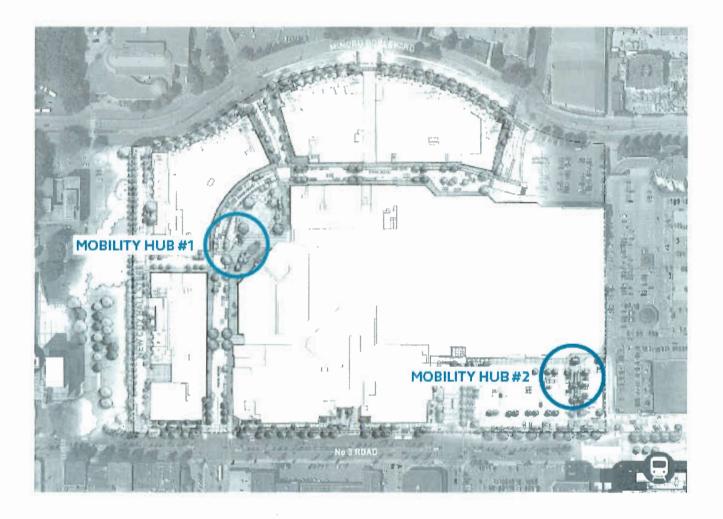
- PEDESTRIAN CONNECTIONS
- BICYCLE CONNECTIONS
- TRANSIT CONNECTIONS
- VEHICLE CONNECTIONS

19 June 2018



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# CF RICHMOND CENTRE SITE PLAN





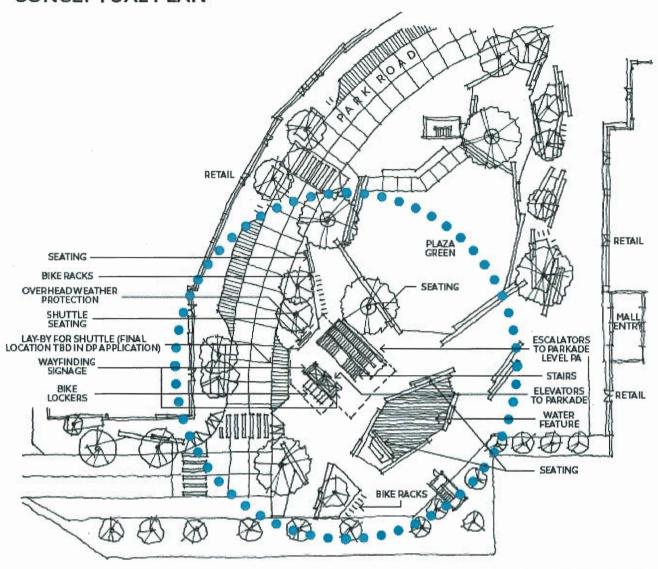




Richmond Centre Richmond Mobility HUB Vision OCP Amendment 006-151789.00 19 June 2018

Initial:

# MOBILITY HUB #1 (LOCAL HUB) CONCEPTUAL PLAN



## PLAZA LEVEL PLAN

# MOBILITY HUB FEATURES @ GROUND LEVEL



- 1. SHUTTLE LAY-BY
- 2. SHUTTLE SEATING A REA
- 3. BIKE LOCKERS (4-5)
- 4. BIKE RACKS
- 5. OVERHEAD WEATHER PROTECTION
- 6. LIGHTING
- 7. WAY-FINDING SIGNAGE

\*PRELIMINARY ESTIMATE OF MOBILITY MODES AND FEATURES; FINAL PROGRAM TO BE DETERMINED WITH PHASE 1 DP APPLICATION

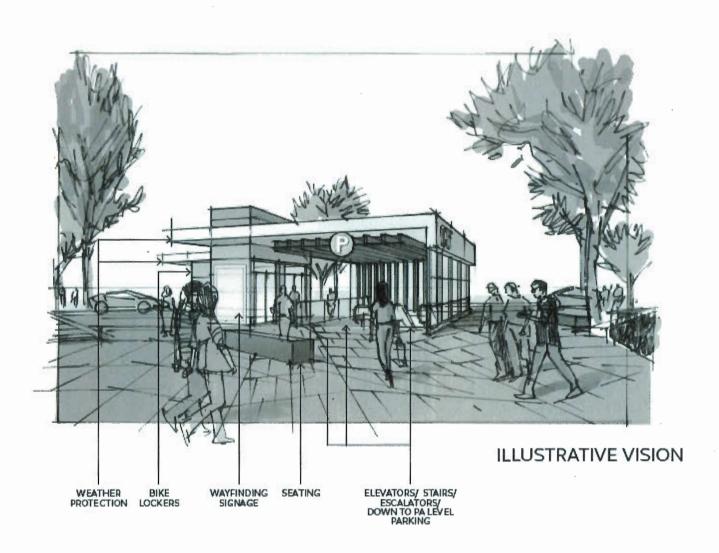


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Richmond Centre Richmond Mobility HUB Vision OCP Amendment 006-151789.00 19 June 2018

# **MOBILITY HUB #1 (LOCAL HUB) CONCEPTUAL VISION**







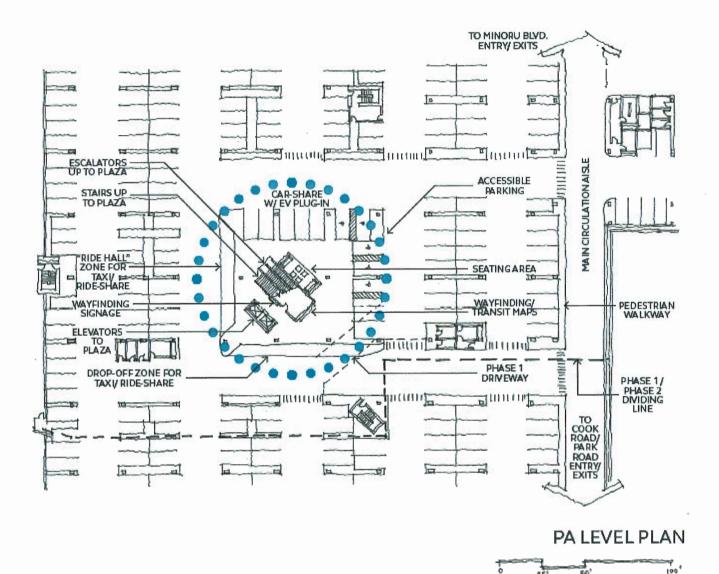


**Richmond Centre** Richmond

**Mobility HUB Vision OCP Amendment** 

006-151789.00 19 June 2018

# MOBILITY HUB #1 (LOCAL HUB) CONCEPTUAL PLAN



# MOBILITY HUB FEATURES UNDERGROUND @ LEVEL PA

- 1. CAR SHARE VEHICLES (3-4)
- 2. CAR SHARE PARKING SPACES (W/ EV PLUG-IN) (RESERVED PARKING FOR CAR-SHARE VEHICLES) (3-4)
- 3. TAXI PARKING / PICK-UP / DROP-OFF (4-5)
- 4. SEATING / WAITING AREA
- 5. WAY-FINDING SIGNAGE
- 6. TRANSIT MAPS / SCHEDULES
- 7. LIGHTING

\*PRELIMINARY ESTIMATE OF MOBILITY MODES AND FEATURES; FINAL PROGRAM TO BE DETERMINED WITH PHASE 1 DP A PPLICATION

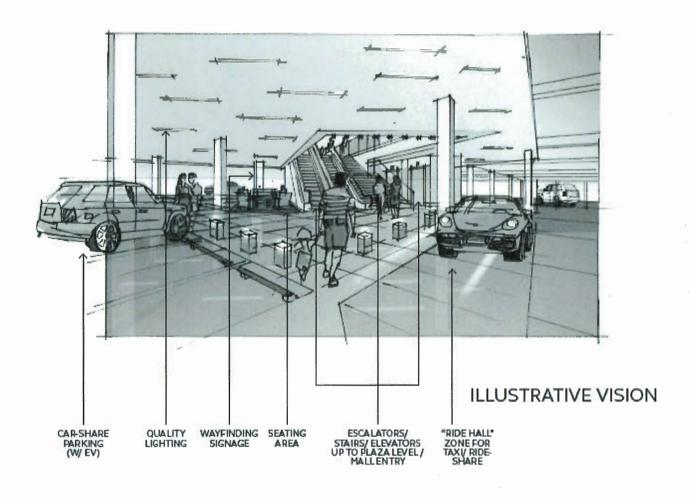


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Richmond Centre Richmond Mobility HUB Vision OCP Amendment 006-151789.00 19 June 2018

# MOBILITY HUB #1 (LOCAL HUB) CONCEPTUAL VISION





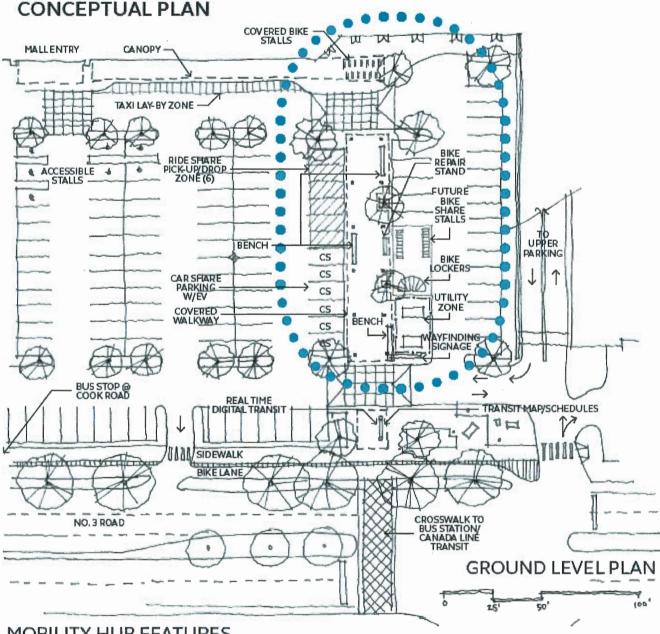
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Richmond Centre Richmond Mobility HUB Vision OCP Amendment

006-151789.00 19 June 2018

# **MOBILITY HUB #2 (REGIONAL HUB)**



## MOBILITY HUB FEATURES

- RIDE SHARE VEHICLES (5-6)
- CAR SHARE PARKING SPACES (W/ EV PLUG-IN) (RESERVED PARKING FOR CAR-SHARE VEHICLES) (5-6)
- TAXI PARKING / PICK-UP / DROP-OFF (4-5)
- COVERED BICYCLE STALLS (20-25)
- BICYCLE LOCKERS (4-5)
- BIKE SHARE SPACES DOCKED SYSTEM OR IF DOCKLESS; PROVIDE "PARKING ZONE" (10-12)
- BICYCLE REPAIR STAND (TOOLS: I.E. WRENCHES, PUMP, ETC) (1)
- WATER FOUNTAIN / BOTTLE FILL STATION
- COVERED WALKWAYS
- 10. BENCHES / SEATING AREA
- 11. LIGHTING
- 12. WAY-FINDING SIGNAGE
- 13. MAP/TRANSIT MAP/SCHEDULES
- REALTIME DIGITAL TRANSIT MESSAGE BOARD
- BUS SHELTER W/ BENCHES (ADJACENT @ COOK ROAD AND AT BUS STATION



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**Richmond Centre** Richmond

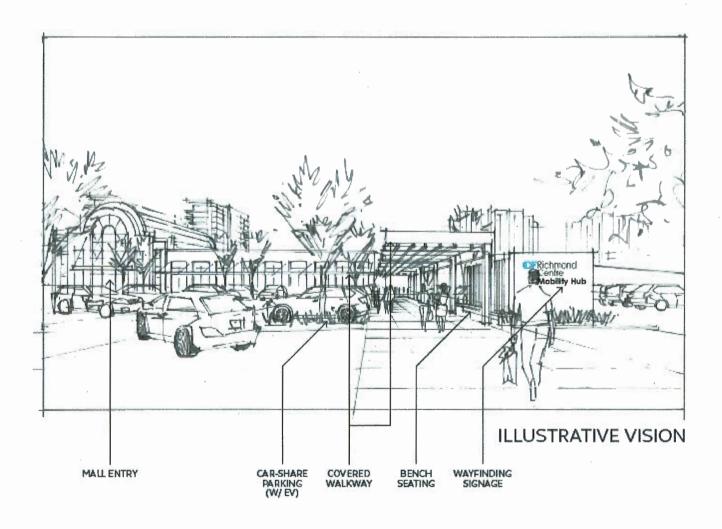
**Mobility HUB Vision OCP** Amendment

006-151789.00 19 June 2018

\*PRELIMINARY ESTIMATE OF MOBILITY MODES AND

FEATURES; FINAL PROGRAM TO BE DETERMINED WITH PHASE 1 DP APPLICATION

# MOBILITY HUB #2 (REGIONAL HUB) CONCEPTUAL VISION









Richmond Centre Richmond Mobility HUB Vision OCP Amendment 006-151789.00 19 June 2018

## **Additional Development Requirements**

Terms & Conditions

- NAV Canada Building Heights: Prior to Development Permit\* issuance, on a lot-by-lot basis, the developer shall submit a letter of confirmation from a registered surveyor assuring that the proposed building heights are in compliance with Transport Canada regulations.
- 2. Family-Friendly Housing Unit Mix: Prior to Development Permit\* issuance, on a lot-by-lot basis, in whole or in part, the developer shall demonstrate that the development provides for a housing unit mix that includes at least 50% 2- and 3-bedroom, "family-friendly" units (in some combination of market-ownership, market rental, and affordable housing units) or as otherwise determined to the satisfaction of the Director of Development and Manager of Community Social Services through the Development Permit\* approval processes. Prior to Development Permit\* issuance, the developer may be required to register legal agreement(s) on title to one or both lots to secure the developer's commitment to designing and constructing the approved housing unit mix, as determined to the City's satisfaction.
- 3. Public Art: Prior to Development Permit\* issuance, on a lot-by-lot basis, covenant(s) and/or alternative legal agreement(s) shall be registered on title to Lot 1 (West) and Lot 2 (East), to the satisfaction of the City, securing the owner's commitment to voluntarily contribute towards public art, on a lot-by-lot basis, in compliance with the Council-approved private development public art program policy and/or related requirements in effect at the time of development approval. The covenant and/or alternative legal agreement(s) shall include various development holds for the purpose of securing the developer's public art contribution in accordance with City policy and shall include, but may not be limited to, the preparation of a detailed public art plan for each lot, Council and/or advisory committee approval(s), the delivery of the developer's contribution in some combination of cash and/or security (Letter of Credit), and the installation and maintenance of the public art on City property and/or within statutory rights of way(s) on the lots, all at the developer's/owner's sole cost. More specifically:
  - 3.1. "No development" shall be permitted on Lot 1 (West) and/or Lot 2 (East), restricting Development Permit\* issuance, on a lot-by-lot basis, for any building on Lot 1 (West) and Lot 2 (East) that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion, until the developer:
    - 3.1.1. Submits a Detailed Public Art Plan for the lot, to the satisfaction of the City, that:
      - a) Includes the entirety of the lot, together with related public open space and public road, as determined to the City's satisfaction;
      - b) Is prepared by an appropriate professional and based on the Richmond Public Art Program, City Centre Public Art Plan, and any relevant supplementary public art and heritage planning undertaken by the City for Brighouse Village, to the satisfaction of the Director of Development and Director, Arts, Culture, and Heritage Services (including review(s) by the Public Art Advisory Committee and presentation for endorsement by Council, as required by the Director, Arts, Culture, and Heritage Services); and
      - c) Account for the full value of the developer's voluntary public art contribution for the lot, which value shall be based on:
        - i) The maximum buildable floor area approved under the Development Permit\* for the lot, excluding standard floor area ratio (FAR) exemptions and affordable housing; and
        - ii) Minimum rates of:
          - For Lot 1 (West): \$0.83 per buildable square foot of residential uses and \$0.44 per buildable square foot of non-residential uses; and
          - For Lot 2 (East): The applicable Council-approved rate(s) in effect at the time of Development Permit\* issuance;
    - 3.1.2. Registers legal agreement(s) on title to facilitate the implementation of the City-approved Detailed Public Art Plan for the lot, to the City's satisfaction; and

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- 3.1.3. Submits a Letter of Credit and/or cash (as determined at the sole discretion of the City) to secure the developer's implementation of the City-approved Detailed Public Art Plan for the lot, the value of which shall be at least the full value of the developer's voluntary public art contribution for the lot as set out in the City-approved Public Art Plan.
- 3.2. "No occupancy" shall be permitted on Lot 1 (West) or Lot 2 (East), restricting final Building Permit\* inspection granting occupancy, on a lot-by-lot basis, for any building on the lot that includes any residential use and/or increase in gross leasable floor area on the lot, as determined in the City's discretion, in whole or in part (excluding parking intended as an ancillary use to non-parking uses), for which the City-approved Detailed Public Art Plan requires the developer's implementation of a public artwork(s) until:
  - 3.2.1. The developer, at the developer's sole expense, commissions an artist(s) to conceive, create, manufacture, design, and oversee or provide input about the manufacturing of the public artwork, and causes the public artwork to be installed on City property, if expressly permitted by the City, or within a statutory right-of-way on the developer's lands (which right-of-way shall be to the satisfaction of the City for rights of public passage, public art, and related purposes, in accordance with the City-approved Detailed Public Art Plan);
  - 3.2.2. The developer, at the developer's sole expense and within thirty (30) days of the date on which the public art is installed, executes and delivers to the City a transfer of all of the developer's rights, title, and interest in the public artwork to the City if on City property or to the subsequent Strata or property owner if on private property (including transfer of joint world-wide copyright) or as otherwise determined to be satisfactory by the City Solicitor and Director, Arts, Culture, and Heritage Services; and
    - NOTE: It is the understanding of the City that the artist's rights, title, and interest in the public artwork will be transferred to the developer upon acceptance of the artwork based on an agreement solely between the developer and the artist. These rights will in turn be transferred to the City if on City property, subject to approval by Council to accept the transfer of ownership of the artwork.
  - 3.2.3. The developer, at the developer's sole expense, submits a final report to the City promptly after completion of the installation of the public art in respect to the City-approved Detailed Public Art Plan, which report shall, to the satisfaction of the Director of Development and Director, Arts, Culture, and Heritage Services, include:
    - a) Information regarding the siting of the public art, a brief biography of the artist(s), a statement from the artist(s) on the public art, and other such details as the Director of Development and Director, Arts, Culture, and Heritage Services may require;
    - b) A statutory declaration, satisfactory to the City Solicitor, confirming that the developer's financial obligation(s) to the artist(s) have been fully satisfied;
    - c) The maintenance plan for the public art prepared by the artist(s); and
    - d) Digital records (e.g., photographic images) of the public art, to the satisfaction of the Director of Development and Director, Arts, Culture, and Heritage Services.
- 4. Electric Vehicle (EV) Charging Infrastructure for Vehicles & "Class 1" Bicycle Storage: Prior to Development Permit\* issuance, on a lot-by-lot basis, covenant(s) and/or alternative legal agreement(s) shall be registered on title to Lot 1 (West) and Lot 2 (East), to the satisfaction of the City, securing the owner's commitment to voluntarily provide, install, and maintain EV charging infrastructure within the building on Lot 1 (West), Lot 2 (East), and Remainder Lot (North) for the use of the building's residents, commercial tenants, and others as determined to the satisfaction of the City through an approved Development Permit\*. More specifically, the minimum permitted rates for EV charging infrastructure shall be as indicated in the following table or as per the Official Community Plan or Zoning Bylaw rates in effect at the time of Development Permit\* approval, whichever is greatest.

<u> </u>	Energized Outlet – Minimum Permitted Rates	
User/Use	Vehicle Parking (1)	"Class 1" (Secured) Bike Storage (2)
Market Residential (i.e. resident parking & bike storage)	1 per parking space (for exclusive use)	1 per each 10 bikes or portion thereof in a bike storage
Affordable Housing (i.e. resident parking & bike storage)	1 per parking space (for exclusive use)	room or locker (which Energized Outlet shall be located to facilitate shared use with bikes in the room/locker)
Non-Residential (i.e. tenant/employee bike storage)	N/A	1 per each 10 bikes or portion thereof in a bike storage room or locker (which Energized Outlet shall be located to facilitate shared use by bikes when secured in the room/locker)

- (1) "Vehicle Parking" "Energized Outlet" shall mean all the wiring, electrical equipment, and related infrastructure necessary to provide Level 2 charging (as per SAE International's J1772 standard) or higher to an electric vehicle.
  - NOTE: Richmond's Electric Vehicle Charging Infrastructure Bylaw provides that, where an electric vehicle energy management system is implemented, the Director of Engineering may specify a minimum performance standard to ensure a sufficient rate of electric vehicle charging. For the purposes of the Bylaw, electric vehicle energy management system means a system to control electric vehicle supply equipment electrical loads comprised of monitor(s), communications equipment, controller(s), timer(s), and other applicable devices.
- (2) "Class 1 (Secured) Bike Storage" "Energized Outlet" shall mean an operational 120V duplex outlet for the charging of an electric bicycle and all the wiring, electrical equipment, and related infrastructure necessary to provide the required electricity for the operation of such an outlet.
- 5. *Tree Retention, Removal & Replacement*: Prior to Development Permit\* issuance, on a lot-by-lot basis, as per standard City policy and procedures, the developer shall, based on a Certified Arborist's Report approved by the City, register legal agreement(s) on title to the lot, submit security and/or cash-in-lieu compensation, and/or implement other measures, to the satisfaction of the City, with respect to the retention, removal, and replacement of on-site and off-site (City) trees impacted by the proposed development.

## Standard City Legal Requirements

Terms & Conditions

- 1. *Flood Construction Covenants*: Registration of flood indemnity covenants on title to Lot 1 (West), Lot 2 (East), and Remainder Lot (North), as per Flood Plain Designation and Protection Bylaw, Area "A" (i.e. minimum flood construction level of 2.9 m GSC).
- 2. Aircraft Noise Covenants: Registration of the City's standard aircraft noise sensitive development (ANSD) covenants on title to Lot 1 (West), Lot 2 (East), and Remainder Lot (North). The owner-developer shall notify all initial purchasers of the potential aircraft noise impacts. Furthermore, on a phase-by-phase basis, prior to each Development Permit\* and Building Permit\* issuance, the owner-developer shall submit a report(s) and/or letter(s) of assurance prepared by an appropriate registered professional, which demonstrates that the interior noise levels and thermal conditions 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 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

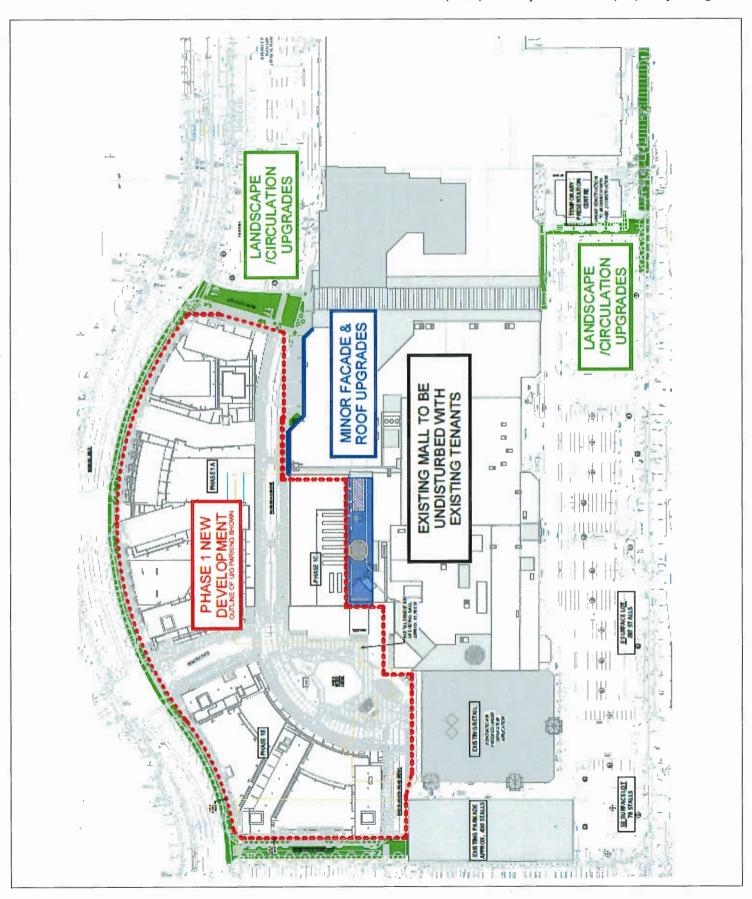
Applicable ANSD covenants shall include:

- a) Lot 1 (West): Mixed use covenant;
- b) Lot 2 (East): Mixed use covenant; and
- c) Remainder Lot (North): Non-sensitive use covenant.
- 3. Canada Line Covenants: Registration of a legal agreement(s) on title to Lot 2 (East) and Remainder Lot (North) requiring that the proposed development on the lots must be designed and constructed in a manner that mitigates potential Canada Line impacts (e.g., noise from trains and public areas, vibration, overlook, light spillage) on proposed adjacent dwelling units and other potential sensitive uses. The owner-developer shall notify all initial purchasers of the potential Canada Line impacts. Furthermore, on a phase-by-phase basis, prior to each Development Permit\* and Building Permit\* issuance, the owner-developer shall submit a report(s) and/or letter(s) of assurance prepared by an appropriate registered professional, which demonstrate that, among other things, for residential uses the interior noise levels and thermal conditions comply with City objectives including, for air conditioning systems and their alternatives (e.g. ground source heat pumps, heat exchangers and acoustic ducting), compliance with the ASHRAE 55-2004 "Thermal Environmental Conditions for Human Occupancy" standard and subsequent updates as they may occur and, for maximum interior noise levels (decibels) within dwelling units, CMHC standards as per the above table with respect to the "Aircraft Noise" agreement.
- 4. View Blockage & Other Development Impacts Covenants: Registration of a restrictive covenant(s) on title to Lot 1 (West) and Lot 2 (East), to the satisfaction of the City, requiring that development on the lots must be designed and constructed in a manner that mitigates potential development impacts including without limitation view obstruction, increased shading, increased overlook, reduced privacy, increased ambient noise, increased ambient night-time light, and increased public use of fronting streets, sidewalks, and open spaces caused by or experienced as a result of, in whole or in part, development on the lands and future development on or the use of surrounding properties. In particular, the covenant shall notify residential tenants in mixed use buildings of potential noise and/or nuisance that may arise due to proximity to retail, restaurant, other commercial, and community uses and activities. The owner-developer shall notify all initial purchasers of the potential development impacts. Through the Development Permit\* approval processes, the developer shall submit a report(s) to the City, to be attached to the legal agreement(s), prepared by an appropriate registered professional, which demonstrates that adequate development impact mitigation measures will be incorporated into the building design. Prior to Building Permit\* issuance and final Building Permit\* inspection granting occupancy, on a lot-by-lot bapt. N who per in part, the developer shall submit letter(s) of

confirmation prepared by an appropriate registered professional, which confirms that the building design and construction comply with the report(s) approved at Development Permit\* stage.

- 5. *Tandem Parking Covenants*: Registration of a legal agreement(s) on title to Lot 1 (West) and Lot 2 (East) for the purpose of ensuring that:
  - a) For Valet Commercial Parking: Where the owner operates a valet parking service, to the satisfaction of the City, two parking spaces may be provided in a tandem arrangement for the use of commercial business owners, tenants, employees, and/or customers and/or the general public as determined to the satisfaction of the City and approved through a Development Permit\*, which may include the registration of legal agreement(s) on title if required by the City;
  - b) For Market-Ownership Residential Parking: Where two parking spaces are provided in a tandem arrangement for the use of the occupants of residential dwellings (excluding affordable housing and market rental dwellings), as per the Zoning Bylaw, both parking spaces must be assigned to the same dwelling unit; and
  - c) Elsewhere: Tandem parking shall be prohibited for all other purposes including, but not limited to, parking for residential visitors, affordable housing and market rental dwellings, commercial uses (except those commercial uses served by Valet Commercial Parking, as determined to the satisfaction of the City and approved through a Development Permit\*), child care, community amenity uses, and car-share spaces.

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Initial:



**PLN - 133** 



## Richmond Official Community Plan Bylaw 7100 and Bylaw 9000 Amendment Bylaw 9892 (CP 16-752923) 6551 No. 3 Road

The Council of the City of Richmond, in open meeting assembled, enacts as follows:

- 1. Richmond Official Community Plan Bylaw 9000 is amended at Attachment 1 to Schedule 1, 2041 OCP Land Use Map, for the area marked as "A" on "Schedule A attached to and forming part of Bylaw 9892", by replacing the existing land use designation of area "A" with "Park".
- 2. Richmond Official Community Plan Bylaw 7100, in Schedule 2.10 (City Centre Area Plan), is amended by:
  - 2.1. Replacing page 2-20, including the Pedestrian-Oriented Retail Precincts Map, with "Schedule B attached to and forming part of Bylaw 9892";
  - 2.2. On page 2-24, entitled 2.3 Mobility & Access Objective, replacing the last bullet with "Car-Free Measures: encourage measures that support car-free lifestyles through enhanced first-to-last kilometre connectivity, alternative transportation options, and home delivery services and facilities."
  - 2.3. On page 2-25, entitled 2.3 Mobility & Access, Policies, following 2.3.8(a), inserting the following as 2.3.8(b): "Multi-Modal Mobility Hubs Establish transportation network nodes that seamlessly integrate multiple travel options, supportive infrastructure, and placemaking strategies to create pedestrian-friendly centres that help to maximize first-to-last kilometre connectivity without need for private motor vehicles."
  - 2.4. Replacing page 2-27, including the Street Network Map (2031), with "Schedule C attached to and forming part of Bylaw 9892";
  - 2.5. Replacing page 2-36, including Pedestrian Environment Map (2031), with "Schedule D attached to and forming part of Bylaw 9892";
  - 2.6. Replacing page 2-38, including the Cycling Network Map (2031), with "Schedule E attached to and forming part of Bylaw 9892";
  - 2.7. Replacing page 2-42, including the Goods Movement & Loading Map (2031), with "Schedule F attached to and forming part of Bylaw 9892";

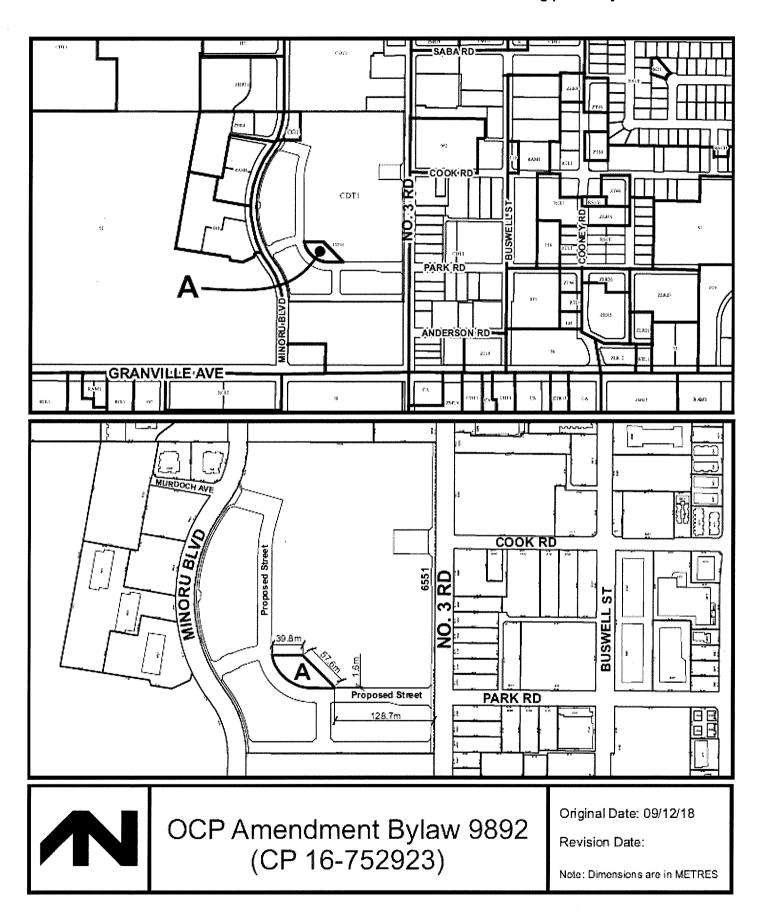
Bylaw 9892 Page 2

2.8. Replacing page 2-44, entitled 2.3.8 Fostering a Car-Free Lifestyle, with "Schedule G attached to and forming part of Bylaw 9892";

- 2.9. Replacing page 2-46, including the Arts & Culture Map (2031), with "Schedule H attached to and forming part of Bylaw 9892";
- 2.10. Replacing page 2-50, including the Public Spaces & Places Map (2031), with "Schedule I attached to and forming part of Bylaw 9892";
- 2.11. Replacing page 2-65, including the Base Level Parks & Open Space Map (2031), with "Schedule J attached to and forming part of Bylaw 9892";
- 2.12. Replacing page 2-68, including the Neighbourhood Parks Map, with "Schedule K attached to and forming part of Bylaw 9892";
- 2.13. Replacing page 2-71, including the Pedestrian Linkages Map, with "Schedule L attached to and forming part of Bylaw 9892";
- 2.14. Replacing page 2-88, including the Public Realm Areas Map, with "Schedule M attached to and forming part of Bylaw 9892";
- 2.15. Replacing page 2-113, including the Tower Spacing & Floorplate Size Map, with "Schedule N attached to and forming part of Bylaw 9892";
- 2.16. Replacing page 2-116, including the Preferred Frontage Conditions Map, with "Schedule O attached to and forming part of Bylaw 9892";
- 2.17. On page 3-1 (3.0 Development Permit Guidelines), following the Sub-Area Guidelines bullet, inserting a new bullet as follows: "Special Precinct Guidelines: Special development standards intended to contribute towards placemaking by encouraging distinct identities supportive of local mobility, ecology, culture, and urban form opportunities";
- 2.18. On page 3-4, inserting a new Development Permit Special Precinct Key Map as shown in "Schedule P attached to and forming part of Bylaw 9892";
- 2.19. Following section 3.2 Sub-Area Guidelines, inserting section 3.3.1 Special Precinct 1.0 Richmond Centre South (Brighouse Village) as shown in "Schedule Q attached to and forming part of Bylaw 9892";
- 2.20. Replacing the Generalized Land Use Map (2031) with "Schedule R attached to and forming part of Bylaw 9892";
- 2.21. Replacing the Specific Land Use Map: Brighouse Village (2031) with "Schedule S attached to and forming part of Bylaw 9892"; and

- 2.22. Making various text and graphic amendments to accommodate the identified bylaw amendments and to ensure consistency with the Generalized Land Use Map (2031) and Specific Land Use Map: Brighouse Village (2031) as amended.
- 3. This Bylaw may be cited as "Richmond Official Community Plan Bylaw 7100 and Bylaw 9000, Amendment Bylaw 9892".

FIRST READING		CITY OF RICHMOND
PUBLIC HEARING		APPROVED
SECOND READING		APPROVED by Manager
THIRD READING		or Solicitor
OTHER CONDITIONS SATISFIED		
ADOPTED	·	
MAYOR	CORPORATE OFFICER	



## 2.2.3(d) Pedestrian-Oriented Retail Precincts

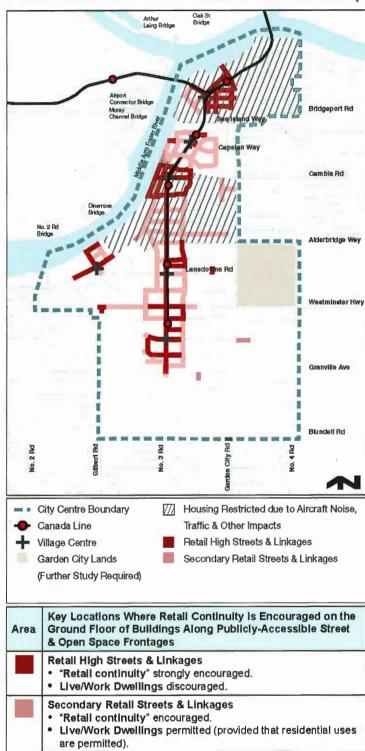
Lively, urban retail areas require "retail continuity": the continuity of a substantial amount of ground floor frontages that are attractive, pedestrianoriented, rich in detail, and engaging — in other words, frontages that encourage people to walk and linger, and include:

- a diversity of activities (e.g., shops and restaurants);
- a high degree of transparency enabling interaction between activities inside the building and the fronting sidewalk or open space (e.g., display windows and views into shop interiors);
- small unit frontages, typically no more than 10 m (33 ft.) wide, each with its own entry;
- multi-tenant building entries, hotels, and large commercial units with ground floor frontage widths of no more than 10 m (33 ft.), unless special measures are employed to maintain retail continuity;
- office and similar uses situated above the ground floor;
- pedestrian weather protection;
- pedestrian-oriented and scaled signage and lighting;
- public art, seating, and other public amenities:
- quality, durable materials and construction.

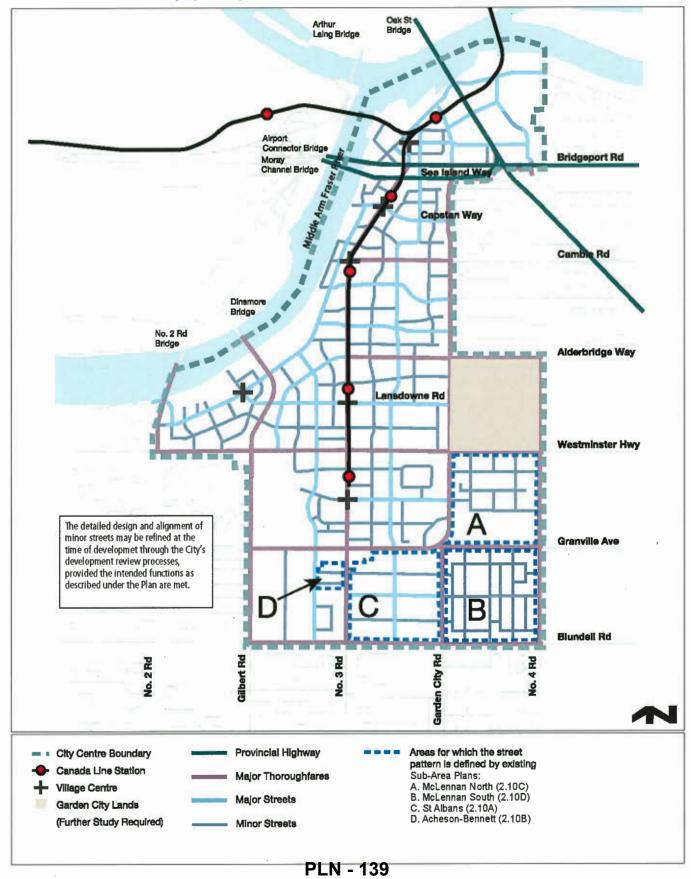
In addition, a successful retail area requires commercial units that can accommodate and adapt to the needs of a variety of businesses over time. To help achieve this, commercial retail units should have a depth of:

- typical 18 m (59 ft.) or more;
- minimum 9 m (30 ft.).

# Pedestrian-Oriented Retail Precincts Map



# Street Network Map (2031)



#### Walking Features

#### Street Network

- Every street is walkable and has a sidewalk, a minimum of 2.0 m (6.5 ft.) wide and preferably 2.5 m (8.2 ft.) wide, with street trees, boulevards and pedestrian lighting.
- Shorter city blocks, narrower street crossings and conveniently timed pedestrian signals.
- Increased curbside parking on minor streets acts as a buffer from adjacent vehicle traffic.
- A wayfinding system to guide pedestrians to key destinations.
- An enhanced pedestrian-cyclist crossings at selected locations, particularly near schools.

#### Streetscape

- A creative, fun and welcoming environment for pedestrians via landscaping, artwork, attractive street furniture, open spaces, gathering places, and resting areas.
- Orient ground level businesses to pedestrian access from the sidewalk.
- Continuous store awnings provide weather protection.

#### **Transit Villages & Connections**

- Transit schedules and route information available at transit stations and bus stops.
- Fully accessible transit stops conveniently located and easily recognizable with sufficient space for waiting passengers.
- Covered walkways provided between transit stops and village centres.

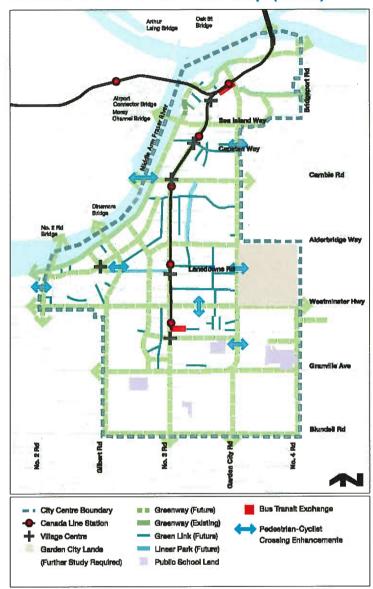
#### **Urban Greenways & Trails**

- Enhanced streetscape features along urban greenways and within pedestrian precincts around transit villages.
- Improved trails along the dyke and new links across water boundaries (e.g., Middle and North Arms of the Fraser River).

#### Accessibility

- Enhanced use of universal accessible design features such as accessible pedestrian signals and tactile wayfinding.
- Lighting along trail networks where feasible.
- Priority given to pedestrian access and safety through parking lots.
- · Installation of ramps at all intersections.

## Pedestrian Environment Map (2031)



#### **Cycling Network Features**

#### Accommodation on Street Network

- Provide signage and pavement markings to clearly delineate cycling facilities from other street components.
- Minimize potential conflicts and safely accommodate multiple road users such as transit service and cycling.
- Enhanced pedestrian-cyclist crossings at selected locations, particulary near schools.

#### **Designated Cycling Routes**

- Designated routes feature signage, pavement markings and bicycle-friendly traffic signals.
- Designated bike lanes on major thoroughfares and some major streets with a typical width of 1.5 m to 1.8 m (5 ft. to 6 ft.).
- Cycling routes are physically separated from vehicle traffic on major thoroughfares and major streets where feasible.
- Shared wide curb lanes on some major streets and on minor streets with typical width of 4.3 m (14.1 ft.).
- Bicycle-friendly routes feature pavement markings, signage and signal loop detectors but road is not widened.

#### Trails & Bridges

- Integration of on-street cycling network with off-street trails and pathways including the Canada Line Bridge over the North Arm of the Fraser River.
- Off-street pathways have typical width of 3.0 m to 4.0 m (10 ft. to 13.1 ft.).
- Proposed new pedestrian/cycling bridge from the west end of Cambie Road to Sea Island.

#### **End-of-Trip Facilities**

- Secure end-of-trip facilities (bike racks, lockers, cages) at civic sites, parks, transit villages, and activity centres.
- Bylaw requirement for all new developments to provide short-term and long-term secure bicycle parking.

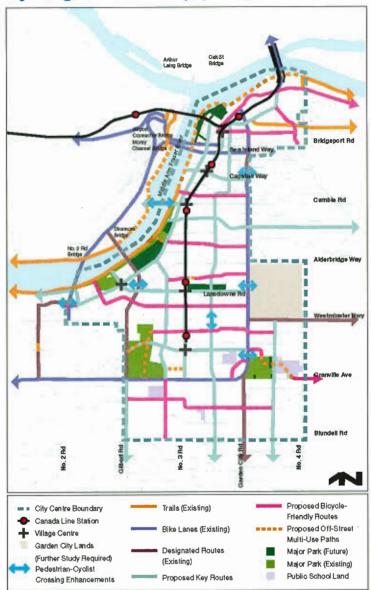
## Integration with Transit

- Bicycle accommodation on the Canada Line and all buses during all hours of operation.
- Bike racks and bike lockers at all rapid transit stations and transit exchanges.

#### **Promotion & Education**

- · Safe cycling courses for adults and children.
- Area-wide event to promote cycling for all trips.
- Education and enforcement programs to encourage sharing the road among motorists and cyclists.

## Cycling Network Map (2031)



# Goods Movement & Emergency Services Features

#### **Goods Movement Corridors**

- Major thoroughfares and streets act as the primary goods movement corridors with minor streets and lanes providing access for local deliveries and loading.
- Support other modes of goods movement such as rail in the Bridgeport area and the potential for short-sea shipping routes along the Fraser River.

#### **Loading Locations**

- Provide off-street loading docks within parking areas for zones of high trucking activity.
- Construction loading zones provided where feasible to facilitate pick up and drop off of construction materials and minimize traffic disruption.
- Service lanes and mews are the preferred onstreet locations.
- Limited to areas adjacent to on-street parking on minor streets.
- Available on some major streets in offpeak periods but not permitted on major thoroughfares.

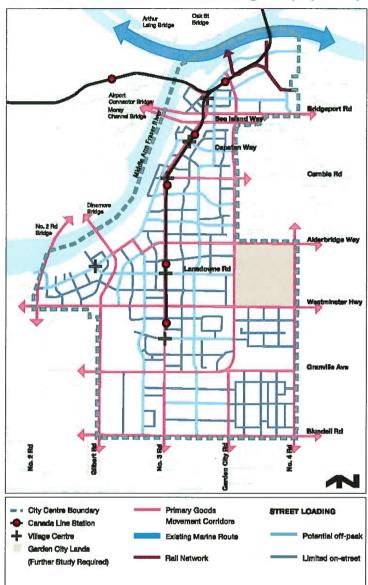
#### **Emergency Services**

- Priority is given to emergency service access and timely response.
- Major thoroughfares and some major and minor street intersections incorporate traffic signal pre-emption capability.
- Parking regulations ensure that lanes and mews are kept accessible for emergency vehicles.
- Consider response time requirements for emergency services when identifying priority routes.

#### Planning & Policy

- Maintain liaison with the Provincial Emergency Program to protect local disaster response routes as part of the regional network.
- Restrict unnessary dangerous goods movement in City Centre.
- Seek to minimize response times when planning the site of future emergency service facilities.
- On-going liaison with stakeholders (e.g., trucking industry) to enhance goods movement.

## Goods Movement & Loading Map (2031)



## 2.3.8 Fostering a Car-Free Lifestyle

The key success indicator for fostering a car-free lifestyle is:

An improved shift to sustainable travel modes resulting from the enhanced convenience, flexibility, attractiveness, and integration of alternative transportation options within the urban fabric.

## Challenges

- People often make multi-purpose trips or need to carry bulky items, which can make giving up a car difficult.
- People may need their cars for work.
- Some activities can be difficult to access without a car (e.g., skiing, team sports, child care).
- It can be challenging to introduce new travel options in developed, high density areas.

The principles of transit-oriented development and complete communities together with the complementary policies and key directions for each component of the transportation system jointly seek to foster a "car-free" lifestyle as a viable option for City Centre households over time.

Ideally, with more choices, it will be possible and even desirable for residents to have only one or perhaps no private car at all. If an effective range of mobility choices, infrastructure, services, and supporting initiatives are in place, the car-free lifestyle becomes feasible and public investments in the Canada Line and the transit system, as well as the City's commitment to sustainability, are maximized.

### Strategies

- Implement measures, such as multimodal mobility hubs, to encourage people to walk, cycle, and take transit.
- Foster attractive, pedestrian-friendly, transit-orient, urban villages.
- Ensure convenient access to alternative travel options and superior first-to-last kilometre connectivity.
- Encourage customer service and residential development models that make it easier to shop and do dayto-day activities without a car.



Checklist for a Car-Free Lifestyle		
Transit Villages	Compact, mixed use development that enables easy walking to convenient transit linkages.     The daily needs of City Centre residents and workers are within reach of walking and transit.	
Access to Transportation Options	Enable people to conveniently access multiple travel modes when needed so that owning a motor vehicle is not necessary.     Encourage all developments to support car-free lifestyles by supporting transit, car- and bike-share, ride hailing, taxis, autonomous cars, and multi-modal mobility hubs.     Encourage retail and other destination-type uses to provide priority space for travel modes that support car-free lifestyles.	
Access to Retail Goods and Services	Encourage retail uses to provide home pick-up and delivery services, ideally at no or minimal cost.     Encourage retailers to schedule delivery and pick-up at times when residents are most likely to be at home and traffic volumes are low (e.g., evenings).     Encourage retailers and other service providers (e.g., furniture movers) to avoid the use of large vehicles that are difficult to accommodate in dense urban areas.     Encourage co-ordinated delivery services for multitenant retail developments.     Ensure that sidewalks and pathways have sufficient width to accommodate pedestrian modes including scooters and handcarts.	
Home Delivery & Pick-Up Services	<ul> <li>Encourage residential developments to provide spaces for concierge services to enable home deliveries and pick-up (e.g., groceries, drycleaning, etc.).</li> <li>Ensure sufficient common space/secure areas for the temporary storage of goods to be picked-up and deliveries until the owner arrives home.</li> <li>Ensure that loading areas are publicly accessible for larger delivery trucks and publicly accessible.</li> <li>Provide on-street loading zones, where feasible, to allow for home delivery/pick-up in higher density projects without off-street parking or service lanes are not readily available.</li> </ul>	

## Multi-Modal Mobility Hubs

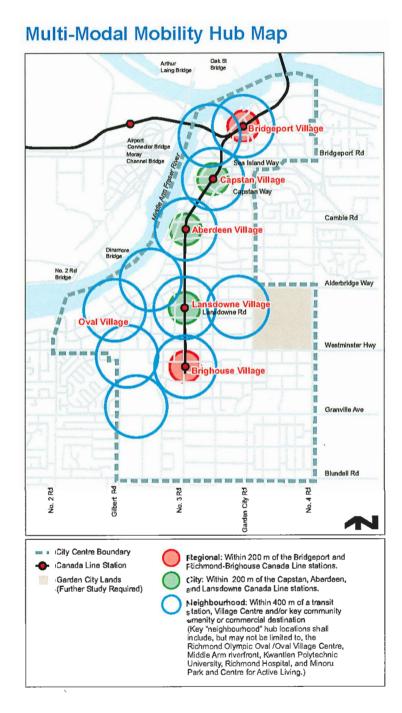
Purpose: multi-modal mobility hubs are key transportation network nodes designed to seamlessly integrate multiple travel modes, supportive infrastructure, and placemaking strategies with the aim of creating pedestrian-oriented centres that help to maximize first-to-last kilometre connectivity.

Features: effective mobility hubs require an integrated suite of pedestrianfriendly, transportation and related features, which may include, but may not be limited to:

- public transit stops for rail, bus, community shuttle, and HandyDart with supporting amenities such as shelters and real-time arrival information;
- bike- and car-share facilities;
- taxi and ride-hailing services;
- secure bike storage and repair services;
- kiss-and-ride;
- shops and services;
- Wi-Fi, weather protection, seating, wayfinding signage, public washrooms, and special features such as public art;
- personal safety and security features (e.g., Crime Prevention through Environmental Design measures).

Development Approach: successful mobility hubs are integrated with the urban fabric and responsive to surrounding land uses and evolving community needs. This requires a strategic development approach that:

- encourages site-specific mobility programming tailored to the distinct needs of users in "regional", "city", and "neighbourhood" locations;
- offers flexible, cost-effective design options that support the establishment of hubs in highdemand, high density locations;
- can readily adapt to growth and increasing demands for new and emerging technologies and travel options (e.g., bike-share, ride hailing, and autonomous vehicles);
- employs placemaking strategies supportive of attractive, safe, and pedestrian-friendly facilities that complement the quality and character of the public realm.



### Alternative Mobility Hub Strategies

Multi-modal mobility hubs are places of connectivity that help to bridge the gap between high-frequency transit and each person's origin and destination by co-locating an integrated suite of mobility services, amenities, and technologies with a concentration of employment, housing, shopping, and/or recreation uses.

Mobility hub designs may vary based on user needs and location-specific opportunities. Development strategies may include, but may not be limited to:

- the street-level clustering of transportation amenities and complementary urban uses on one or several adjacent sites;
- a stand-alone hub that concentrates transportation amenities in a purpose-built facility in proximity to complementary urban uses; or
- a hybrid approach that integrates transportation amenities with complementary urban uses in the form of a high-amenity, transitoriented, mixed use development.



Clustered, street-level transportation amenities. Source: Hamburger Hochbahn AG



CF Richmond Centre – Proposed mobility hub integrated with underground parking and convenient public access to grade.



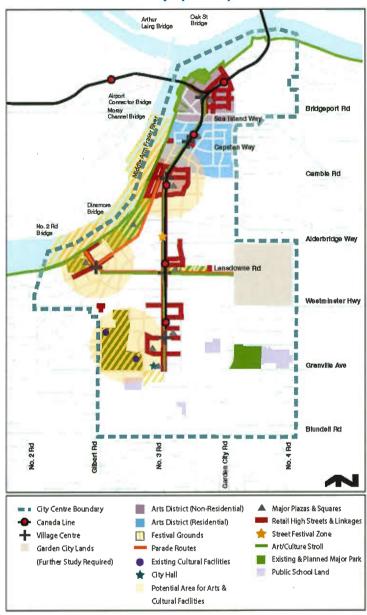
Marine Gateway and the Marine Drive Canada Line Station Vancanger. Photo: Andrew Latreille / Courtesy: Perkins+Will

### **OBJECTIVE:**

Provide a framework for the City Centre as a "thriving and creative community" that is empowered, engaged and diverse, and where arts, culture, and heritage are inextricably linked with and support:

- a strong community voice and engaged community that enhances the relevance and responsiveness of urban and economic development, planning, and governance;
- placemaking, with a mosaic of appealing, lively, and distinctive urban villages, vibrant public spaces, festivals, events, and activities;
- an increased creative capacity which enriches the quality of life and attracts progressive business opportunities which support:
  - the arts, heritage and cultural practitioners;
  - the identification, conservation, and interpretation of heritage resources;
  - spaces for residents and visitors to work and participate in arts, culture and heritage activities;
- an enhanced enjoyment of the urban realm and respect for and connectivity among citizens and cultures.

### Arts & Culture Map (2031)



### 2.4.1(b) Places to Gather & Celebrate

Public open space and streetscape will play a key role in supporting interaction within the City Centre linking people, buildings & activities. Public spaces are important "mixing places" for community residents, artists & visitors and serve as "stages" for showcasing the work of local artists.

Celebrations form an important part of vibrant urban living & provide opportunities for residents & visitors to come together bringing understanding and a sense of belonging. Many celebrations are intentionally small and community focused. In other cases however, the intent is to invite the City, the region and the world, which requires special accommodation and colocation with City facilities and private developments.

### Challenges/Opportunities

With the Canada Line, the Oval Plaza & the Middle Arm Park in the development phase, the infrastructure to provide facilities to host events can be built into the design of the spaces instead of having to adapt spaces and bring in infrastructure for each event.

### **Proposed Strategy**

- Prepare a festival/events plan including appropriately designed spaces and parade routes.
- Design spaces that ensure staging, view corridors, seating areas, power supply & lights that can flexibly accommodate events of different sizes & styles of community gatherings and festivals.
- Ensure the provision of public and private open spaces that are designed as people gathering and mixing spaces including elements such as conversation areas, public art, busker and performance space and informal play areas.

### Public Spaces & Places Map (2031)



### OBJECTIVE:

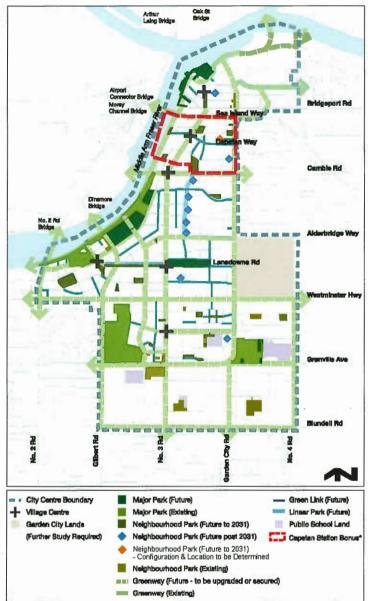
Provide a framework for a complete parks and open space system that will:

- provide the quantity of park and open space required to address social, recreational, and cultural needs:
- incorporate a rich diversity of experiences and landscapes that reflect the identity of the community and are rooted in local culture and environment:
- ensure an equitable distribution of parks and open space of each type;
- mitigate the environmental impacts of increasing urbanization and continually support the health of the urban environment;
- respond to the higher densities in the City Centre with a greater diversity of programming in each park and appropriate design and materials.

### Strategic Investment for City Acquisition of Open Space

In order to optimize public resources, the strategic approach to the acquisition of City owned parks and open space is to secure investments rapidly. In the period ending in 2031, when the greatest growth and the greatest increase in land values is anticipated, 75% of the total land required to build-out will have been acquired.

### Base Level Parks & Open Space Map (2031)



\* The Base Level Open Space Standard will be augmented in Capstan Village by publicly accessible areas secured for public park and related uses in respect to the Capstan Station Bonus.

	Year 2006	Year 2031	Bulld-out	
Population	40,000	90,000	120,000	
Quantity of 76.5 ha Open Space (189 ac.)		118.4 ha (292.5 ac.)	157.8 ha (390 ac.)	
Ratio of Acreage to 4.75/1,000 Population		3.25/1,000	3.25/1,000	
Quantity of Additional Open Space	0	41.9 ha (103.5 ac.)	39.5 ha (97.5 ac.)	

### 2.6.1 Neighbourhood Parks

Neighbourhood parks comprise 40% of the open space system and primarily serve the local needs of the immediate residential or commercial neighbourhood. Parks will determine the types which include:

### Residential Village Parks

Location: To serve residents within a 400 m (1,312 ft.) radius without crossing arterial roads or major streets.

Program: Social gatherings, informal recreation, environmental features &/or local storm water management features.

Site Features: 0.6 to 3.2 ha (1.5 ac. to 8 ac.), 40% urban forest &/or eco-amenity, 50% frontage on streets, south exposure with access to sunlight, outdoor fitness amenities, sport courts, playgrounds, community gardens, seating/gathering area.

### Commercial Village Parks

Location: To serve businesses within a 400 m (1,312 ft.) radius without crossing arterial roads or major streets.

Program: Daytime & evening gathering, social & cultural programming, informal recreation, urban character.

Site Features: 0.2 to 1.6 ha (0.5 ac. to 4 ac.), 30% urban forest, 50% frontage on streets, south exposure with access to sunlight, hard surface and seating areas, sport courts, soft landscape areas.

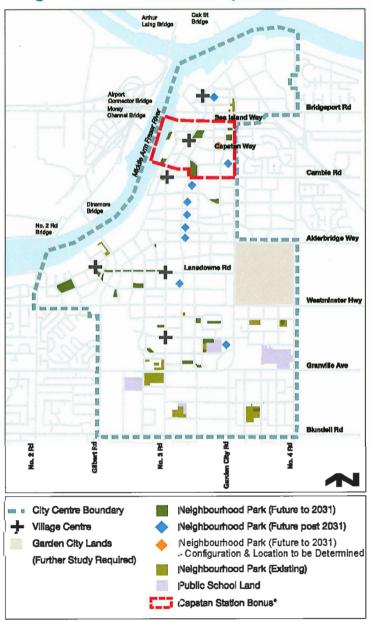
### **Urban Plazas**

Location: At prominent cross-roads within a village.

Program: Daytime & evening gathering, social & cultural programming, urban character.

Site Features: Less than 0.2 ha (0.5 ac.), 50% frontage on streets, south exposure with access to sunlight, hard surface and seating areas, soft landscape features.

### Neighbourhood Parks Map



\* The Base Level Open Space Standard will be augmented in Capstan Village by publicly accessible areas secured for public park and related uses in respect to the Capstan Station Bonus.

### Additional Study

Urban Agriculture Strategy – to better understand effective ways of integrating urban agriculture within public open spaces and on private property.

### 2.6.3(c) Pedestrian Linkages

The 2010 Richmond Trail Strategy provides the vision to guide continued development of the greenway system in City Centre. The intent is to "provide a variety of exciting opportunities for walking, rolling and cycling that will link people to each other, to their community, and to Richmond's unique natural and cultural heritage".

### Greenways

**Location:** Along major streets and important recreational corridors.

**Program:** Link multiple destinations (e.g. between major open spaces and other significant destinations) and connect natural areas.

Site Features: Min. 10 m (33 ft.) wide, separate pedestrian and cycling paths, rest areas with street furnishings, public art, signage & wayfinding, integrated with wetlands & storm water features, hedgerows, significant tree planting.

### **Linear Parks**

Location: Along key streets to create significant recreational and environmental corridors linking the waterfront to the heart of the downtown.

**Program:** Combined neighbourhood park and greenway functions to encourage movement through the neighbourhood (walking, jogging) and incorporating social and physical activity nodes.

Site Features: 30 to 40 m (100 to 131 ft.) wide, high quality landscape, broad pedestrian promenade, playgrounds, sports courts, water features, significant tree planting and multi-layered planting, site furnishings, public art.

### **Green Links**

Location: Along lanes and mews, through or between developments (which may include indoor routes).

**Program:** Provide connections within neighbourhoods to support a walkable urban environment, and to support ecological areas.

Site Features: Min. 6 m (20 ft.) to 20 m (65 ft.) wide, broad sidewalks with special paving at nodes and intersections, rest areas with street furniture, street trees and multi-layered planting, pedestrian scale street lighting, wayfinding, community art.

### Pedestrian Linkages Map



### Additional Study

Storm Water Management Strategy – to develop methods to better address stormwater and permeability in parks, greenways and streets.

### **OBJECTIVE:**

Provide a framework for a "lively community" that is rooted in a "culture of walking and cycling" and a collaborative, interdisciplinary approach to city building that is:

- diverse;
- engaging;
- attractive;
- safe:
- healthy;
- human-scaled.

"... A good city can be compared to a good party-people stay for much longer than really necessary because they are enjoying themselves."

Public Spaces and Public Life, City of Adelaide: 2002. City of Adelaide, Gehl Architects ApS, 2002.

### **Public Realm Areas Map**



### "Taming Tall Buildings": Part 2 Tower Spacing, Floorplate Size & Development Site Size

Richmond's OCP encourages a maximum tower floorplate size of 600 m<sup>2</sup> (6,459 ft<sup>2</sup>) and a minimum distance between towers of 24 m (79 ft.).

While these guidelines have been effective in encouraging a staggered distribution of point tower forms, new challenges are emerging, including a need for:

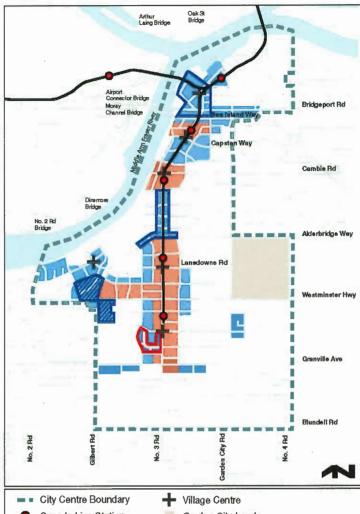
- larger floorplates that better reflect actual City Centre residential development practices (i.e., typically 650 m<sup>2</sup> (6,997 ft<sup>2</sup>)) and anticipated non-residential market needs;
- larger gaps between towers in some areas to reduce private view blockage, sunlight blockage, and the impression of a "wall" of buildings.

In addition, a minimum development site size for tower development is encouraged. This is intended to make clear that while a development site may be designated for building heights greater than 25 m (82 ft.) (i.e., towers), this form is discouraged where it may impact adjacent sites or affects the livability or attractiveness of the public realm.

Minimum tower development site size (i.e., for buildings taller than 25 m (82 ft.)):

- Width: 45 m (148 ft.);
- Depth: 40 m (131 ft.);
- Area:
  - a) For less than 3 FAR: 4,000 m<sup>2</sup> (1 ac.);
  - b) For 3 FAR or more: 2,500 m<sup>2</sup> (0.6 ac.).

### **Tower Spacing & Floorplate Size Map**



City Centre Boundary
 Village Centre
 Garden City Lands
 (Further Study Required)

Tower Spacing: Typical Minimum*  Above 25 m (82 ft.)  Above 30.5 m (100 ft.)		
Above 25 m (82 ft.)	ADOVE 30.5 III (100 IL.)	
24 m (79 ft.)	24 m (79 ft.)	
35 m (115 ft.)	35 m (115 ft.)	

\* Between towers on a single development site or adjacent development sites. Towers setbacks to interior property lines or to the centre line of abutting dedicated City lanes should be a minimum of 50% of the Typical Minimum Spacing, except where it can be demonstrated to the satisfaction of the City that a reduced setback will not impact the livability of a neighbouring site or its ability to develop.

NOTE: If tower development occurs outside the areas indicated here, the minimum spacing shall be 35 m (115 ft.).

	Tower Floorplate Size: Typical Maximum
	For office: 1,800 m² (19,376 ft²) above 25 m (82 ft.) For other uses: 650 m² (6,997 ft²) above 25 m (82 ft.)
<b>///</b>	For hospital: 1,800 m <sup>2</sup> (19,376 ft <sup>2</sup> ) above 25 m (82 ft.) For other uses: 650 m <sup>2</sup> (6,997 ft <sup>2</sup> ) above 25 m (82 ft.)
650 m <sup>2</sup> (6,997 ft <sup>2</sup> ) above 25 m (82 ft.), EXCEPT increased to 1,200 m <sup>2</sup> (13,000 ft <sup>2</sup> ) above 30.5 m where the Typical Minimum Tower Spacing is p	
Elsewhere 650 m <sup>2</sup> (6,997 ft <sup>2</sup> ) above 25 m (82 ft.)	

### 2.10.2(a) Attractive, Accessible Street Frontages

The frontage of a development site is the area between the building and the curb of the fronting public street (or the boundary of a park). How this area is designed is critical to the pedestrian experience and the liveliness of the public realm – but in the City Centre, the design of this space is complicated by Richmond's flood management policy that generally requires a minimum habitable floor elevation of 2.9 m (9.5 ft.) geodetic – which in many places is as much as 1.5 m (4.9 ft.) above the grade of the fronting street.

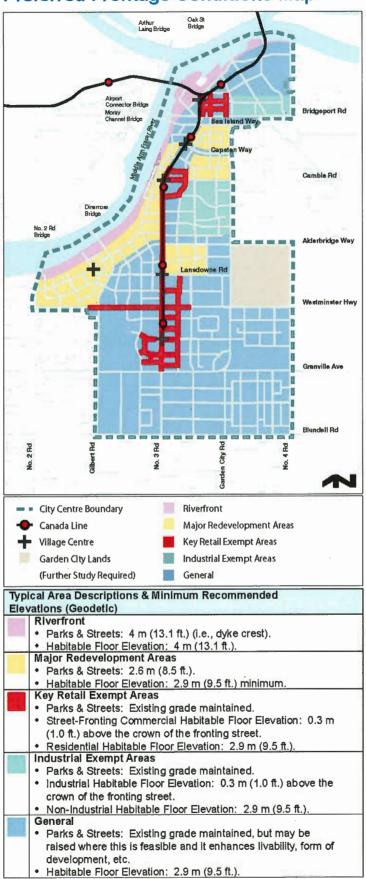
### Challenge/Opportunity

The grade differential between the street and the minimum habitable floor elevation can enhance privacy for street-fronting dwellings; however, it can also impede pedestrian access, impair retail viability, and present other urban design challenges (e.g., concealing parking).

### **Proposed Strategy**

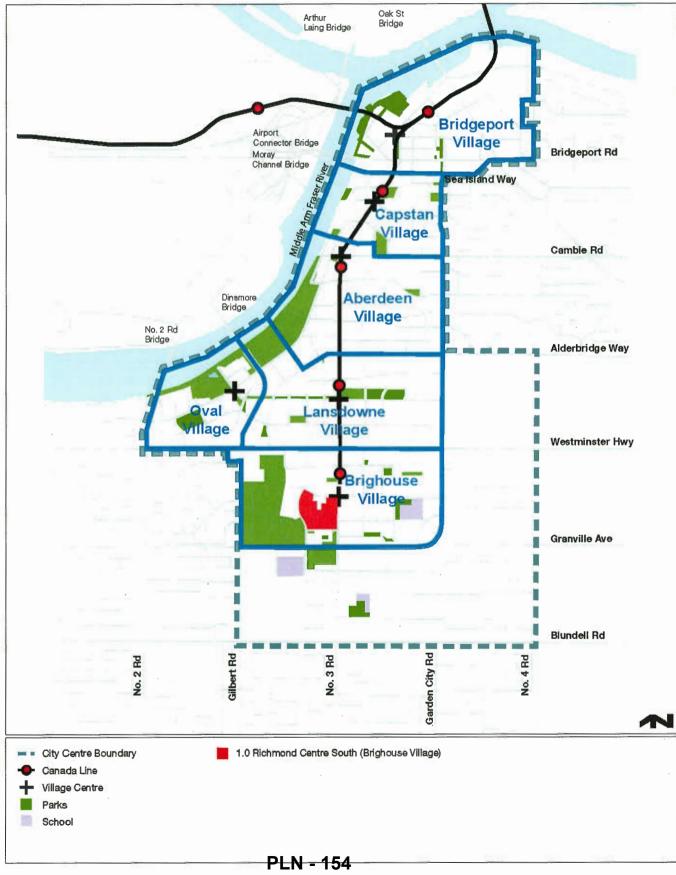
- Raise riverfront areas to the level of the dyke or higher.
- Raise grades to 2.6 m (8.5 ft.) geodetic or higher wherever possible (e.g., transit plazas, new streets and parks, large sites).
- Relax minimum habitable floor elevations for select retail and industrial areas to 0.3 m (1.0 ft.) above the crown of the fronting street.
- Elsewhere, employ a variety of alternative frontage treatments, alone or in combination.

### **Preferred Frontage Conditions Map**



**PLN - 153** 

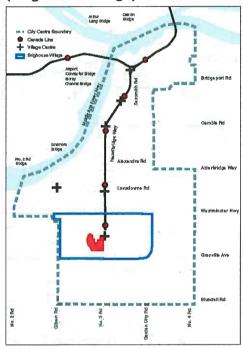
### **Development Permit Special Precinct Key Map**



### 3.3 Special Precinct Guidelines

### 3.3.1 Special Precinct 1.0

### Richmond Centre South (Brighouse Village)



This special precinct is envisioned as an animated, high density, high-rise, mixed use, urban place comprised of four distinct character areas:

- Two commercial "High Streets" offering a lively mix of pedestrianfriendly, public/private, outdoor/ indoor, places to shop and play; and
- Two "Green Streets" bridging between the busy downtown and adjacent residential, civic, and park uses.

### Predominant Land Uses:

 Mixed Residential/Commercial, including stand-alone affordable housing buildings

### Key Land Use Restrictions:

Pedestrian-Oriented Retail
 Precinct designation requires small commercial units along designated frontages

### Maximum Net Density:

3.15 FAR, including affordable housing

### Maximum Typical Height:

• 45 m (148 ft.)

### **High Streets**



A. No. 3 Road



B. Park Road

### **Green Streets**



C. Minoru Boulevard



D. Civic Promenade



Possible massing at 3.15 FAR (including affordable housing) showing the precinct's distinctive high-rise courtyards, accommodating large, family-friendly rooftop outdoor spaces, framed by slim towers that fan out from an animated pedestrian-oriented retail high street and central public plaza.

Special Precinct 1.0 High Streets		Green Streets		
	A. No. 3 Road	B. Park Road	C. Minoru Boulevard	D. Civic Promenade
Richmond Centre South (Brighouse Village)	Minoru Blyd	Minoru Byd	Palk Rd Palk Rd	Minoriu Bhd
A. Typical Distribution of Uses	Underground: Parking.     Ground: Pedestrian-oriented retail & limited lobbies.     Above: Residential.		Underground: Parking. Ground: Townhouses & limited lobbies. Above: Residential.	Underground: Parking.     Ground: Lobbies & limited pedestrian-oriented retail.     Above: Residential.
B. Maximum City Block Size		posed public street and pedestr ly 100 m (328 ft.) circulation grid		with lanes and mews as
C. Minimum Net Development Site	• 2.8 ha (7.0 ac).			
D. Net Development Site Coverage		ets & open spaces secured for p	ublic access with Statutory Righ	nt-of-Ways (SRW).
E. Maximum Building Height	• 45 m (148 ft.).			
F. Towers:  • Tower Spacing	• 35 m (115 ft.) min, above 30.5 m (100 ft.).	• 24 m (79 ft.) min, above 30.5 m (100 ft.).		0.5 m (100 ft.), EXCEPT that 24 m (79 ft.) to reinforce Park
Tower Width	20.0 m (65.6 ft.) max. (across the tower's narrow dimension) above 30.5 m (100 ft.).			
Tower     Floorplate	650 m² (6,997 ft²) above 25 m (82 ft.), EXCEPT may be increased to 1,200 m² (13,000 ft²) above 30.5 m (100 ft.) where (i) the recommended Tower Spacing is provided, (ii) larger floorplates do not impact key public spaces, and (ii) larger floorplates contribute towards larger, more family-friendly, rooftop (outdoor) amenity spaces.			
G. Habitable Floor Elevation	Retail & Lobbies: 0.3 m (1.0 ft.) above the crown of the fronting street.	Retail & Lobbies: 0.3 m (1.0 ft.) above the crown of the fronting street.	Lobbies: 0.3 m (1.0 ft.) above the crown of the fronting street.	Retail & Lobbies: 0.3 m (1.0 ft.) above the crown of the fronting street. Other residential: 2.9 m (9.5 ft.) GSC.
H. Minimum Setbacks	Underground: Nii Elsewhere: 6.0 m (19.7 ft.) to lot line & greater at lobbies/primary entrances Flex Zone: Setbacks may be reduced by: i) 1/3 for 50% of the ground floor frontage if compensated for with public plaza of equivalent size; ii) 1/2 for 50% of the upper floor frontage.	Underground: Nil. Plaza: 1.5 m (4.9 ft.) to SRW boundary. Street: 7.5 m (24.6 ft.) east of plaza & 5.5 m (18.0 ft.) elsewhere measured to curb face (i.e. setback includes sidewalk & parking). Flex Zone (east of plaza only): Setbacks may be reduced by 2.0 m (6.6 ft.) for 20% of ground floor & 50% of upper floor frontages.	Underground: Nii.     Elsewhere: 4.5 m (14.8 ft.) to the lot line or 2.0 m (6.6 ft.) to the back of the sidewalk (whichever is greater), EXCEPT greater at lobbies & primary entrances.	Underground: Nil. Tower: 2.0 m (6.6 ft.) to lot line, EXCEPT setback may be reduced to 0.5 m (1.6 ft.) above the ground floor. Pedestrian-Oriented Retail: 0.5 m (1.6 ft.). Elsewhere: 6.0 m (19.7 ft.) to lot line. Note: Sidewalk SRW encroaches into lot by 0.5 m (1.6 ft.).
Build-to-Lines	<ul> <li>Setbacks should typically be treated as build-to-lines.</li> <li>High Street "Flex Zones" are intended to contribute towards more varied &amp; animated public spaces &amp; built forms.</li> </ul>			
J. Preferred Frontage Treatments	"Shopfront & Awning".	"Shopfront & Awning".	"Stoops & Porches".     "Lawn & Garden".	"Lawn & Garden".
K. Landscape Considerations	A broad sidewalk framed by large trees, public seating, and amenities enhance No. 3 Road as premier retail avenue & key civic space.	<ul> <li>Narrow sidewalks, a public plaza &amp; special boulevard &amp; Flex Zone features confer an intimate scale &amp; vibrant retail character.</li> </ul>	A park-like street is enhanced & expanded with terraced planting & landscape features that convey a garden-like character to the built form.	A narrow, pedestrian- oriented City street lined with lushly-planted courtyard gardens.
L. Built Form Considerations	Continuous retail enhanced by a bold, articulated & diverse architectural expression creates a signature image for No. 3 Road.	Intimate scale & articulated mixed-use buildings contribute towards a distinct local retail experience.  Alone after ble has 6 builded.	Dynamic, terraced streetwall buildings punctuated by widely spaced, slim towers & gateway features.	Recessed streetwall buildings punctuated by widely spaced, slim towers set close to the sidewalk.

### Richmond Centre South (Brighouse Village)

### **Development Features:**

- 1. Streetwalls: Layered streetwalls, ranging in height from 5.0 m (16.4 ft.) to 30.5 m (100 ft.), break down the building mass vertically and horizontally and, together with variations in articulation, colour, materials, and fenestration, impart a vibrancy and fine grain to the streetscape.
- 2. Flex Zone: Varied setbacks and upper floor projections add to the street's visual interest and define large/small outdoor spaces and plazas for public/private uses (e.g., dining), socializing, play, public art, seating, and public amenities.
- 3. Towers: Slim, regular tower slabs set perpendicular to the street imparts an order to the streetscape.
- 4. Gateway Features: An articulated tower at the Cook Road corner visually reinforces this location as the Village centre, while reduced building height at the site's south end opens up views to Richmond City Hall and its significant trees.

### 5. Retail Ground:

- Permeability and legibility are enhanced with a hierarchy of building entrances and transparent storefront glazing to active retail interiors.
- A continuous animated retail frontage lines the high street, including frequent individual shop entrances, varied styles of fixed/operable display windows, and multi-tenant retail entrances enhanced with forecourts and pedestrian amenities.
- Residential lobbies must be limited and must enhance the retail street with landscaped features and amenities.
- Landscape: A high quality, elegant hardscape is enhanced with trees, planters, street furniture, public art, and special features.

### High Streets A. No. 3 Road

Richmond Centre South (Brighouse Village) is intended to contribute towards No. 3 Road's development as a "great street" and Richmond's preeminent retail avenue through the combination of a bold streetwall, varied architectural expression, landmark features, and continuous pedestrian-oriented shops, amenities, public art, and landscaping.



Regular Pattern of Slim Towers





Active Retail Flex Zone & High-Amenity Landscape



PLN - 157 Setbacks

### Richmond Centre South (Brighouse Village)

### **Development Features:**

- Streetwalls: A stepped form unifies Park Road and ties together 3 subareas:
  - South Leg: A 2-storey façade lines both sides of the street, stepping up to mid-rise and tower forms behind.
  - Plaza: The south leg's streetwall is extended in a bold arc that defines the plaza's south side, reinforced by horizontal balconies and articulations.
  - North Leg: As the street narrows the streetwall rises, creating a sense of enclosure that is reinforced by the building's lively vertical expression.
- Flex Zone: Along the South Leg, the public sidewalk is expanded with a public/private zone suitable for café seating and retail displays, while upper floor projections add visual interest.
- Towers: Slim towers fan out around the high street and plaza to enhance daylight and create a distinctive skyline feature.
- skyline feature.

  4. Retail Ground: Continuous small-scale shops line the high street.
  Residential lobbies are limited and provide small forecourts and public amenities (e.g., art, seating) that enhance the high street.
- Community "Living Room": A flexible, year-round, outdoor space for dining, shopping, socializing, relaxing, entertaining, and playing, comprising:
  - At least 2,023.4 m<sup>2</sup> (0.5 ac) in
  - Hard/soft landscaping and special features supporting yearround use;
  - Multi-modal mobility hub integrated with underground parking/services;
  - Animated retail/restaurant edges; and
  - Public art, seating, and amenities.
- 6. Back-of-House: Necessary service uses and above-grade parking along the North Leg are made pedestrian-friendly and visually engaging with high quality materials, artful design features, and special street design features (e.g., catenary lighting, curb-less design).

### **High Streets**

### B. High Streets: Park Road

Richmond Centre South (Brighouse Village) is intended to contribute towards the establishment of a distinct downtown marketplace through a combination of intimate streetscapes, small-scaled shops, residential above, and a vibrant community "living room" in the form of a large central plaza.



Community "Living Room" Plaza





Dynamic Back-of-House Uses along North Leg



South Leg with Cafe-Friendly Flex Zone

### Richmond Centre South (Brighouse Village)

### **Development Features:**

- 1. Streetwall: A highly articulated, low-rise streetwall (4 storeys typical) enhances the distinctive arc of Minoru Boulevard. Mid-rise forms are generally set well back from the street. Townhouses with stoops, in combination with tower lobbies, forecourts, and special entry features (e.g., public seating, glass canopies, and water features) provide for an appealing, pedestrian-friendly streetscape.
- Towers: Slim, widely spaced towers punctuate the streetwall and extend to grade to vary the rhythm of the streetwall.

### 3. Vertical Garden:

- Building articulations, podium and mid-rise rooftops, balconies, and terraces support a varied and visually appealing pattern of trees, planting, and landscape features that impart a "vertical garden" character and can be enjoyed by building occupants and from nearby buildings and the street.
- A varied palette of trees and plants provides for year-round colour and visual interest, contributes towards the downtown's urban forest, and offers wildlife and pollinator habitat.
- Garden designs provide for ease of maintenance (to avoid overburdening building residents and ensure the health and longevity of the landscape) by including features that allow for lower maintenance and easy access and upkeep.
- 4. Gateway Features: Entrances to the precinct's Park Road high street are marked at Murdoch Avenue and Minoru Gate with broad walkways framed by a double row of trees and special architectural features that take into consideration, among other things, views along Minoru Boulevard.

### Green Streets C. Minoru Boulevard

Richmond Centre South (Brighouse Village) is intended to enhance Minoru Boulevard as a key route linking the public and neighbours with park and civic amenities by making the landscape the predominant feature of the development's architectural expression.





Family-Friendly Rooftop Courtyards





Vertical Gardens



Pedestrian-Oriented Urban Townhouses



Slim Towers & Gateway Features

### Richmond Centre South (Brighouse Village)

### **Development Features:**

- Streetwalls: An elegant, low-rise streetwall (3 storeys typical) is recessed to provide a backdrop for public gardens. Mid-rise forms are set well back from the street.
- Towers: Slim, "light", refined towers:
  - Are widely spaced to maximize views and daylight towards the north;
  - Pull close to the sidewalk (in front of the recessed streetwall) to vary the rhythm of the streetscape and frame the garden spaces;
  - Extend to grade on slim columns and/or in the form of glassy lobbies that are designed to visually blur the line between indoors and out; and
  - Are articulated above grade with projecting balconies, cantilevered roofs, and similar features above the sidewalk (secured by SRW) to impart texture, varied expression, and a finer grain.
- 3. Public Gardens: A variety of planting forms, including informal groupings of trees and indigenous plants and shrubs, changes in grade, water, and related landscape features complement the adjacent City Hall landscape, visually expand the public realm, make the gardens and fronting walkways attractive year-round, contribute towards the downtown's urban forest, and provide for wildlife/pollinator habitat.

### 4. Ground Floor Uses:

- Lobbies and public gardens preferred.
- Restaurant/retail uses are encouraged near No. 3 Road, together with outdoor seating/ dining within the "public garden" area.
- Townhouses and amenity space are discouraged. Parking entrances and services uses must be minimized and are discouraged near City Hall.

### **Green Streets**

### D. Civic Promenades

Richmond Centre South (Brighouse Village) is intended to enhance Richmond's civic precinct, including City Hall, its plaza, significant trees, and linkages with Minoru Park, by contributing towards the street's development as a park-like, pedestrian promenade.





Public Promenade & Amenities





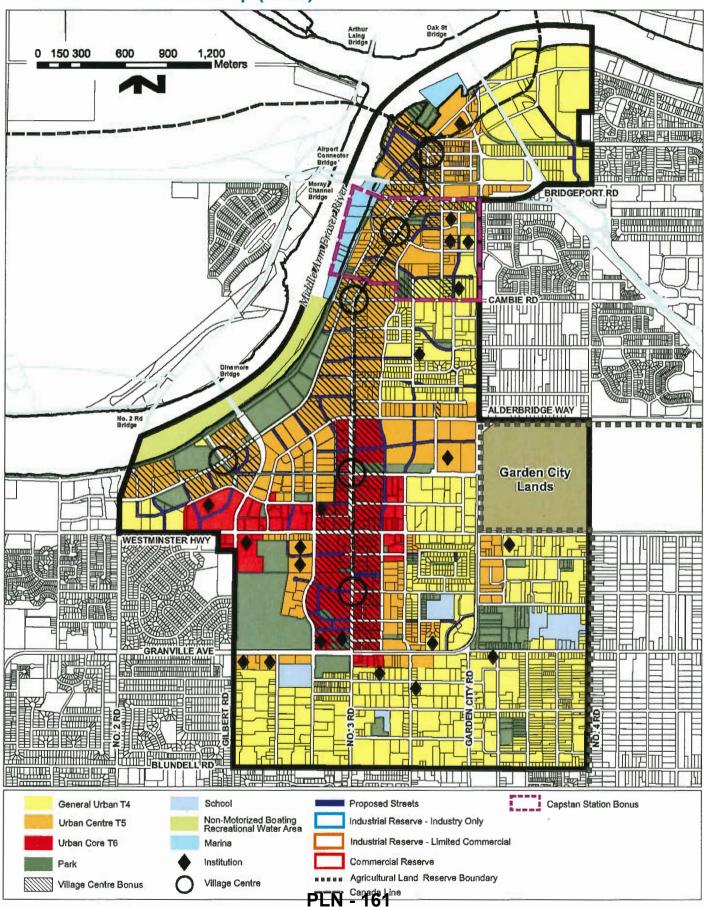


Slim Towers & Indoor/Outdoor Lobbies

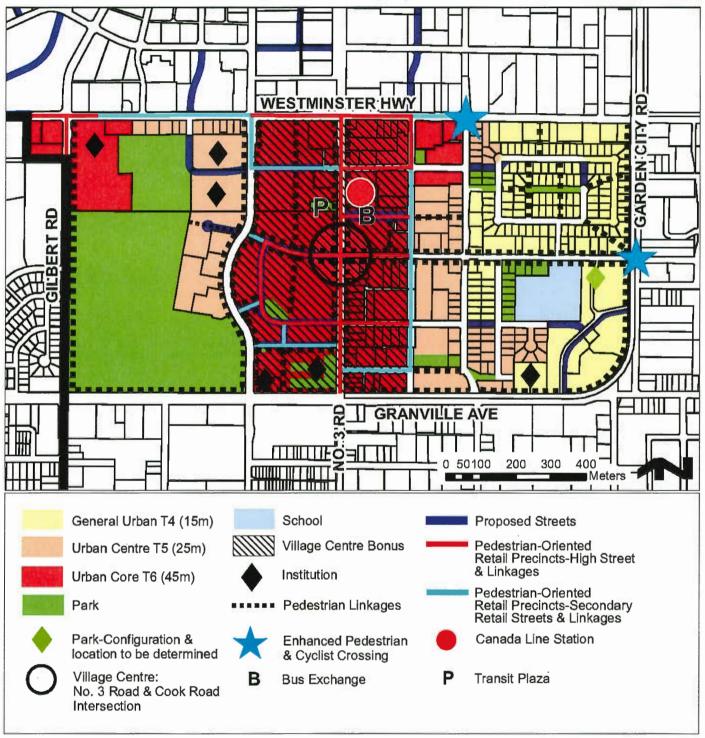


Low-Rise Streetwall set back along the Promenade

### Generalized Land Use Map (2031)



### Specific Land Use Map: Brighouse Village (2031)





### **Report to Committee**

To:

Planning Committee

Date:

August 30, 2018

From:

Victor Wei

File:

01-0153-04-01/2018-

Vol 01

Director, Transportation

Barry Konkin

Manager, Policy Planning

Re:

2019-2023 YVR Noise Management Plan - City of Richmond Comments

### Staff Recommendation

- 1. That the staff comments contained in the report titled "2019-2023 YVR Noise Management Plan City of Richmond Comments" form the basis of the City's response to the Vancouver Airport Authority regarding its preparation of the 2019-2023 YVR Noise Management Plan;
- 2. That a copy of this report be forwarded to Vancouver Airport Authority for its consideration in the preparation of the draft 2019-2023 YVR Noise Management Plan; and
- 3. That staff be directed to request a copy of the final YVR Noise Management Plan and provide the Plan to Council for information.

Victor Wei Director, Transportation (604-276-4131)

Att. 3

Barry <del>Kon</del>kin,

Manager, Policy Planning

(604-276-4139)

REPORT CONCURRENCE	
CONCURRENCE OF GENERAL MANAGER	
REVIEWED BY STAFF REPORT I	INITIALS:
APPROVED BY CAO	

### **Staff Report**

### Origin

The Vancouver Airport Authority (VAA) is responsible for noise management for up to ten nautical miles from the Vancouver International Airport (YVR), as per its ground lease with the federal government. The VAA Board must have an approved five-year noise management plan signed by the Federal Minister of Transport to guide its noise management practices. The current five-year YVR Noise Management Plan is now in its fifth and final year and a new five-year 2019-2023 YVR Noise Management Plan (the Plan) is being prepared by VAA staff.

This report presents staff's preliminary comments on noise-related issues and initiatives to be considered as part of the update. These comments, plus any additional ones identified by Council, would form the basis of the City's submission to VAA on the Plan, if supported by Council.

This report supports Council's 2014-2018 Term Goal #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.

3.1. Growth and development that reflects the OCP, and related policies and bylaws.

This report supports Council's 2014-2018 Term Goal #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.

### **Analysis**

### Preparation of the 2019-2023 YVR Noise Management Plan

VAA's three-stage process to update the Plan is outlined below. VAA expects to deliver the updated Plan to Transport Canada for approval by the end of 2018.

Stage 1: Identify Community Issues (Fall 2017 to Spring 2018)

Stage 1 activities included:

- Analysis of historical noise concerns;
- Launch of community web survey (March to mid-July 2018) to:
  - o solicit input on concerns related to aircraft noise and canvass for potential initiatives to address them; and
  - o get feedback on various aspects of VAA's current noise management program;
- Discussions with YVR Aeronautical Noise Management Committee (YVR ANMC); and
- Review of 2037 YVR Master Plan comments.

With respect to historical noise concerns, VAA undertook a trend analysis of noise concerns received between January 1, 2014 and December 31, 2017. During this period, a total of 6,458 concerns were received from 903 different individuals. Several individuals registered multiple concerns in the span of four years. Figure 1 provides the breakdown of concerns and individuals by community.

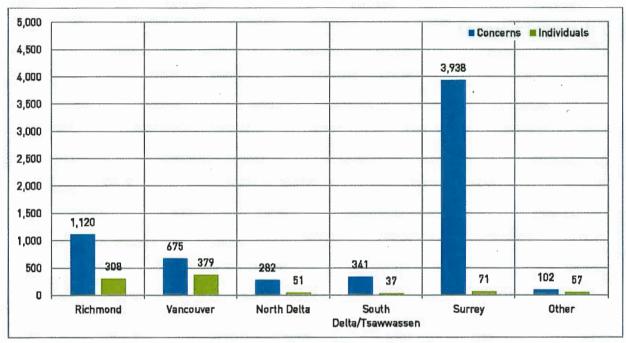


Figure 1: 2014-2017 Noise Concerns by Community

For Richmond, a total of 1,120 concerns were registered by 308 individuals over the four-year period. The annual breakdown of the number of concerns and individuals are shown in Table 1. Table 2 provides the rank ordering (from most commonly cited to least) of the top operational categories and issues associated with the concerns received.

Table 1: 2014-2017 Richmond Concerns and Individuals

Year	Concerns	Individuals	
2014	303	94	
2015	253	91	
2016	255	84	
2017	309	83	

Table 2: Rank Ordering of Top Operational
Categories and Issues

	Categories and issues		
Operational Category			Issue
1.	Float planes	1.	Low flying
2.	Jet departures	2.	Night operation
3.	Propeller departures	3.	Aircraft routing over
4.	Run-ups		populated areas
5.	Jet arrivals	4.	Frequency of air traffic
		5.	North runway use

Regarding the 2037 YVR Master Plan, one of the comments provided by the City to VAA in June 2017 was to continue minimizing and mitigating noise and other impacts on Richmond **PLN - 165** 

residents. VAA's latest 2037 Airport Noise Exposure Frequency (NEF) Study did not change its existing 2015 NEF contours or their noise impacts. These potential noise impacts are the foundation of the OCP's Aircraft Noise Sensitive Development (ANSD) land uses and policies.

Stage 2: Identify Initiatives and Actions (Summer 2018)

Stage 2 activities included:

- Review of noise management practices at other airports (Attachment 1);
- Reporting of interim results of the on-line community web survey (administered via web link on the VAA website that was open to the general public) and the on-line IPSOS survey panel (administered by a survey company via invitation to the closed membership of the panel) to YVR ANMC:
  - o public comments to date were generally similar to those heard in the last update to the Plan (e.g. concerns related to night-time noise);
- Administering a separate questionnaire seeking input on issues and potential initiatives to the YVR ANMC (June 2018); and
- Meetings with key stakeholders and partners.

The community web survey and IPSOS survey panel closed on July 13, 2018. A total of 721 individual responses were received (218 through the open web link survey and 503 through the on-line IPSOS panel). Of these, 145 respondents were from Richmond residents:

- 108 individuals in Richmond completed the community web survey; and
- 37 individuals in Richmond participated through the IPSOS survey panel.

67% of Richmond residents who took part in the consultation stated that they have been annoyed by aircraft operations at some point during the past 12 months. Table 3 presents the top issues related to annoyance and the top suggested ideas to address the concerns for Richmond respondents.

Table 3: Top Issues and Suggested Ideas
Related to Annovance in Richmond

Causes of Annoyance	Suggested Ideas
<ul> <li>Frequency of air traffic over populated areas</li> <li>Growth in air traffic</li> <li>Night-time operations</li> </ul>	<ul> <li>Change flight paths</li> <li>Restrict night-time operations</li> <li>Further restrict engine run-ups</li> <li>Move traffic to other regional airports</li> <li>Reduce propeller aircraft traffic</li> </ul>

As the City is a key stakeholder in YVR-related issues, staff met with VAA representatives in April and June 2018 and provided preliminary comments to VAA on issues and potential initiatives in July 2018, which are described in more detail below.

Stage 3: Evaluate Input, Create Action Plan, Draft Plan (Summer to Fall 2018)

VAA will consider all input in Fall 2018 and has indicated that any additional comments provided by Council will be considered before the draft Plan is finalized.

### Preliminary Staff Comments on Issues and Initiatives and VAA's Response

Richmond's appointed citizen members and City staff representatives on the YVR ANMC have been involved in meetings and workshops related to the update of the Plan since Fall 2017. Staff provided the comments below to VAA staff on issues and initiatives to consider in the new Plan by email on July 12, 2018.

On August 13, 2018, VAA staff provided a response to these items as noted in italics below. At that time, VAA staff also submitted a summary of completed actions from the 2014-2018 YVR Noise Management Plan (Attachment 2) and the draft 2019-2023 YVR Noise Management Plan Initiatives (Attachment 3).

### Future Close-In South Parallel Runway

In 2017, a VAA 2037 Noise Exposure Frequency (NEF) Study found that, as a landing runway, there will be a negligible increase in aircraft noise with the potential future south runway and, as such, this would not warrant any change to the existing 2015 NEF contours. However, the 2037 NEF Study did not study the noise implications of the potential future south runway also being used as a take-off runway. Therefore, the projected noise impacts of the potential future south runway being used for departures are unknown at this time. As such, staff requested that VAA:

- (a) Expressly state in the new five-year Plan that the use of the potential future south runway for departures may have significant noise impacts on the City of Richmond;
- (b) Study the noise impacts arising due to departures from a potential future south runway on the affected larger area (i.e., as the future south runway is south of the existing south runway, aeronautical noise impacts in the City Centre may also extend further south), property owners, developers, and the community at large. This study should also include an assessment on how these changes may impact land use and development in Richmond; and
- (c) Mutually agree with the City on how the negative impacts arising from departures on a potential future south runway would be mitigated.

[VAA Response]
The approved YVR Master Plan identifies the locations for two future runway options.

If and when we determine that an additional runway is required to accommodate the community's demand for increased air services, a separate comprehensive multi-year consultation process with the community and our stakeholders will take place. Issues such as defining the modes of operating the runway, environmental impact, noise, possible effects on community and the process of construction will be explored.

Although premature now, at the appropriate time a detailed environmental impact assessment (EIA) would be undertaken to support plans for a new runway. To clarify, the noise management plan is not the start or substitute for an environmental impact assessment or project approval process for a new runway.

While the three topics raised by City staff would be addressed in the future EIA, under proposed initiative #10.3 in the 2019-2023 YVR Noise Management Plan, we will work to identify and ensure appropriate information and data required for future assessments are being collected.

### Regional Airport Strategy

Council resolved in June 2017 that: the Vancouver International Airport Authority (YVR), in conjunction with other regional airports and stakeholders (e.g., NAV CANADA), be encouraged to prepare a Regional Airport Strategy. A Regional Airport Strategy could help manage and distribute the social, economic, and environmental impacts (including noise) associated with airport operations. As this strategy has not yet been completed, staff requested that VAA:

(a) Prepare a Regional Airport Strategy that identifies the roles of VAA and other regional airports and includes a focus on noise and other social and environmental impacts.

### [VAA Response]

While YVR continues to work with and share information with our regional airport partners, Transport Canada is responsible for approving airport operations at these airports and NAV CANADA manages the shared airspace.

Creating a Regional Airport Strategy will not be included as an initiative in the 2019-2023 YVR Noise Management Plan; however, we meet regularly with regional airports and have referenced the various roles and responsibilities of regional airports in the YVR Master Plan and recognise that each airport in the Lower Mainland plays an integral role in serving the needs of local communities.

### Community Awareness/Education

Based on VAA's commissioned report on noise management practices at other airports, staff requested that VAA:

- (a) Pursue new technology to better inform the public about aeronautical noise, which may include:
  - an aircraft noise predictor app (identified in the report as being used in Amsterdam); and
  - additional add-ons for WebTrak, which is a web-based tool that tracks "real-time" (with a 10 minute delay) and historical flight and noise data (e.g., decibel levels).

### [VAA Response]

Under proposed initiative #1.1 in 2019-2023 YVR Noise Management Plan [Attachment 3], we will look at incorporating tools to enhance community communication and information exchange.

### Noise Reduction

Based on VAA's commissioned report on noise management practices at other airports, staff requested that VAA:

(a) Expand VAA's existing Fly Quiet Awards to a Fly Quiet Program, which may include:

- establishing aircraft noise limits, particularly for night-time flights;
- applying noise charges for flights that exceed the aircraft noise limit (identified in the report as being in effect in Zurich and London Heathrow); and
- using the funds generated for measures that reduce noise impacts to community.

### [VAA Response]

Aircraft and engine manufacturers invest billions of dollars each year to research and develop new technologies to improve the noise performance of aircraft. As a result, the International Civil Aviation Organization (ICAO) states that aircraft produced today are approximately 75% quieter than they were 40 years ago. In addition, airlines invest billions in upgrading the fleet, resulting in improvements to noise and emissions reductions.

The ICAO establishes aircraft noise standards, which include meeting prescribed noise levels at three measurement locations: take-off; approach, and sideline. Depending on the measured noise levels, aircraft are categorized as either Chapter 2 (noisiest), Chapter 3, Chapter 4, or Chapter 14 (quietest).

The Federal Government, through Transport Canada, regulates all aircraft operating in Canada to ensure they meet airworthiness requirements, including meeting the ICAO noise standards. In addition, Transport Canada requires all jet aircraft over 34,000kg to meet Chapter 3 (or better) noise certification requirements in order to operate in Canada.

In 2017, 93% of the jet aircraft operating at YVR met Chapter 4 or better noise requirements. As all aircraft operating at YVR meet noise and emission standards set by Transport Canada, we do not think creating separate noise limits for aircraft operating at YVR would be appropriate. The YVR Fly Quiet Awards will remain a positive incentive to encourage and promote good noise management practices at the airport.

- (b) Examine the feasibility and potential effectiveness of the following noise mitigation techniques:
  - landscaping to reduce ground noise produced by aircraft arriving and departing (identified in the report as an effective noise mitigation measure in Amsterdam as shown in Figure 2); and
  - establishing an Aircraft Noise Ombudsman (identified in the report as being in effect in Sydney).

### [VAA Response]

Under proposed initiative #12.3 in the 2019-2023 YVR Noise Management Plan [Attachment 3], we commit to assess the use of berms, barriers, and landscaping as ways to minimize ground based airport noise from new developments; however, due to the limited space on Sea Island and height restrictions dictated by the Airport Zoning Regulations, it is unlikely that landscaping such as used in Amsterdam could be constructed at YVR.



Figure 2: 80-acre green space adjacent to Amsterdam Schiphol Airport with landscaping to deflect noise

### Other Initiatives

Staff also requested VAA to consider the following initiatives:

(a) That the new Plan indicate how the current 2014-2018 Plan has been implemented and identify any outstanding initiatives. Each Plan should not be an isolated stand-alone plan but should reference what progress has been made on past actions.

### [VAA Response]

Progress on Noise Management Plan initiatives is provided in our annual noise report, which is provided to YVR Noise Management Committee members and is available to the public on the YVR website. The attached table [Attachment 2] also provides a summary of completed actions against the 2014-2018 YVR Noise Management Plan initiatives.

- (b) That all incomplete and ongoing actions included in the current 2014-2018 Plan be carried over into the 2019-2023 Plan. For example:
  - Was Action 4.2 (create summary report on nature of marginally compliant Chapter 3 aircraft operations) completed?
  - There has been exploration of better methods to communicate with the public regarding aircraft noise (Action 2.2) but has anything been implemented?

### [VAA Response]

See summary of work initiatives [Attachment 2] for summary of completed actions from the 2014-2018 YVR Noise Management Plan.

### Staff Comments on Draft 2019-2023 YVR Noise Management Plan Initiatives

As indicated by VAA's responses above, the draft 2019-2023 YVR Noise Management Plan initiatives [Attachment 3] address most of the City's preliminary comments. Staff comments not addressed include:

- preparation of a Regional Airport Strategy;
- establishment, monitoring, and enforcement of aircraft noise limits; and
- establishment of an Aircraft Noise Ombudsman.

In addition, a number of the proposed initiatives are on-going actions that have been carried forward from the current 2014-2018 YVR Noise Management Plan. Staff suggest that the draft Plan be reformatted to more clearly delineate actions that are new from actions that are on-going (e.g., annual monitoring/reporting), which would improve understanding.

### **Next Steps**

Should Council wish to include additional issues or initiatives that should be considered in the preparation of the 2019-2023 YVR Noise Management Plan, these would be forwarded to VAA. VAA has indicated that the staff feedback described above and any additional comments from the City will be considered in the finalisation of the draft Plan, which is expected to be completed by the end of 2018.

### **Financial Impact**

None.

### Conclusion

The Vancouver Airport Authority must update its Noise Management Plan every five years, as a requirement of its land lease agreement with the Government of Canada. As part of this current update, staff recommend that the comments contained in this report form the basis of the City's submission to VAA as it finalizes the 2019-2023 YVR Noise Management Plan.

Tina Atva, MCIP Senior Planning Coordinator (604-276-4164)

Tele Joan Caravan Transportation Planner (604-276-4035)

TA:ta

Att. 1: YVR Noise Management Practice Review Final Draft Report (Airbiz), June 3, 2018

Att. 2: Summary of Work Against Initiatives in the 2014-2018 YVR Noise Management Plan

Att. 3: Draft 2019-2023 YVR Noise Management Plan Initiatives



# FINAL DRAFT REPORT YVR NOISE MANAGEMENT PRACTICE REVIEW







## **EXECUTIVE SUMMARY**

appointed from the community whose focus is to ensure that YVR serves Authority is a community based not-for-profit corporation that receives reinvested back into operations, maintenance and future projects. The operations at Vancouver International Airport (YVR) under a long term Columbia can be proud of: a premier global gateway, local economic the best interests of the public. All profit generated at the airport is ground lease with the Federal Government. The Vancouver Airport The Vancouver Airport Authority (the Airport Authority) manages Airport Authority is committed to creating an airport that British no government funding and is governed by a Board of Directors generator and community contributor.

ground lease and must be reviewed and approved by Transport Canada. (NMP) to guide work efforts. The NMP is also a requirement under the The Airport Authority structures the NMP over a five-year time period and outlines efforts to manage and reduce the impacts of operational The Airport Authority is assigned the responsibility to manage noise management program and establishing a Noise Management Plan Government. This is achieved through a comprehensive noise from operations at YVR under a ground lease with the Federal noise at YVR.

The Airport Authority follows a multi-stage process to create a YVR Noise Management Plan. For 2019-2023, the work includes gathering input from stakeholders, including the community, members of the YVR Aeronautical Noise Management Committee, and industry.

As part of the work to support the development of the Plan, the Airport Committee, which plays an integral role in shaping noise management review was to objectively document practices at other airports and support discussions with the YVR Aeronautical Noise Management practice review of other international airports. The purpose of this Authority commissioned Airbiz to undertake a noise management strategies at YVR.

Notably, the strategies to manage noise are often unique to each airport necessarily work at other airports. Before any strategy is to be employed As this review was meant to remain objective, no judgements are made assessment to determine if the strategy will fit within the local context. on the benefits of the practices as this would be difficult to determine. due to the specific nature of the airport's location and other variances at an airport, the airport operator should undertake a comprehensive (e.g. runway layout, fleet mix using the airport, rules and regulations, geographic layout). As such, strategies used at one airport may not

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## **EXECUTIVE SUMMARY**

fundamental to the Airport Authority's operating philosophy and central Contributing to a sustainable and prosperous future while caring about the well-being of its surroundings, its people, and its communities is to its planning process and operations.

planning and operations, a balanced approach is taken, and contribution The Airport Authority's view is that there are four pillars to sustainability which includes: economic, environmental, social, and governance. As inizatives for the 2019-2023 YVR NMP, the following criteria will be the Airport Authority continues to integrate sustainability into their to one pillar will not come at the expense of another. Therefore, to ender all four pillars are taken into consideration in developing used by the Airport Authority to evaluate proposed ideas:

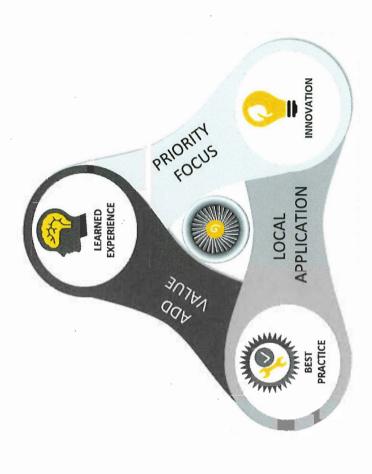
- Impact on safety
- Impact on airport or aircraft operations
- Noise reduction benefit
- Effects on emissions or GHG
- Economic cost to industry
- Noise impact on other communities or areas
- Impact on current and future airport capacity
- Alignment with YVR's mandate to provide 24-hour air service for the

Initial research on noise management practices at a selection of airports in the USA and Europe was undertaken by the Airport Authority. This inclusion of six additional airports in Canada, Europe and Australia research was expanded and supplemented by Airbiz through the

A basket of notable practices and initiatives were compiled.

on a selection of airlines operating at YVR. The purpose of this work was Fleet plan information was also collected from publicly available sources to identify the fleet renewal activities of the main operators to give a sense of the transition and replacement of older, noisier aircraft with new, quieter, cleaner aircraft.

This report presents the results of this review.







FINAL DRAFT REPORT

# INTRODUCTION

NOISE MANAGEMENT PRACTICE REVIEW





### INTRODUCTION

### BACKGROUND

The management of noise from airport operations is a complex issue. As a responsible operator, the Airport Authority recognizes that some communities are affected by noise differently and they work in partnership with local residents, City staff, airlines, aviation associations, air traffic control, and Federal Government to reduce the impacts of noise disturbance where possible. Strong progress has been made in this area.

The Airport Authority is committed to minimizing noise disturbance while balancing the need for 24-hour airport access to serve the travel and business demands of the region.

Pursuant to a condition attached to the ground lease with the Federal Government, the Airport Authority is required to manage noise from airport operations, within a 10-nautical mile (nm) area around the airport. As such, the Airport Authority implements a comprehensive noise management program to achieve this requirement. As part of this program, the Airport Authority updates its Noise Management Plan (NMP) every five years. The NMP sets out how the Airport Authority will manage and reduce the impacts of operational noise at YVR and must be reviewed and approved by Transport Canada. The new NMP will span the years 2019-2023.

As part of the NMP update process, the Airport Authority commissioned Airbiz to undertake a review of noise management practices at other international airports. The key objectives of this study were to objectively document other practices at airports and support discussions with the YVR Aeronautical Noise Management Committee, which plays an integral role in how noise is managed at YVR. This report makes no recommendations or assessments of the practices, as practices are often unique to airports given the immense variation in local conditions. It will therefore be the decision of the Airport Authority, as the entity responsible for noise management, to determine whether or not such practices may be applicable to YVR.

The remainder of this report is structured as follows:

- Section 2: summary of key findings presented in the GTAA Noise Management Practice Review
- Section 3: summary of international airport noise management practices
- Section 4: Airline fleet plans
- Appendix A1: International airport profiles and practices
- Appendix A2: Selected case studies

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### INTRODUCTION

### METHODOLOGY

The approach adopted for this study has involved a series of sequential steps. Broadly, these steps are illustrated opposite Airbiz reviewed initial research undertaken by the Airport Authority at the following five airports to validate findings and identify any further practices:

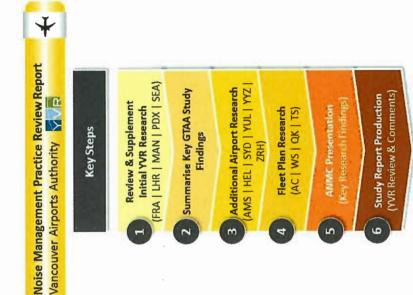
- Frankfurt (FRA)
- London Heathrow (LHR)
- Manchester (MAN)
- Portland (PDX)
- Seattle-Tacoma (SEA)

In 2017, a study focused on Noise Management Program Benchmarking Greater Toronto Airport Authority (GTAA). A review of this study was and Best Practices at 26 airports worldwide was published by the undertaken with the key findings summarized in Section 2. To supplement the initial research undertaken by the Airport Authority, Canadian airports for local perspective — Toronto Pearson and Montreal six additional international airports were examined, including two strengthen the study's coverage and to capture a wider array of Trudeau. The aim of including these additional airports was to practices

In March 2018, interim findings of the research were presented to the YVR Aeronautical Noise Management Committee.

A secondary wave of research focused on a review of 5-year airline fleet plans of selected carriers operating at YVR: Air Canada (AC), WestJet (WS), Jazz (QK), Air Transat (TS), as well as a selection of other international airlines.

All research conducted in this study was desktop based and relied on publicly available literature sources and data disclosures.



### INTRODUCTION

## STUDY AIRPORTS

Noise management programs and practices have been reviewed at 11 international airports across Canada, the USA, Europe and Australia.

The airports shown opposite were chosen according to their relevance to YVR and the maturity of their noise management practices and programs. The basis of airport selection was underpinned by having a similar fleet mix (including significant jet movements), being located close to sensitive communities, having complex airspace and being subject to operational restrictions.

Spewifically, the group of study airports includes:

- Two other major Canadian airports to provide further domestic insights on poise management under a common regulatory regime
- Six major European airports which operate under very stringent regulatory conditions (e.g. Finland and Switzerland)
- Australia's largest international airport which is constrained by a series of artificial operating restrictions, including a legislated hourly runway movement cap, a night curfew and a preferential runway system

For information purposes, annual passenger throughput and air traffic movement figures are displayed on the next slide. The figures are based on a combination of 2016 and/or latest available operating statistics published by each of the airports featured in this study.

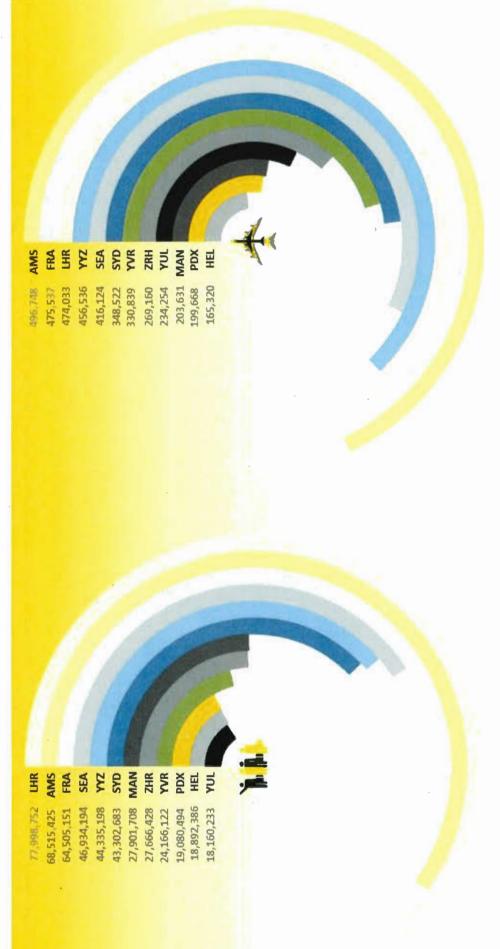
The annual passenger throughput and air traffic movement (ATM) numbers of all study airports including YVR are shown on the next slide. According to the statistics collected, YVR sits in the lower band of the third quartile of airports for passenger throughput and the upper band of the third quartile for ATMs.



# STUDY AIRPORT PROFILES

# **Annual Passenger Throughput**

**Annual Air Transport Movements** 



**PLN** - 180

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## NOISE MANAGEMENT PRACTICE REVIEW YYZ NOISE STUDY REVIEW



# TORONTO PEARSON INTERNATIONAL AIRPORT, CANADA

City-Airport Orientation Country: Canada 22.5km STAR ALLIANCE Large Hub City Centre Distance City: Toronto Cargo Throughput Tonnes 434,700 Preferential runways Runway Orientations Operating Hours 2300 - 0700 Aircraft Movements 456,536 3 × NE/SW IATA: YYZ ICAO: CYYZ 173m Airport Elevation **Passengers** 44.3 million



## CONTEXT IN TORONTO

Toronto Pearson International Airport (YYZ) provides an interesting case study given the significant interest in aircraft noise experienced by surrounding communities, and the fact that YYZ operates under the same regulatory regime as YVR, which includes a similar division of responsibility for airspace and airport management.

As high level background, in 2012, NAV CANADA implemented a redesign of the Windsor-Toronto-Montreal air routes resulting in the redistribution and concentration of air traffic over areas that had not been previously subjected to air reflights.

Where some consultation occurred prior to these changes, the new flight paths prompted action within affected communities. In turn, the government of compared action within affected communities. In turn, the government of communities used by reaching out to Canadian airports, NAV CANADA and Transport Canada to more clearly coordinate responsibilities to consult and communicate with communities during airspace changes. This led to the development of the Airspace Change Communication and Consultation Protocol (ACCCP) jointly by NAV CANADA and a number of Canadian airports through the Canadian Airports Council.

The Objective of the ACCCP is to set out requirements on how the aviation industry communicates and consults during airspace changes and defines roles and responsibilities of the parties involved. The ACCCP was approved by the Minister of Transport in 2015. The provisions of the ACCCP have been applied to airspace and procedural changes at approximately nine to ten airports since 2015, including on at YVR (related to the publication of a RNP approach for Runway 08L).







Airspace Change Communications and Consultation Protocol

A voluntary protocol of the aviation industry June 2015

Source: NAV CANADA



# UNDERSTANDING WHAT HAPPENED

IATA: YYZ ICAO: CYYZ

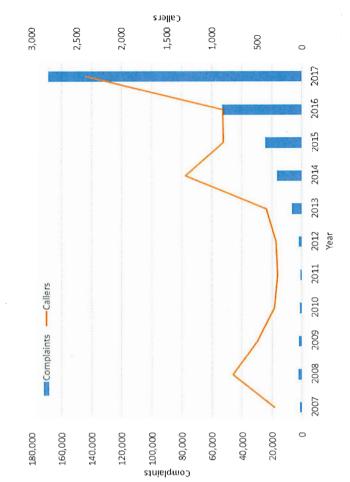
City: Toronto

Country: Canada

As noted previously, NAV CANADA implemented redesigned Windsor-Toronto-Montreal air routes in February 2012. Among the changes, flights along the approach corridor for Runways 24L/R at Toronto Pearson were concentrated and relocated 1.8km south of the original flight path. As the chart indicates, complaints and callers began to rise significantly.

In zene 2015, GTAA started a Noise Mitigation Initiatives Engagement Plan with NAV CANADA that included the commissioning of an independent regew, Helios, to study noise management best practices at 26 international airborts.

Then in April 2017, a Runway Rehabilitation Project commenced which led to operational changes and associated aircraft noise patterns and another considerable increase in complaints and callers. Toronto's subsequent response is clearly guided by the correlation of changes in airspace and runway use and the associated response by affected communities.



Source: CENAC (YYZ)



### MAIN OUTCOMES

#### ICAO: CYYZ IATA: YYZ

City: Toronto

Country: Canada

The output of the noise management best practices study is a set of potential new program and initiatives for GTAA:

Area	qo	Objective
	Short-term:	Long-term:
	<ul> <li>Investigate summer time weekend runway alteration</li> </ul>	<ul> <li>Investigate opportunities to use runway to provide noise relief</li> </ul>
Reducing impact of	schemes	during off-peak periods
noise	<ul> <li>Retrofit A320 family aircraft with vortex generators</li> </ul>	<ul> <li>Investigate continuous descent approaches</li> </ul>
PLI	<ul> <li>Investigate low power low drag (LPLD) operations</li> </ul>	<ul> <li>Investigate departure procedures noise benefits</li> </ul>
<b>N</b> -	<ul> <li>Auxiliary power unit (APU) use restrictions</li> </ul>	
- 18	Short-term:	Long-term:
35	<ul> <li>Investigate night-time preferential runway schemes</li> </ul>	<ul> <li>Extend the period during which night-time noise is managed</li> </ul>
Managing Night Noise	<ul> <li>Voluntary night-time ban on use of reverse thrust</li> </ul>	<ul> <li>No increase in total night-time noise</li> </ul>
	<ul> <li>More stringent restrictions on the nosiest aircraft</li> </ul>	
	<ul> <li>Earlier start for ground-run restrictions</li> </ul>	
	Community Forum:	Long-term:
	<ul> <li>Annual work programme aligned to community concerns</li> </ul>	<ul> <li>Industry forum with oversight of operational and policy</li> </ul>
	<ul> <li>Ensure wider community involvement</li> </ul>	activities related to noise
	<ul> <li>Consider increasing the independence of Community</li> </ul>	<ul> <li>Day-to-day complaint investigation supported by NAV Canada</li> </ul>

Voluntary industry code of practice

and airlines

Environment and Noise advisory Committee (CENAC)

Industry Engagement

Standard trials methodology

### MAIN OUTCOMES

ICAO: CYYZ IATA: YYZ

City: Toronto

Country: Canada

The output of the noise management best practices study is a set of potential new program and initiatives for GTAA:

Area	Objective
	Formal complaint policy
	Quarterly review of noise complaints
Data and Reporting	Focus on aircraft noise on tangible actions
Initiatives	Fly Quiet program
PL	Report compliance with preferential runway schemes
N ·	Benchmark noise insulation schemes
- 1	Programme to determine how financial mechanisms could be use to incentivize quiet fleets
E mine Voluntary	Consider merits of voluntary land use compatibility plan
Initiatives	Examine the condition under which a voluntary noise insulation scheme would be considered
	Consider the need for a designated third party to arbitrate where a noise issue has not been resolved satisfactorily

# COMMUNITY COMMITMENTS AND TOOLS

IATA: YYZ

ICAO: CYYZ

City: Toronto

Country: Canada

The study, communication and consultation subsequently established a set of community commitments and practical tools:

			UNI//\U		RESPONSIBLY		2022	Noise Management Action Plan							JK IN		Toronto	Regison	Source: GTAA (YYZ)
Objective	collaborate better as an industry	work smarter with our communities		help our neighbours sleep better		do more to understand our impacts	2018-2022	continue to take care of the environment	munities	always look for opportunities to improve	Program	S		edures			Communications, Outreach and Noise Committees	letrics	
STATE OF SAME	1. We will collaborate bet	2. We will work smarter v	3. We will protect our neighbours	4. We will help our neighl	5. We will have Canada's quietest fleet	6. We will do more to und	7. We will limit surprises	We will	9. We will lift up our communities	10. We will always look for	<ol> <li>Quieter Fleet Incentive Program</li> </ol>	2. Night Flight Restrictions	<ol><li>Runway Usage</li></ol>	4. Noise Abatement Procedures	<ol><li>Land Use Planning</li></ol>	6. Noise Complaints	7. Communications, Outr	8. Noise Reporting and Metrics	<ol><li>Fly Quiet Program</li></ol>
Area	10 Commitments to the	Community			PL	.N	- ′	18	7		9 Tools to manage noise and	communicate effectively					12		



FINAL DRAFT REPORT

# YVR NOISE MANAGEMENT PRACTICE REVIEW 12534004| June 1 2018

# INTERNATIONAL PERSPECTIVES NOISE MANAGEMENT PRACTICE REVIEW





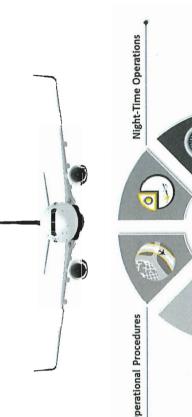
### INTRODUCTION

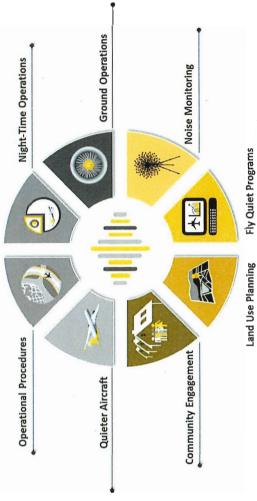
general, despite aircraft becoming progressively quieter over the last 30 years. While noise management practices help to reduce the impact of Airport noise remains a concern for some residents around airports in aircraft noise and provide relief to communities living near airports, especially at night, exposure to noise is inevitable given the close proximity of residential developments to the airport.

management practices. These are listed below and illustrated opposite: This review has identified eight common categories for noise

- **B**uieter aircraft
- 2 perational procedures
- Night-time operations
- Noise monitoring systems
- Fly quiet programs
- Community engagement
- Land use planning

categories at a selection of airports around the world. The highlights of this review are provided in this section, which were selected for their unique and/or creative ways of addressing noise. More detail on all Airbiz reviewed noise management practices that fall under these airports studied can be found in the appendix. As noted in the previous section, noise management strategies are often unique for each airport due to the local situation, and a practice that works at one airport may not necessarily work at others.





# NOISE MANAGEMENT PRACTICE MATRIX

ZRH

표

AMS

YUL

λΥZ

FRA

MAN

LHR

PDX

SEA

Airports

Night-Time Restrictions

Movement Cap/Limit

Curfew

Continuous Descent Approach

Continuous Climb Operation

**Displaced Threshold** 

Steep Approaches

Noise Preferential Routes

Cow Power/Low Drag

Noise Sharing & Respite

PBN & RNP

**Differential Noise Charges** 

Sound Insulation Schemes

ANOMS/WebTrak

Fly Quiet Program

**Engine Ground Run Test Limits** 

**Ground Operation Restrictions** 

Community Noise APPs

YVR NOISE MANAGEMENT PRACTICE REVIEW 12534p04l | June 1 2018



# SUMMARY OF HIGHLIGHTS

Category	Noise Management Practice Airport(s)	Detail
Operational Procedure	Noise Sharing Sydney Airport (SYD), Australia	The Long Term Operating Plan (LTOP) was developed in response to community pressure to share the noise generated by flight operations at SYD. LTOP provides 10 possible runway operating modes. A unique feature of LTOP is noise sharing targets. These targets aim to route as many flights as possible over water (55% to the south) and for the remaining flights to be shared between the other three directions as equitably as operationally feasible to do so. Quantifiable noise benefits not available.
Fight-time Operations    Z    S    S    S    S    S    S	Night Curfew Flight Path Improvements + Noise Ombudsman Sydney Airport (SYD), Australia	In Australia, the Aircraft Noise Ombudsman (ANO) was established in 2010 following a proposal outlined in the Australian Government's aviation policy paper. The ANO asked Airservices to consider if a better noise outcome could be achieved for coastal residents south of SYD affected by flights departing during the night curfew. Airservices reviewed and trialled changes to the Standard Instrument Departure (SID) track used during the curfew. Noise impact benefits were identified through flight tracking and formalizing the new SID is currently underway. Quantifiable noise benefits not available.
Community Engagement Noise Monitoring	Predictive Noise Disturbance App Amsterdam-Schiphol Airport (AMS), The Netherlands	In response to community concerns about aircraft noise and to be as transparent as possible about its operation AMS, in collaboration with KDC Mainport, have been developing an aircraft noise predictor App. The aircraft noise predictor APP is designed to allow local residents living around AMS to know when and how much aircraft noise is to be expected, as well as the duration it will last. Quantifiable noise benefits not available.
Community Engagement Land Use Planning Ground Operations	<b>Ground Noise Solution</b> Amsterdam-Schiphol Airport (AMS), The Netherlands	A series of ground ridges were contoured into the local terrain on a 33ha site between a community and Runway 18R-36L. Each ridge was designed to deflect the sound waves upwards from their sloping surfaces. This is a clever example of best practice and innovation working in tandem, combining an airport noise solution with public art and recreational space. The objective of the plan was to reduce ground noise by 10dR at 31.5Hz, which were achieved through the trial testing period. (Source: <a href="https://www.schiphol.nl/en/you-and-schiphol/page/landscape-design-as-a-solution-to-ground-noise/">https://www.schiphol.nl/en/you-and-schiphol/page/landscape-design-as-a-solution-to-ground-noise/</a> ).



# **SUMMARY OF HIGHLIGHTS**

Category	Noise Management Practice Airport(s)	Detail
Operational Procedure Noise Monitoring	Steeper Approaches London-Heathrow Airport (LHR), United Kingdom	LHR trialled an RNAV 3.2° approach procedure between September 2015 and March 2016. According to LHR the trial was successful and was found to have no adverse impact on daily operations. A noise reduction of up to 0.5-1 dB(A) were observed during trials (Source: <a href="https://www.heathrow.com/file source/">https://www.heathrow.com/file source/</a> HeathrowNoise/Static/Heathrow Slightly Steeper Approach Trial Report.pdf).
Fly Quiet Program  Noise Monitoring	Departure Noise Limits London-Heathrow Airport (LHR), United Kingdom	All aircraft departing from LHR must adhere to noise limits set by the UK Government. The limits are (all times local): Day (07:00-23:00) 94dBA Lmax; Shoulder (23:00-23:30 and 06:00-07:00) 89dBA Lmax; Night (23:30-06:00) 87dBA Lmax. There are 12 permanent noise monitors located around Heathrow to monitor departure noise limits. Aircraft exceeding these noise limits must pay a fine, which is transferred to the Heathrow Community Fund. Quantifiable noise benefits not available.
5 Fly Quiet Program Noise Monitoring	Noise Management Priorities Helsinki Airport (HEL), Finland	Finavia, the operators of HEL, implement a comprehensive package of noise management both in the air and on the ground. Finavia has worked closely with its airlines, particularly Finnair on the late deployment of landing gear according to safety and operational criteria. Quantifiable noise benefits not available.
Operational Procedure Noise Monitoring	Noise Reduction Hangar Zurich Airport (ZRH), Switzerland	In 2014, Flughafen Zurich AG, the operators of ZRH, opened a new 'state-of-the-art', noise protection hangar to reduce the noise impacts on residents living in the surrounding municipalities from aircraft engine tests. The hangar's design lets air through while reducing noise (up to 30 dB(A)) through the use of high-performance sound insulation materials. It can accommodate aircraft up to Boeing B747-8 size. (Source: <a href="https://www.zurich-airport.com/the-company/zurich-airport-ag/completed-construction-projects/construction-of-new-noise-protection-hangar">https://www.zurich-airport-ag/completed-construction-projects/construction-of-new-noise-protection-hangar</a> ).
Fly Quiet Program Noise Monitoring	Noise Reduction Hangar Zurich Airport (ZRH), Switzerland	Differential noise charges are levied on all aircraft types operating at ZRH. Every aircraft is classified in one of five noise categories based on average peak noise values during take-off, as measured at the noise monitoring stations at and around the airport. All revenue from noise charges is credited to the Airport of Zurich Noise Fund (AZNF) and is used only for specific purposes, i.e. for costs relating to aircraft noise. Quantifiable noise benefits not available.





# NOISE MANAGEMENT PRACTICE REVIEW

FLEET PLANS



# QUIETER AIRCRAFT & NOISE CERTIFICATION

let aircraft entering service today are about 75% quieter than they were 40 years ago. The aircraft manufacturers continue to work to make aircraft even quieter while the airlines actively renew their fleets with the quietest aircraft.

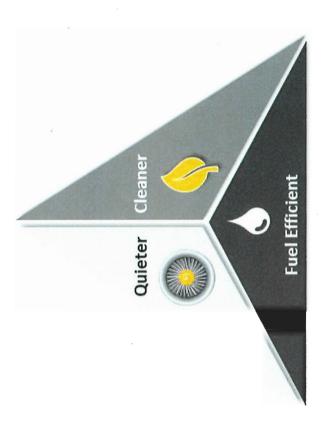
older, noisier aircraft, as part of active fleet renewal programs, airlines are Today, the aircraft in the skies above Vancouver are some of the most modern and quietest in the world. Through the ongoing replacement of helping to reduce the noise impacts from individual aircraft using YVR.

aretecommitted to being responsible members of the community, considering the environmental and social impacts of their operations in the air and on the ground. Continuing to reduce the impact of aircraft noise on communities is a Canadian airlines at YVR, including Air Canada, WestJet, Jazz and Air Transat responsibility programs, along with the reduction of greenhouse gas hig priority and forms a cornerstone of their respective corporate social emissions, fuel optimisation and resource efficiency.

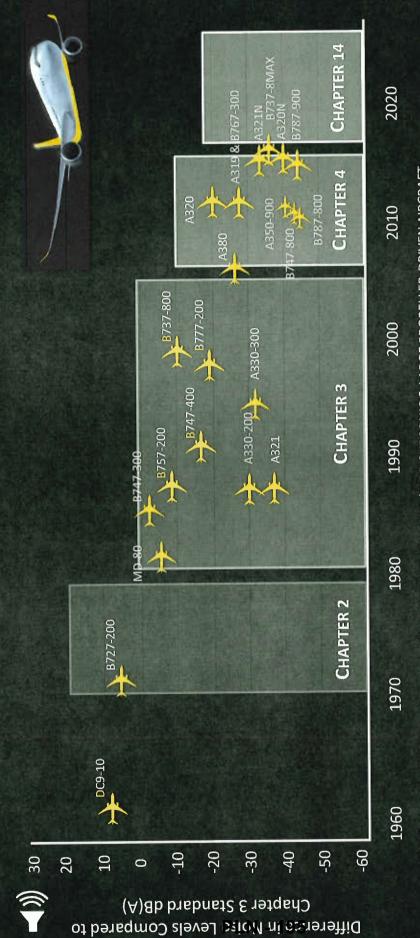
All of these airlines operate aircraft in ways that maximize noise reduction, the quietest, cleanest and most efficient aircraft and the use of special without compromizing safety. This includes active renewal of their fleets with take-off and landing procedures to minimize aircraft noise.

in line with the level of noise reduction afforded by new technology (see next Progressively these noise certification standards have become more stringent slide). The most recent standard, Chapter 14, applies to new aircraft types driven aircraft were introduced by ICAO in 1972 to ensure that aircraft design was taking advantage of latest technological advancements and innovation. The first international noise certification standards for jet and large propeller from December, 31 2017





# QUIETER AIRCRAFT THROUGH MORE STRINGENT NOISE CERTIFICATION



ICAO NOISE CERTIFICATION STANDARDS (ANNEX 16, VOLUME I) FOR SUBSONIC & LARGE PROPELLER-DRIVEN AIRCRAFT

- Chapter 2: Type certificate required before 6 October 1977 for first generation turbofans & nacelles.
- Chapter 3: Type certificate required from 6 October 1977 for second generation turbofans & advanced nacelles.
- Chapter 4: Type certificate required from 1 January 2006 for new bypass ratio engines, nacelle technology & airframe design. Introduced a cumulative reduction of 10dB relative to Chapter 3 standard at all three noise measurement points.
- Chapter 14: Type certificate required from 31 December 2017 (31 December 2020 for aircraft <55t) for advanced high bypass ratio engines & nacelles. Introducing a cumulative reduction of 7dB relative to Chapter 4 cumulative levels at all three noise measurement points.

#### Notes

- Chapter 2 aircraft were banned from operation in major countries around the world, including Canada starting from 1 April 2002.
- The Effective Perceived Noise level (EPNdB) is calculated from the aggregation of individual measurements from three locations approach (2km from runway threshold), sideline (450m laterally from runway centreline), flyover (6.5km from the brake release point). 1)

#### **AVERAGE FLEET AGE AIRLINE FLEET PLANS**



About to replace oldest aircraft type



Strong B737 and Q400 order book, keeping fleet young



Greatest variation in aircraft types



Narrowbody and Widebody replacements in progress



9

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10

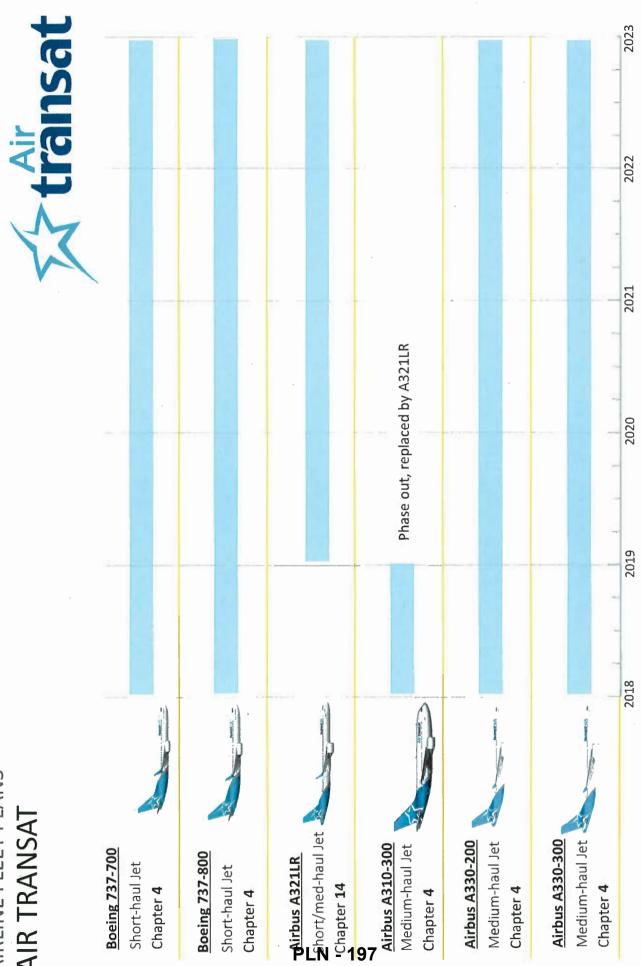
12 Average fleet age

20

18

16

#### **AIRLINE FLEET PLANS AIR TRANSAT**

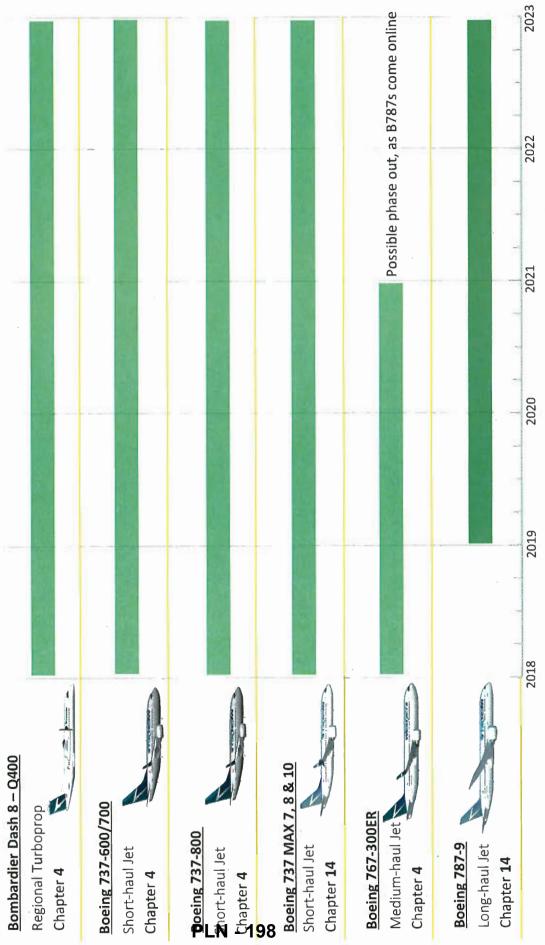


Graphic displays known aircraft fleet for the next 5 years. Airline specific aircraft Chapter provided (may vary from certification Chapter).



#### **AIRLINE FLEET PLANS** WESTJET





Graphic displays known aircraft fleet for the next 5 years. Airline specific aircraft Chapter provided (may vary from certification Chapter).

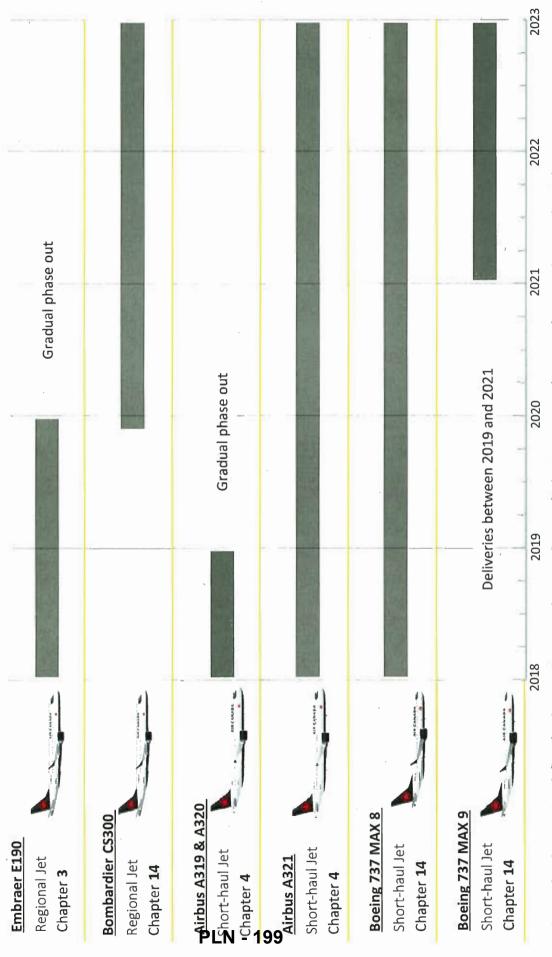


FINAL DRAFT REPORT

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# **AIR CANADA: SHORT HAUL**



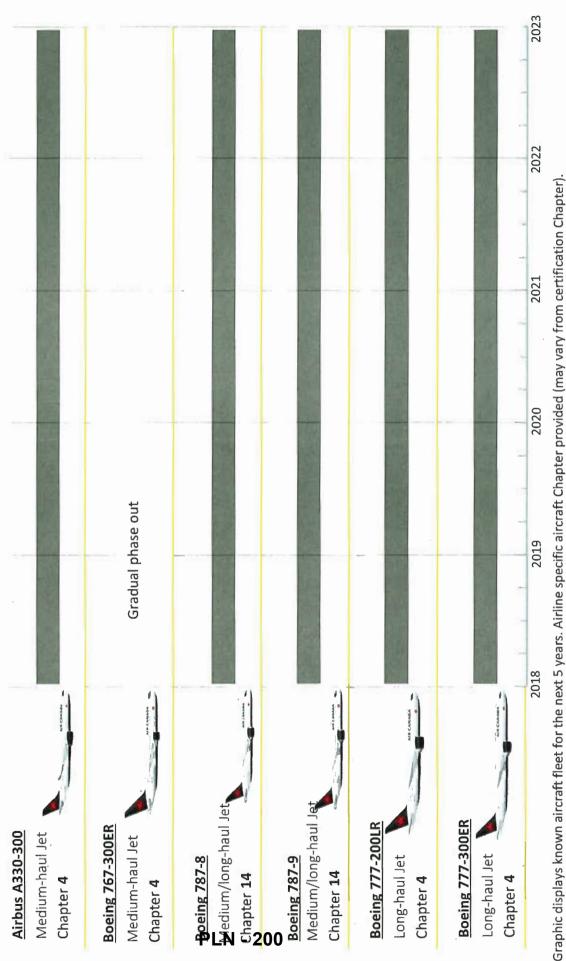


Graphic displays known aircraft fleet for the next 5 years. Airline specific aircraft Chapter provided (may vary from certification Chapter).



# AIR CANADA

# **AIR CANADA: MEDIUM/LONG HAUL**

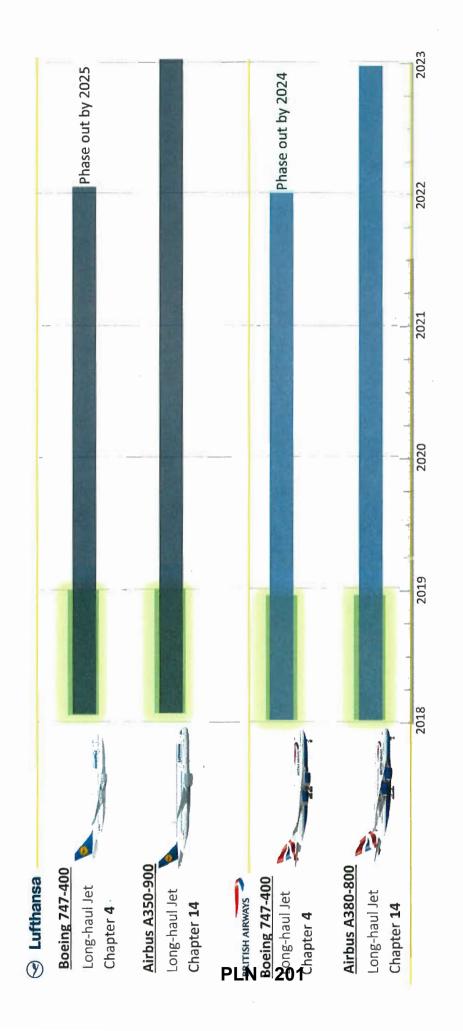


YVR NOISE MANAGEMENT PRACTICE REVIEW



#### 30

### INTERNATIONAL OPERATORS: EUROPE **AIRLINE FLEET PLANS**

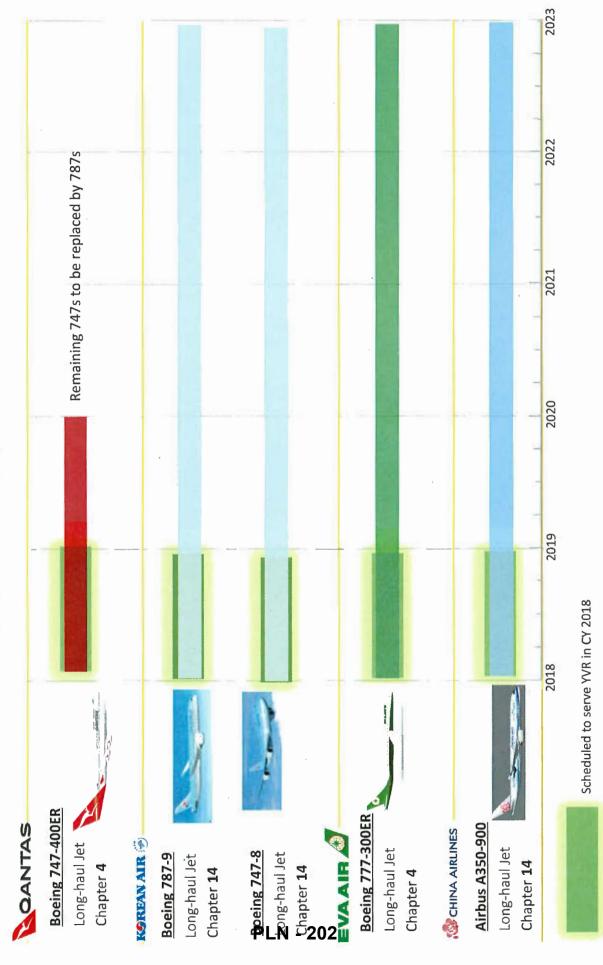


Scheduled to serve YVR in CY 2018

Graphic displays known aircraft fleet for the next 5 years. Airline specific aircraft Chapter provided (may vary from certification Chapter).



# INTERNATIONAL OPERATORS: ASIA PACIFIC



Graphic displays known aircraft fleet for the next 5 years. Airline specific aircraft Chapter provided (may vary from certification Chapter).

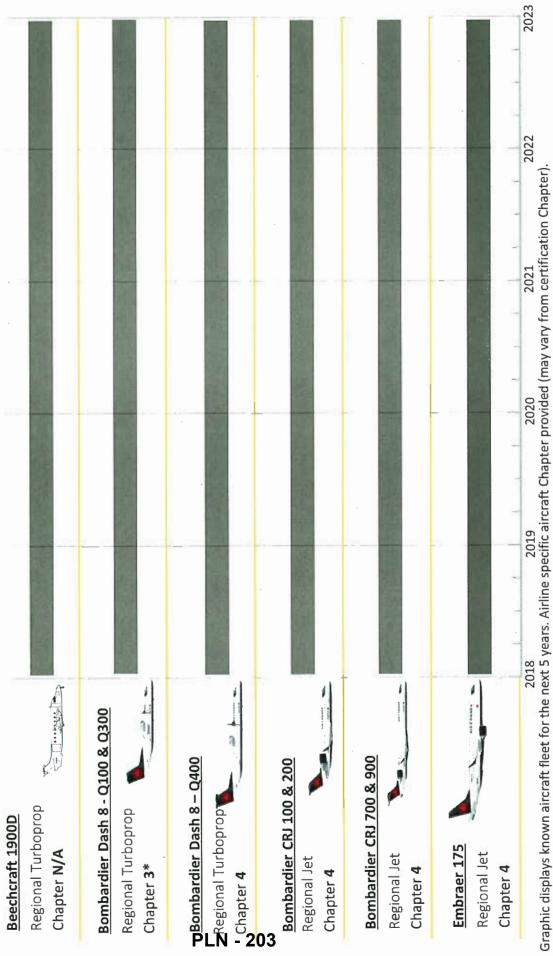


FINAL DRAFT REPORT

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## **AIR CANADA EXPRESS**



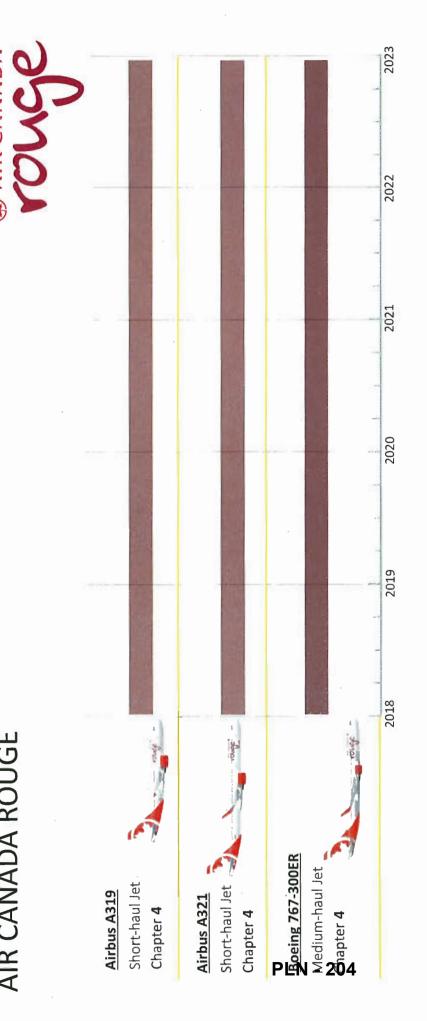


Some variants are Chapter 4



## **AIR CANADA ROUGE**

AIR CANADA



Graphic displays known aircraft fleet for the next 5 years. Airline specific aircraft Chapter provided (may vary from certification Chapter).

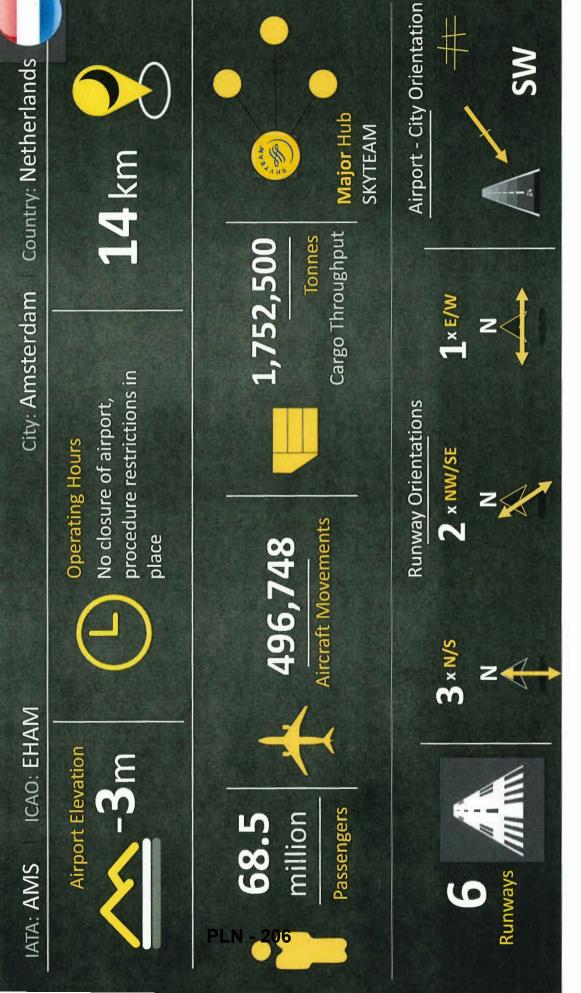


## APPENDIX A1: INTERNATIONAL AIRPORT NOISE MANAGEMENT PRACTICE REVIEW

PROFILES & PRACTICES



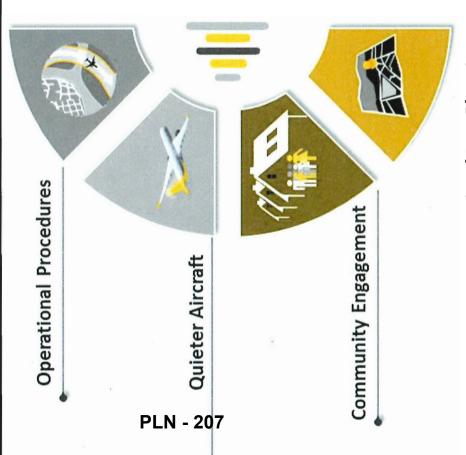
# AMSTERDAM SCHIPHOL, THE NETHERLANDS



# **NOISE MANAGEMENT PRACTICES**

IATA: AMS ICAO: EHAM





Land Use Planning

Amsterdam Schiphol Airport (AMS) is one of Europe's major hubs and the primary airport serving Amsterdam and the Netherlands. It is located on 2,787ha of land approximately 14km south-west from central Amsterdam in the municipality of Haarlemmermeer. AMS is surrounded by suburbs and pastoral land with the North Sea to the west. AMS operates five runways on a 24/7 basis with the newest and longest (3,800m long x 75m wide) Polderbaan Runway (18R/36L) opening in 2003. Its nearest end is located around 5km from the terminal precinct and is used only for northerly operations. A sixth runway, 04/22, is typically used for GA operations.

Alongside the opening of the Polderbaan Runway, new noise and environmental restrictions were introduced in the Aviation Act. The Act came into effect in 2003 and was supplemented by the Airport Traffic Decree and Airport Planning Decree, stipulating limits for noise pollution, maximum noise volume and land use surrounding the airport. In 2009, the Alders Platform (a consultative advisory body) also recommended an annual flight movement cap until 2020. In 2015, the maximum total growth of the airport until 2020 was reduced from 510,000 to 500,000 annual movements.

There are provisions under the Aviation Act limiting the total noise volume and once reached air traffic must be distributed to other runways once the maximum noise level had been reached. In line with the Airport Traffic Decree, the maximum noise calculated over a year of use:

Daytime: <63.46dB(A) and Night-time (23:00-07:00): <54.44dB(A).



# **NOISE MANAGEMENT PRACTICES**

ICAO: EHAM IATA: AMS

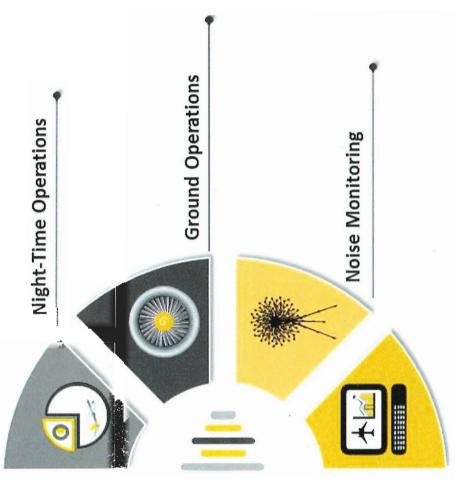
City: Amsterdam

Country: Netherlands

Daily operations at AMS are based on a runway alternation scheme during packs is critical to minimum connection times and affords a high reliability to makinize missed connections. peak periods for either inbound or outbound traffic. This is principally driven Approximately 70% of KLM's passengers connect to other flights instead of point-to-points. Therefore a model of inbound peaks, transfer and outbound by the business model of the national carrier operating at the airport, KLM.

Wale AMS operates 24/7 night-flight restrictions are in place which permit a maximum of 32,000 movements annually. Flights are capped between the 23:00 and 05:59 local to 24 arrivals and 25 departures per hour. Other notable practices include (quantifiable noise benefits are not available):

- CDA is only used between 22:00-05:30 on Runways 06 and 18R to avoid overflying of noise sensitive communities and minimizing any potential loss to capacity during daytime hours.
- A preferential runway system is operated by the ANSP according to likely aircraft noise influences and traffic flow conditions, along with a flight dispersion system to minimize overflying sensitive residential areas.
- Aircraft engine ground running is only permitted at specific locations and times around the airport.
- An aircraft APU ban exists for turnarounds where 400Hz FEGP is available.

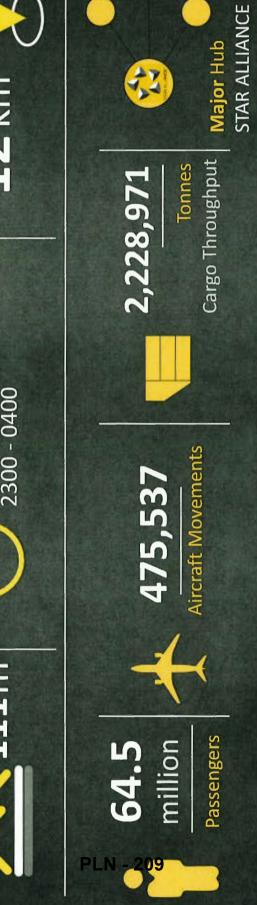


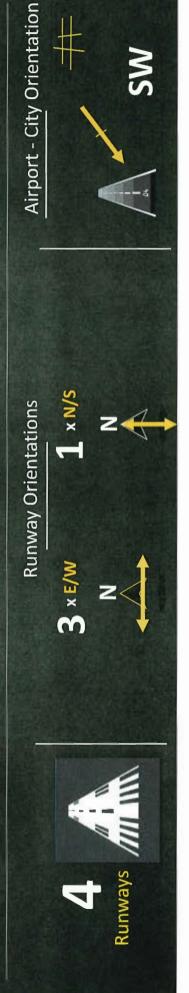
Fly Quiet Programs

#### INTERNATIONAL PERSPECTIVES FRANKFURT, GERMANY

Country: Germany **12** km City: Frankfurt Closed between Operating Hours 2300 - 0400 ICAO: EDDF 111m Airport Elevation IATA: FRA

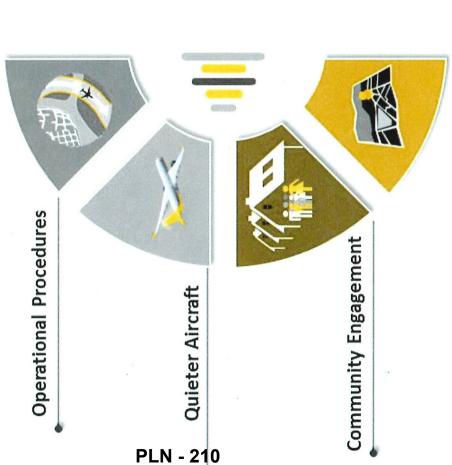






# **NOISE MANAGEMENT PRACTICES**

IATA: FRA ICAO: EDDF



FRA is the fourth busiest hub airport in Europe and Germany's largest airport. The airport is located on 2,300ha approximately 12km south-west from central Frankfurt. It operates two terminals and four runways — under normal operations, two runways are used for landings and two runways are used for take-offs.

Country: Germany

City: Frankfurt

In 2011, a new fourth runway (07L/25R) opened increasing capacity by 40% (i.e. from 90 to 126 movements per hour) and triggering the establishment of new noise regulations for the airport.

From a land use planning standpoint, noise abatement zones encircle the airport in line with the Aircraft Noise Abatement Act. There are three zones comprising a day protection zone 1 and 2, and the night protection zone, classified according to the modified equivalent continuous sound level (L<sub>Aeq</sub>). Residential dwellings located in these statutory protection zones are eligible for passive noise abatement measures.

Since October 2011, a ban has been in place on all flights between 23:00-05:00 subject to the granting of special permission. This is also supported by cap on the maximum number of flights in the shoulder period (22:00-23:00 and 05:00-06:00) which was reduced from 150 to 133 movements. All aircraft operating during these time periods must comply with ICAO Annex 16, Chapter 4 limits. Aircraft that are only marginally compliant with ICAO Annex 16, Chapter 3 limits are prohibited from taking off or landing between 20:00-08:00 every weekday and restricted from flying between Friday 20:00 and Monday 08:00.

Land Use Planning

# **NOISE MANAGEMENT PRACTICES**

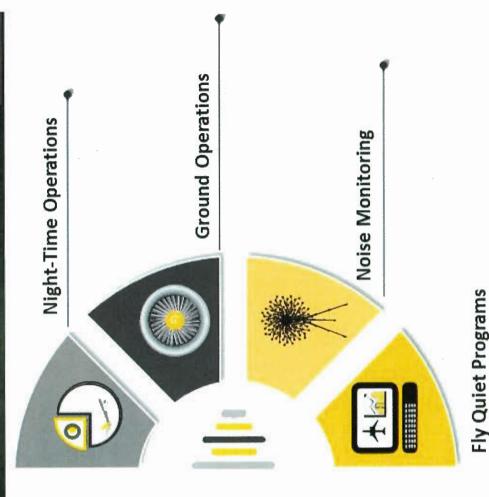
ICAO: EDDF IATA: FRA

City: Frankfurt

Country: Germany

Differential noise charges are levied as part of the aeronautical charging regime for all take-offs and landings. These are based on the aircraft's noise category. Other key noise management practices implemented at FRA include quantifiable noise benefits are not available):

- Dedicated runway operations (DROps) provides overflown communities With respite from aircraft noise at night and during 05:00-06:00 local.
- Aircraft engine ground tests, run-ups and extensive maintenance is restricted to designated areas and between 06:00-22:00 local.
- Phased introduction of continuous climb operations.
- based navigation and landings and also permits steeper approach angles to 3.20 on Runways 25L/C and 07R/C. An ILS glideslope of 3.20 is in place Ground Based Augmentation Scheme (GBAS) improves precision satelliteon Runway 07L/25R (slight noise benefit of between 0.5-1.5dB(A)).
- Reverse thrust is not permitted on landing at any of the runways.
- CDA is to be used between 23:00-05:00 local and will commence earlier and finish later subject to traffic flow conditions and runway capacity.
- Fraport, the operators of FRA, is working with airlines to install vortex generators on their A320s – Lufthansa has retrofitted its entire A320 fleet.



# HELSINKI VANTAA, FINLAND

IATA: HEL

ICAO: EFHK



Preferential runways for night-time operations Operating Hours

City: Helsinki

Country: Finland

**17** km





Aircraft Movements 165,320

**Tonnes** 194,273



Cargo Throughput

Airport - City Orientation ONEWORLD



× NW/SE  $2 \times NE/SW$ 

Runway Orientations





# NOISE MANAGEMENT PRACTICES

ICAO: EFHK IATA: HEL

Country: Finland City: Helsinki



Operational Procedures

Quieter Aircraft PLN - 213

Community Engagement

Land Use Planning

Helsinki Vantaa (HEL) is located approximately 17km north of central Helsinki and is the international gateway of Finland. It is Northern Europe's leading long-haul hub connecting to Asia with 90% of Finland's international flights passing through HEL. HEL operates three runways, which are used according to weather conditions, traffic flow and environmental considerations, particularly noise.

from the north-east. Runway 3 (22R) is used as the primary departure runway. Chapter 4 or quieter aircraft can depart from Runway 1 (22L) There are 20 different runway combinations in use at HEL. The primary runway for landings is Runway 2 (15) from the north-west or Runway 1 (22L) simultaneously. Some of the key noise management practices implemented by Finavia, the operators of HEL include (quantifiable noise benefits are not available)

- conditions CDA and low power/low drag (LPLD) procedures are to be used by all arriving aircraft according to safety and weather approximately, 66% of aircraft arrivals currently use CDA).
- A preferential runway system in place with Runway 15 preferred for use of Runway 33 for arrivals and Runway 15 for departures is prohibited between 22:00-07:00, except for propeller aircraft between 22:00-23:00 arrivals and Runway 22R preferred for departures between 23:00-06:00. and 06:00-07:00.

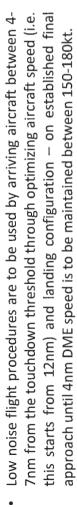


# NOISE MANAGEMENT PRACTICES

IATA: HEL ICAO: EFHK

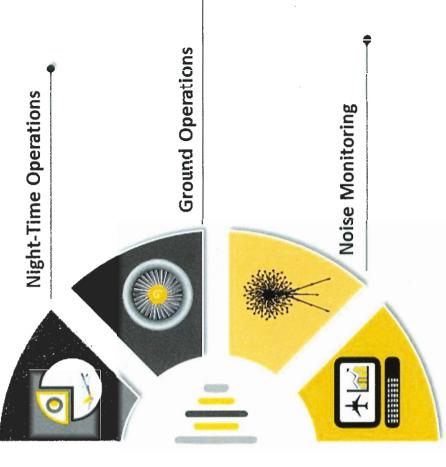






- Tall arrivals are to avoid overflying populated areas around 9nm from the Talunway 15 touchdown threshold
- Reverse thrust is prohibited after touchdown during the landing roll unless there is a safety requirement to do so.
- RNAV approach routes/procedures have been in place since 2001 with ATC vectoring aircraft onto shorter finals to avoid or minimize overflying populated areas.
- Noise Preferential Route SIDs require all departing aircraft to climb as quickly as possible to 2,000ft aal before keeping to the SID routes and ATC vectors until leaving the TMA.
- There is a night curfew between 00:30-05:00 if the certified noise level of the aircraft is greater than 89 EPNdB at take-off.
- Differential noise changing regime for night-time departures between 23:00-06:00 for turbojet aircraft exceeding 89 EPNdB at take-off.





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# **LONDON HEATHROW, UK**

**25** m IATA: LHR ICAO: EGLL Airport Elevation

Night-time restrictions Operating Hours 2300-0700

**24** km

Country: United Kingdom

City: London







Runway Orientations 2 × E/W



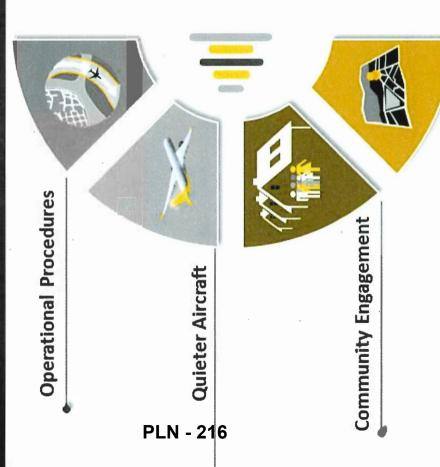


# **NOISE MANAGEMENT PRACTICES**

ICAO: EGLL IATA: LHR

City: London Country: United Kingdom





London Heathrow (LHR) is the UK's busiest international airport and one of the busiest two runway airports in the world.

year. The cap cannot increase without planning permission and Government LHR must operate within a legal flight movement cap of 480,000 ATMs per approval.

5 years by the UK Government. Also, LHR must ensure that the area enclosed by the average summer daytime 57 dB L<sub>Aeq 16hr</sub> does not exceed A series of night-flight restrictions are in place and these are reviewed every  $127 \text{km}^2$  – a condition attached to the 2001 T5 planning permission. LHR is a world leader in noise management boasting a highly sophisticated program of measures and initiatives. Some of the more notable noise management practices implemented at LHR, include (quantifiable noise benefits are not available):

- After take-off all aircraft must climb to a height of not less than 1000 ft aal at 6.5km from start of roll as measured along the departure track of that aircraft – in 2017 there were 536 infringements recorded.
- Adherence to departure noise limits set by the UK Government for daytime, shoulders and night-time hours.
- Night-time noise movement and noise quota limits set by the UK Government with quota controlled flights limited to 15/16 long haul arrivals from the USA and Far East, usually arriving after 04:00 local.

Land Use Planning

## NOISE MANAGEMENT PRACTICES

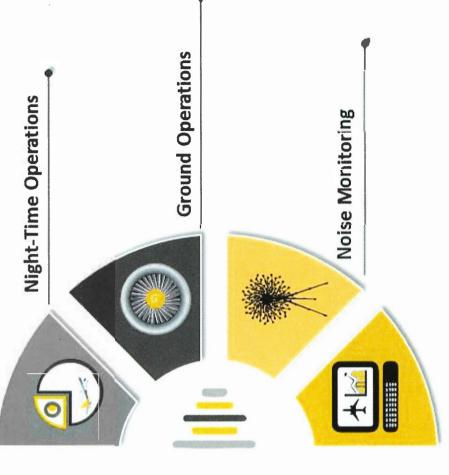
IATA: LHR ICAO: EGLL

City: London

Country: United Kingdom

- Noise Preferential Route SIDs up to 4,000ft aal in tandem with a sophisticated noise and flight track keeping system to monitor on-track performance i.e. aircraft flying within a designated 3km track swathe extending 1.5km either side of the track centreline in 2017 96.23% of all flights were on-track.
- **Z**DA used by all aircraft arrivals below 6,000ft the reported 24-hour average in 2017 was 88.46% on all flights.
  - Actively working with airline partners to fit quiet technology (vortex generators) to A320 aircraft in 2017 over 50% of aircraft have been retrofitted.
- Incentivizing airlines to operate their quietest aircraft in their fleets in 2017 99.5% of all aircraft in the fleet mix meet or exceed Chapter 4 noise certification standards.
- Differential noise charges levied on all aircraft according to noise category.
- UK's first Fly Quiet program which publishes a league table every quarter comparing the top 50 airlines across six different noise metrics.
- Steeper approach trials completed at 3.25° descent angles to keep aircraft higher for longer with departing aircraft required to maintain a climb gradient of not less than 4% to a minimum altitude of 4,000ft.
- Sound Insulation Grant Scheme available for eligible properties within LHR's cay and night scheme boundaries.

YVR NOISE MANAGEMENT PRACTICE REVIEW



#### MANCHESTER, UK

IATA: MAN

ICAO: EGCC

Airport Elevation

**78** m

Operating Hours

Night-time restrictions 2300-0700

City: Manchester

Country: United Kingdom



**14** km



27.9 million Passengers

Aircraft Movements 203,631

Cargo Throughput Tonnes 123,576

Regional Hub Various Airlines

Airport - City Orientation

2 × NE/SW

Runway Orientations

## **NOISE MANAGEMENT PRACTICES**

IATA: MAN

ICAO: EGCC

City: Manchester

Country: United Kingdom





PLN - 219

Quieter Aircraft

Community Engagement

Land Use Planning

three passenger terminals and an array of aviation support facilities. MAN is Manchester Airport (MAN) is the UK's third busiest airport. It is served by one of only two airports in the UK operating two full-length runways. MAN operates on a 24/7 basis and is located approximately 14km to the 3,050m long second runway (05R/23L) in 2001, noise controls at MAN were significantly strengthened through a number of legally binding objectives and south-west of Manchester city centre on 625ha. With the opening of its targets. At present, there are more than 50 commitments in place to manage and reduce the impacts of noise at and around MAN. A selection of notable noise management practices at MAN include (quantifiable noise benefits are not available):

- Dual Runway System is used during the morning and afternoon/evening peaks – the second runway is permitted for use between 06:00-22:00 with operations reverting back to Runway 05L/23R between 22:00-06:00.
- Westerly Preference in place for runway take-off directions subject to weather conditions (typically around 80% of the time).
- Night Noise Policy sets the movement (23:00-07:00) and noise quota limits (23:30-06:00) for the night-time and levies penalties for any breach of noise levels (90 dB(A) daytime and 82 or 81 dB(A) at night - <7% of total flights are permitted to operate between 23:30-06:00 local.
- No aircraft engine tests permitted outside the engine-test bay between



## NOISE MANAGEMENT PRACTICES

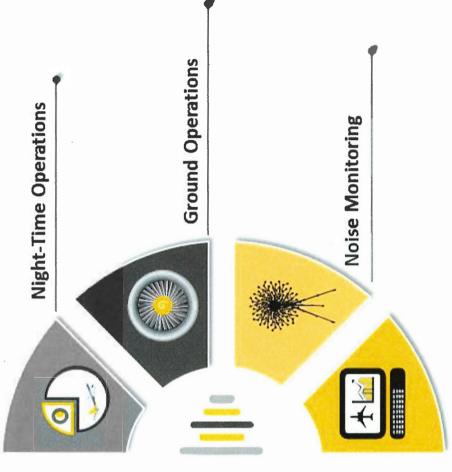
IATA: MAN ICAO: EGCC

City: Manchester

Country: United Kingdom

22:00-06:00 on weekdays and 22:00-07:30 on weekends.

- Preferential Noise Routes up to 5,000ft aal on most SIDs to direct aircraft over less populated areas during the initial potentially more noisy stages of flight.
- TCDA used by all aircraft arrivals between 22:00-06:00 local.
- LPLD procedures on all approaches.
- Departure noise surcharge to penalise any breach of maximum daytime maximum noise level of 90dB(A) based on a standard penalty flat rate plus indexed for every decibel above.
- Use of reverse thrust must be avoided during landing roll unless safety requirements dictate otherwise.
- Aircraft using the ILS on approach must not descend below 2,000ft before joining the glide path.
- Non-essential running of aircraft APUs is not encouraged during block turns where 400Hz FEGP is available with reduced engine taxiing used according to traffic flow and weather conditions.
- Sound Insulation Grant Scheme is available to eligible properties within
  the 2010 63 dB L<sub>Aeq 16hr</sub> noise contour and a Home Relocation Assistance
  Scheme launched in 2006 for residential properties within the 2002 69 dB
  L<sub>Aeq 16hr</sub> or those that have been exposed to a large increase in noise.

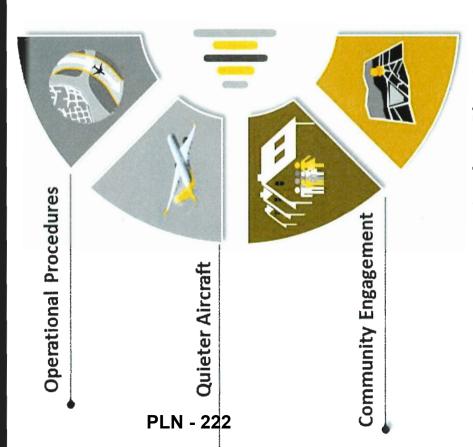


# SYDNEY KINGSFORD-SMITH, AUSTRALIA



## **NOISE MANAGEMENT PRACTICES**

ICAO: YSSY IATA: SYD



Land Use Planning

airports. It lies at the heart of Australia's aviation network and is the single Sydney Kingsford-Smith (SYD) is one of the world's most noise sensitive growth in the aviation sector and the environmental and social impacts of most important asset for the Australian tourism industry. As at many airports, creating a balance between the economic potential derived through aircraft noise on certain parts of the community is difficult to reconcile. Country: Australia City: Sydney

SYD is located 9km from downtown Sydney and is surrounded on three sides Its three terminal campuses, three runways and aviation support facilities are by residential areas and urban development with a major water body, Botany Bay, located immediately to the south and Kurnell a residential area beyond. situated on a compact site of 905ha.

was heavily criticized for the additional noise it created over residential areas and the lack of transparency in the communication of the expected impacts SYD's third runway (16L/34R) opened in 1994. The opening of the runway in the runway's Environmental Impact Statement. In response the Government introduced several key pieces of legislation to balance the impact of aircraft noise with the efficient operation of the airport. These legislative measures along with the airport's Long Term Operating Plan (LTOP) were also designed to share the aircraft noise across the community rather than it being concentrated under the same flight paths. The implementation of LTOP established the noise sharing arrangements after an exhaustive consultation process with the Sydney community.

## NOISE MANAGEMENT PRACTICES

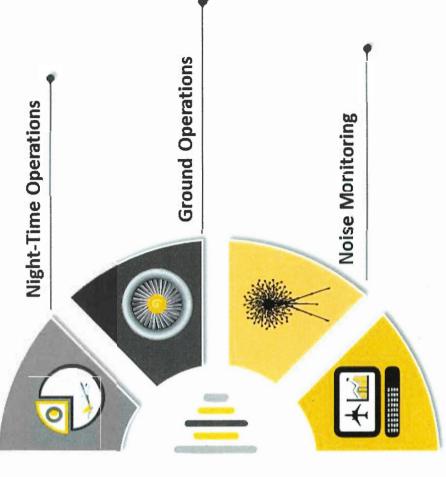
ICAO: YSSY IATA: SYD

City: Sydney

Country: Australia

Key measures to address aircraft noise at SYD included the introduction of the of the Sydney Airport Curfew Act 1995 and Sydney Airport Demand Management Act 1997. The provisions set out under both legislative pieces included (quantifiable noise benefits are not available):

- The ban on night flights (curfew) between 23:00-06:00 local with the zxception of except BAe-146 aircraft.
- **TA** curfew shoulder period movement cap of 24 between 05:00-06:00 and **Z**3:00-00:00.
- A cap of 80 runway movements per hour counted in 15 minute blocks on landings - this differs from the slot management regime which allocates an ongoing basis to limit the number of daytime aircraft take-offs or up to a maximum 80 slots per hour based on airline demand.
- LTOP which varies the use of runways and flight paths for arrivals and departures to spread noise and share noise as equitably as possible using a range of different combinations of flight paths and runways.
- LTOP noise sharing targets for the areas surrounding the airport in conjunction with continual monitoring and reporting of results.
- Directing as many flights as possible over water and non-residential areas.
- Restrictions on when 'noisy' aircraft can operate, including aircraft engine ground run tests.



Fly Quiet Programs

## **ZURICH KLOTEN, SWITZERLAND**



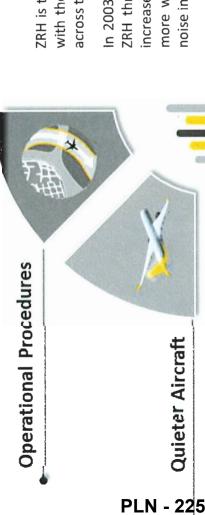
## **NOISE MANAGEMENT PRACTICES**

ICAO: LSZH IATA: ZRH

City: Zurich

Country: Switzerland





Quieter Aircraft



Land Use Planning

ZRH is the largest international airport in Switzerland. It operates 3 runways with the airport's location distributing noise from arriving/departing aircraft across the German/Swiss border.

ZRH through German airspace due to noise concerns. This resulted in an increase of flights over the most populated areas of Zurich, including the more wealthy suburbs giving rise to increased political pressure to reduce In 2003, Germany imposed airspace restrictions affecting inbound flights to noise impact. As such, ZRH operates a complex system of noise management with flight operations restricted. A runway alternation scheme is in place, with Runway 34 typically used in the may occur, however, if aircraft are unable to land on Runway 28 due to morning/early afternoon (up to 15:00) and Runway 28 after that. Exceptions performance limitations; traffic may be vectored onto Runway 34.

departing from ZRH enter German airspace. These restrictions apply populated areas wherever possible. Adherence to these flight paths is mandatory during the daytime up to an altitude of 5,000ft above mean sea Particular runway restrictions are in place to ensure no aircraft arriving at or between 00:00-07:00 local Monday-Friday and 22:00-09:00 Saturday, Sunday and on German public holidays. Zurich Airport's departure routes and procedures are configured in such a way as to avoid overflying densely evel, and at night up to flight level 80 (approximately 8,000ft).

## NOISE MANAGEMENT PRACTICES

ICAO: LSZH IATA: ZRH

City: Zurich Country: Switzerland

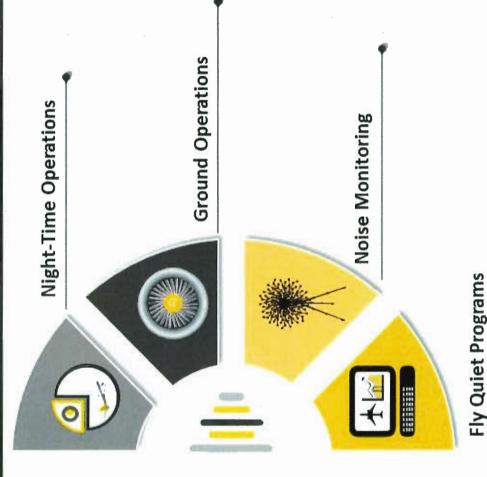


At all times arriving or departing aircraft at ZRH are prohibited from flying at an altitude lower than 12,000ft in German airspace. Flughafen Zürich AG, the operators of ZRH also operate a network of 14 fixed noise monitoring terminals around the airport. The data recorded is compiled and published monthly in the noise bulletin, enabling trends in noise levels at (Source: https://www.zurich-airport.com/the-company/noise-policy-and-the long be tracked over the specific locations to

er ronment/noise-monitoring)

In 2016, a total of 860 engine ground tests (2015: 840) were carried out in may be exceeded 25 times annually. In 2016, only one exceedance was the noise protection hangar. Of these, 360 (41%) were run at night between 22:00-06:00 and 500 (59%) during the day between 06:00-22:00 local. In line with the airport's operating regulations, the permitted noise exposure level reported.

Night flights, often a major source of community annoyance and disturbance, accounted for 4.7% of total flight movements in 2016 which was slightly higher (0.2%) than in 2015.



## PORTLAND INTERNATIONAL, USA

State: Oregon 10 km City: Portland **Preferential runways** Operating Hours 22:00 - 06:00ICAO: KPDX E 6 Airport Elevation IATA: PDX

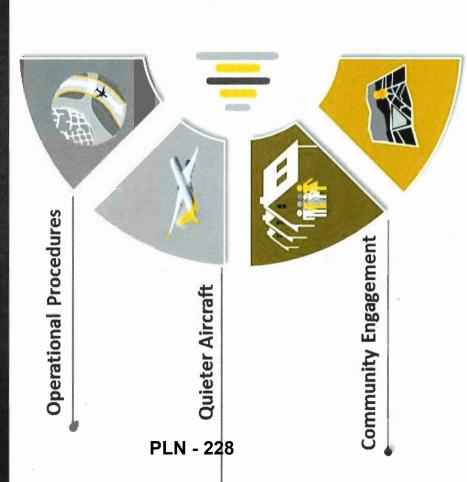


## **NOISE MANAGEMENT PRACTICES**

IATA: PDX ICAO: KPDX



City: Portland



Portland International (PDX) is a joint civilian-military airport operated by the Port of Portland. It is the largest airport in the US state of Oregon and is located approximately 10km to the north-east of downtown Portland. PDX occupies around 1,334ha and is served by a main passenger terminal split into two main areas (North and South) with five concourses (A-E) and three runways the longest being 10R/28L at 3,353m. Alaska Airlines and Horizon Air use the airport as a secondary hub.

In 1979, the Port of Portland Noise Management Department was established. The Department is responsible for the management of noise from aircraft, ground operations and other airport activities at PDX, Hillsboro and Troutdale Airports.

The types of noise management practices being implemented at PDX include (quantifiable noise benefits are not available):

- "Portland International Airport Noise Impact Zone" (known as the Airport Noise Zone) was created in 1991 by the City of Portland to control sensitive residential development near the airport where aircraft noise levels are highest.
- A Preferential Runway System is in place between 22:00-07:00 largely for easterly or westerly aircraft arrivals. Runway 10R/28L (Southern Runway) is preferred for departing aircraft when conditions allow. The use of Runway 03/21 is discouraged subject to weather conditions, medical emergencies and/or aircraft technical issues.

Land Use Planning

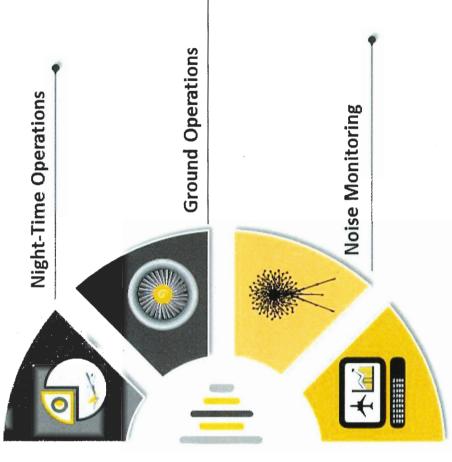
## NOISE MANAGEMENT PRACTICES

IATA: PDX

ICAO: KPDX



- Noise Abatement Flight Corridors (North and South) are in place to confine overflying noise sensitive communities as much as possible. Departing aircraft climb in a straight-line to 7,000ft aal or fly up to 13km from the jet aircraft to narrow track swathes along the Columbia River to avoid departure runway before turning onto their destination heading.
- range of optimized flight procedures are used by arriving aircraft, including CDA (all aircraft) and RNAV procedures for arrivals from the  $\mathbf{R}$  orth-west and the south and south-west. RNP AR Approaches are used by  $\mathbf{Q}$  irraft equipped with satellite-based navigation systems to fly narrow routes to reduce the spread of noise and number of people overflown.
- All aircraft engine ground tests (except propeller aircraft <5,670kg MTOW certain restrictions for tests between 22:00-07:00 local. Unsuppressed and some other types) must be performed within the GRE subject to run-ups for scheduled/unscheduled maintenance are prohibited.
- A voluntary Fly Quiet Program is in place to monitor and recognize noise reduction efforts in line with three core elements: on-track performance within the Columbia River Noise Abatement Corridor, use of RNAV procedures and operation of the quietest available aircraft in airline fleets.
- The airport operates a network of 10 permanent noise monitors around PDX and provides an online flight tracking system, WebTrak, to allow users to view aircraft activity in the greater Portland/Vancouver metropolitan



## SEATTLE-TACOMA, USA

ICAO: KSEA IATA: SEA

Airport Elevation



Preferential runways 2200 - 0600

City: Seattle Operating Hours

State: Washington













Delta

Airport - City Orientation

Runway Orientations



3 × N/S



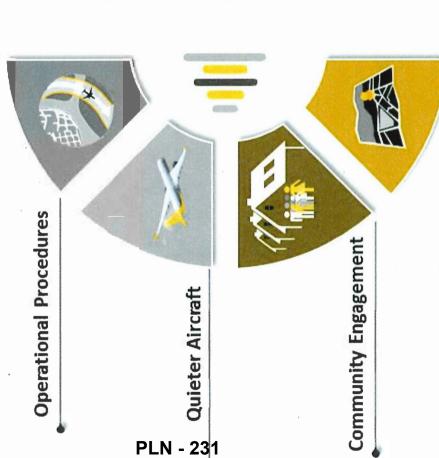
## NOISE MANAGEMENT PRACTICES

IATA: SEA ICAO

ICAO: KSEA



City: Seattle



Land Use Planning

Seattle-Tacoma (SEA) is the ninth busiest airport in the USA and gateway to the Pacific North West. The airport occupies around 1,012ha approximately 21km south of downtown Seattle. It is served by a main 'x-shaped' passenger terminal campus with two satellites and operates three parallel runways. SEA is a major hub for Alaska Airlines and Delta, and one of the fastest growing airports in the USA.

The types of noise management practices being implemented at SEA include (quantifiable noise benefits are not available):

- A Preferential Runway System is used between 22:00-06:00 and requires
  all northerly jet aircraft departures to fly a narrow corridor before heading
  west to continue north over the Duwamish industrial area and Elliot Bay
  before turning to onto their destination heading on reaching 10,000ft aal.
- Noise Abatement Flight Corridors (North and South) are in place to confine jet aircraft to narrow track swathes until they climb in a straight-line to minimum altitudes aal or reach a certain distance from the departure runway before they can turn onto the heading of destination.
- CDA used by all aircraft arrivals in line with RNAV procedures known as "MARNR" for arrivals from the north-west and "HAWKZ" for arrivals from the south and south-west.
- RNP AR Approaches using precise, satellite-based navigation systems along narrow flight paths to minimize the spread of noise and number of people affected by overflights.

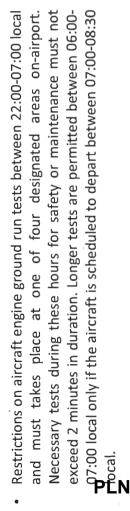
## **NOISE MANAGEMENT PRACTICES**

IATA: SEA

ICAO: KSEA

City: Seattle

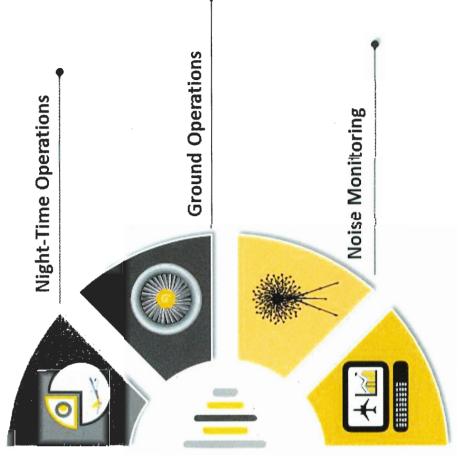
State: Washington



Secognize the efforts made by airlines in noise reduction and abatement along with incentivizing airlines to continue operating their quietest • A Fly Quiet Program based on three core categories is in place to available aircraft at the airport.

SEA continually measures noise through a network of 25 permanent noise keeping system to monitor airline compliance with noise abatement monitoring terminals in conjunction with a sophisticated flight track procedures, investigate noise enquiries and to identify any changes or new/emerging trends in the local noise environment. A Sound Insulation Scheme was first launched at SEA in 1985 and is available to eligible residential dwellings and sensitive public buildings (i.e. schools) significantly impacted by aircraft overflight noise.

'Greener Skies Over Seattle' initiative as part of the FAA's NextGen airspace modernization program involving Performance Based Navigation (PBN) procedures and greater operational efficiency through the use of RNP and CDA procedures.



## MONTREAL TRUDEAU, CANADA

Airport - City Orientation SW Country: Canada Regional Hub Various Airlines **20** km City: Montreal Cargo Throughput Tonnes 94,103 1 × E/W **Preferential runways** Runway Orientations Operating Hours 2300 - 0700 Aircraft Movements 234,254 2 × NE/SW ICAO: CYUL 36m Airport Elevation 18.2 Passengers million IATA: YUL

## **NOISE MANAGEMENT PRACTICES**

IATA: YUL ICAO: CYUL

Operational Procedures







Montreal-Trudeau (YUL) is Canada's third busiest airport and operates 24/7. it is located on 1,320ha approximately 20km south-west of downtown Montreal. YUL is served by a main terminal campus which is split into different zones to handle domestic, trans-border and international traffic. Three runways are operated at YUL (2x parallel and 1x cross-wind) with the longest, Runway 06L/24R being  $3,353m \times 63m$  wide.

The types of noise management practices being implemented at YUL include (quantifiable noise benefits are not available):

Quieter Aircraft

PLN - 234

- A Preferential Runway System is in use between 23:00-07:00 local with Runway 24L favoured for departures due to the closer proximity of the airport to Lake St-Louis and overflying of less densely populated areas. Runway 24R is favoured for arrivals subject to weather conditions.
- Night Flight Restrictions for aircraft in excess of 45,000kg which are permitted to depart between 07:00-00:00 local and arrive between 07:00-01:00 local albeit exemptions do apply for a small number of operations for medical emergencies, inclement weather and delays beyond the airline's control. Runway 28 departures between 23:00-07:00 local are restricted to turboprop and piston powered aircraft on a specific SID.
- Noise Preferred Routes are in place for aircraft departing Runways 24L and 24R which must climb along a straight-line trajectory to a minimum altitude of 3,000ft aal before executing a turn toward their onward



Community Engagement



## **NOISE MANAGEMENT PRACTICES**

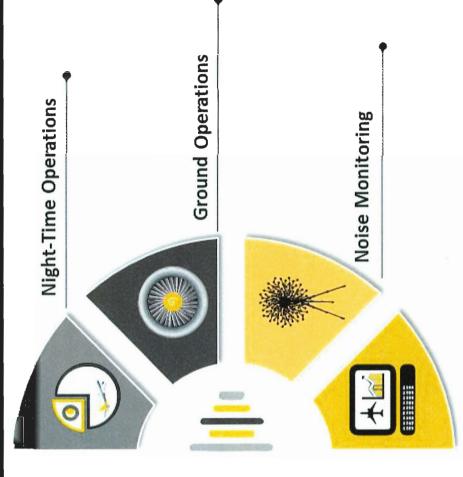
ICAO: CYUL IATA: YUL

City: Montreal



70% of operations aircraft depart off Runways 24L and 24R towards Lake destination - all turboprop and piston (propeller) aircraft are able to turn immediately after take-off subject to weather conditions and safety. For St-Louis and Runway 28.

- Whe (cargo/maintenance area) are also prohibited at all times. Engine Paround run tests are limited to 20 minutes and must be performed at Pircraft engine ground run tests that require power above idle settings are designated areas around the airport to minimize noise disturbance to local **z**rohibited between 23:00-07:00 local unless authorized for essential maintenance or flight safety. Engine tests above idle power on the hangar residents.
- Eight permanent noise monitoring terminals and one mobile monitoring (Airport Noise and Operations Monitoring System). ANOMS integrates radar data provided by NAV CANADA on aircraft position, altitude and Data recorded from this network is linked to the airport's ANOMS system speed with the noise data measured by the noise monitors and weather station are used to continuously monitor noise levels around the airport.



Fly Quiet Programs

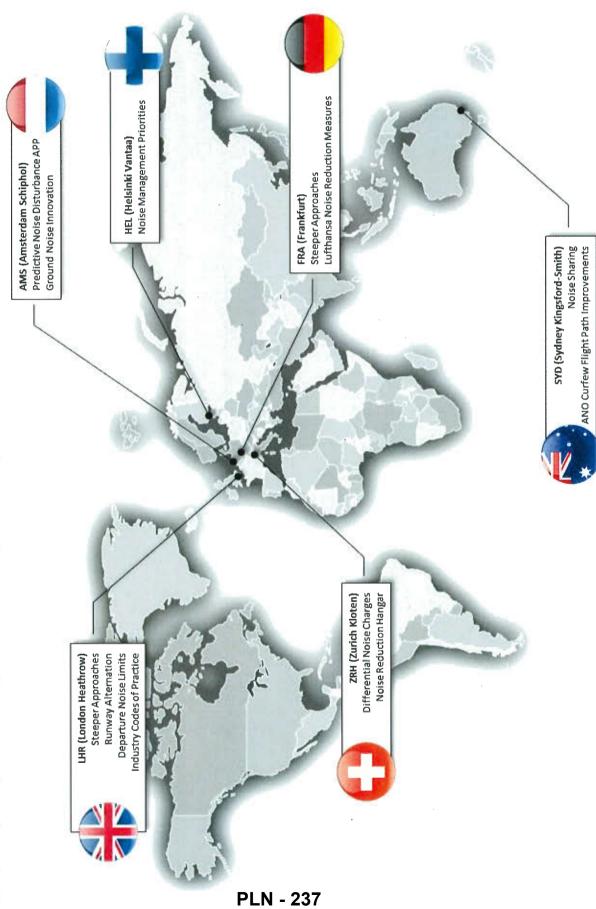
## YVR NOISE MANAGEMENT PRACTICE REVIEW

#### APPENDIX A2: SELECTED CASE STUDIES NOISE MANAGEMENT PRACTICE REVIEW



PLN - 236

# INTERNATIONAL AIRPORT PRACTICE SHOWCASE





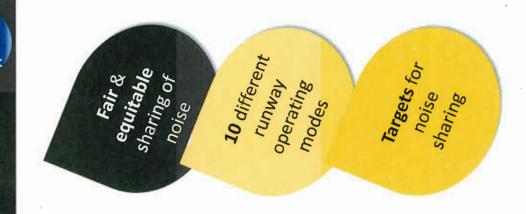
#### FINAL DRAFT REPORT

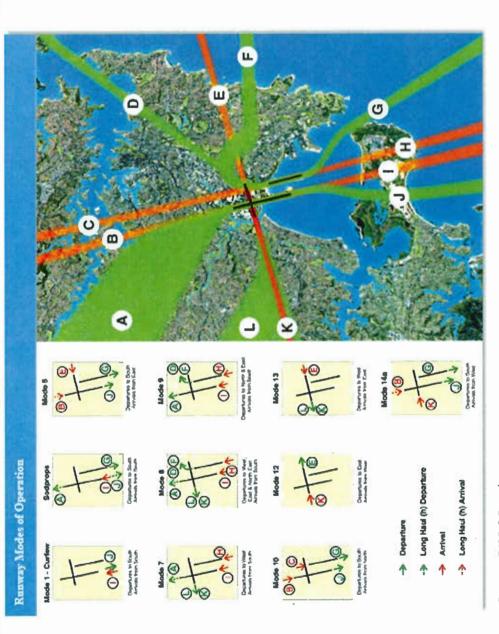
#### **NOISE SHARING** CASE STUDIES

ICAO: YSSY IATA: SYD

Country: Australia

City: Sydney









#### NOISE SHARING

IATA: SYD

ICAO: YSSY



City: Sydney

The Long Term Operating Plan (LTOP) was developed in response to community pressure to share the noise generated by flight operations Airservices Australia (the ANSP) developed options for operating the airant in a way that shares the noise in areas around the airport as far as possible. These options were released for public comment in late 1996 and formed the basis for LTOP.

premised on "fair and equitable" noise sharing albeit there is constant LT provides 10 possible runway operating modes (see previous modes (parallels), 3 noise sharing modes (5, 7, 14a), 1 overwater modes (SODPROPS), 2 low single runway modes (07 or 25). It is page), in practice a preferential runway system, with 2 high capacity jousting between E-W vs. N-S noise sharing. Under LTOP, when making daily runway selections, Airservices Australia must ensure that in line with safety, capacity and noise requirements, as many flights arrive/depart over water or nonthe rest of the air traffic is spread or shared over surrounding communities as fairly as possible; and as runway modes change throughout the day individual communities receive a break (or residential areas where aircraft noise has the least impact on people; respite) from aircraft noise.

to route as many flights as possible over water (55% to the south) and for the remaining flights to be shared between the other three A unique feature of LTOP is noise sharing targets. These targets aim directions as equitably as operationally feasible to do so. The benefits of LTOP are cumulative and depend on the ability to comprehensive review in 2005 following seven years of operation. meet targets. LTOP's performance was the subject of http://sacf.infrastructure.gov.au/LTOP/index.aspx ITOP information on Relevant

SYD's utilization of runway modes and total runway movements performance are constantly monitored and routinely reported on a monthly basis by Airservices Australia. The two fundamental factors influencing runway selection and therefore the LTOP targets at SYD are forecast or prevailing weather and traffic levels. The results for December 2017 as published by Airservices Australia were as follows:

- North 32.41% vs. target level of 17% (November 2016 33.16%)
- South 51.53% vs. target level of 55% (November 2016 55%)
- East 15.83% vs. target level of 13% (November 2016 13.97%)
- West 0.23% vs. target level of 15% (November 2016 1.12%)

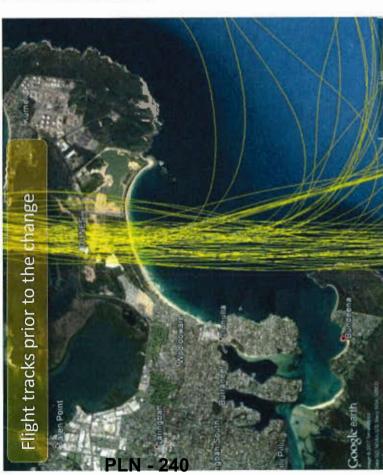
# NIGHT CURFEW FLIGHT PATH IMPROVEMENTS

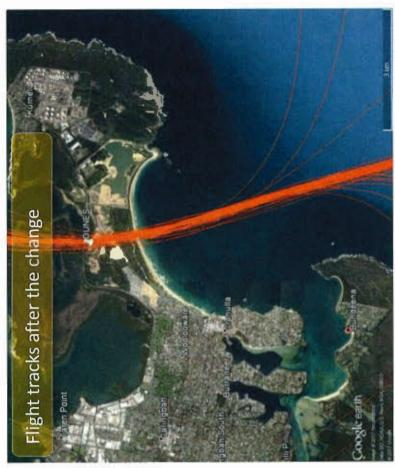
IATA: SYD

ICAO: YSSY

City: Sydney

Country: Australia





An ANO investigation conducted during 3Q 2017 led to a change to the departure flight path during SYD's curfew and a reduction in noise impacts for coastal residents during the curfew hours of 23:00-06:00. Source: ANO

FINAL DRAFT REPORT

# NIGHT CURFEW FLIGHT PATH IMPROVEMENTS

IATA: SYD

ICAO: YSSY

City: Sydney

Country: Australia



The primary role of the ANO is to conduct independent administrative rewews of Airservices' and Defence's management of aircraft noise. Spzcifically this entails:

- **The handling of complaints**
- The community consultation processes relating to aircraft noise
- The presentation and distribution of aircraft noise-related

The ANO's position is reviewed and renewed every three years.

noise-sharing and progress to implement alternate arrival flight paths Following the ANO's assessment of progress in implementing recommendations for making aircraft noise information available at SVD, Airservices published a series of fact sheets about the LTOP, known as 'High and Wide' and 'Trident'. Furthermore, in March 2016 the ANO examined the possibility of adjusting flight paths over water during curfew hours (23:00-06:00

The ANO asked Airservices to consider if a better noise outcome could be achieved for coastal residents south of SYD affected by flights departing during the night curfew. Following ANO analysis and feedback, Airservices revisited its initial investigation into the feasibility of changing the Standard Instrument Departure (SID) track. Airservices considers a change could now be possible and has commenced the formal change process, including detailed procedure design, necessary assessments and relevant unexpected issues, a change is likely to be introduced in early 2018 that will potentially benefit thousands of coastal Sydney residents as consultation. This work continues to proceed smoothly. Barring any olerances during night-time hours are noticeably less.

growth in international air services is to rebalance aircraft operations Nonetheless, a perennial challenge for SYD to help secure long term on the main and parallel north-south runways, particularly during

(Source: changes/sydney-curfew-departures-noise-improvement/) http://www.airservicesaustralia.com/projects/flight-path-No information on quantifiable benefits is

#### IATA: AMS

ICAO: EHAM

City: Amsterdam

Country: Netherlands



Loud

**PLN - 242** 

Source: Schiphol Knowledge Development Centre

7:00 18:00 19:00 20:00 21:00 22:00 23:00 00:0



## PREDICTIVE NOISE DISTURBANCE APP

ICAO: EHAM IATA: AMS

City: Amsterdam

Country: Netherlands



The aircraft noise predictor APP is designed to allow local residents living around AMS to know when and how much aircraft noise is to be that plans accordingly – i.e. when or when not to hold and participate in Outdoor social gatherings and recreational activities, particularly expected, as well as the duration it will last. This aims to help local residents to better anticipate the future noise conditions and adapt during the longer summer days.

immediately predict the level and duration of aircraft noise likely to be how noise levels will develop during each 20-minute period over the The APP will work by a smartphone user entering their location to experienced over the next 30 hours. The APP will also be able to show 30-hour forecast. This represents a significant step change for local residents affected predict the timing, number of overflights and associated noise by aircraft noise, particularly with respect of being able to better exposure – greater certainty.

No information on quantifiable noise benefits is available.



FINAL DRAFT REPORT

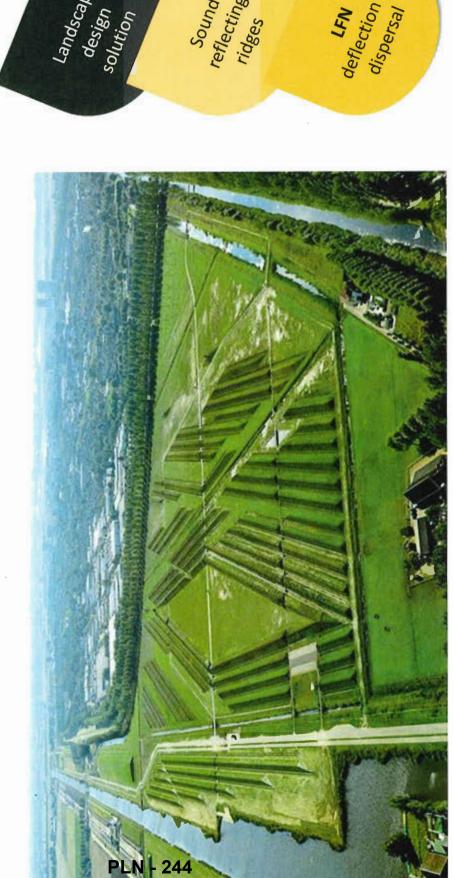
## **GROUND NOISE SOLUTIONS**

IATA: AMS

ICAO: EHAM

City: Amsterdam

Country: Netherlands





Source: H+N+S Landscape Architects

FINAL DRAFT REPORT

## **GROUND NOISE SOLUTIONS**

IATA: AMS ICA

ICAO: EHAM

City: Amsterdam Country: Netherlands

Around AMS, the residents of Hoofddorp-Noord have been affected by low frequency ground noise nuisance since the opening of the airport's longest and newest Polderbaan Runway 18R-36L in 2003, especially in winter, when the ground is wet or hard and reverberates the ground noise waves.

Harddorp-Noord is located approximately 1,700m to the south-west of the Runway 36L head. Since its opening, the Polderbaan Runway has been a source of great annoyance to affected residents. In 2002, 84 ground noise complaints were made and after the runway's opening this increased to 5,257 complaints.

This resulted in AMS devising an innovative landscape design plan to reduce the nuisance created by low frequency noise (LFN) to local residents. The objective of the plan was to reduce ground noise by 10dB at 31.5Hz which was achieved through the trial testing period (Source: <a href="https://www.schiphol.nl/en/you-and-schiphol/page/landscape-design-as-a-solution-to-ground-noise/">https://www.schiphol.nl/en/you-and-schiphol/page/landscape-design-as-a-solution-to-ground-noise/</a>)

A series of ground ridges were contoured into the local terrain on a 33ha site (Buitenschot Park) in the area between Hoofddorp-Noord and Runway 18R-36L. Each ridge was designed to deflect the sound waves upwards from their sloping surfaces. The ridges are 3m high (1.5m agl and 1.5m bgl).

The scheme was completed in 2013 and today the residents of Hoofddorp-Noord experience less nuisance from LFN as a result.

This is a clever example of best practice and innovation working in tandem, combining an airport noise solution with public art and recreational space—i.e. cycleways and sport fields.



Source: H+N+S Landscape Architects

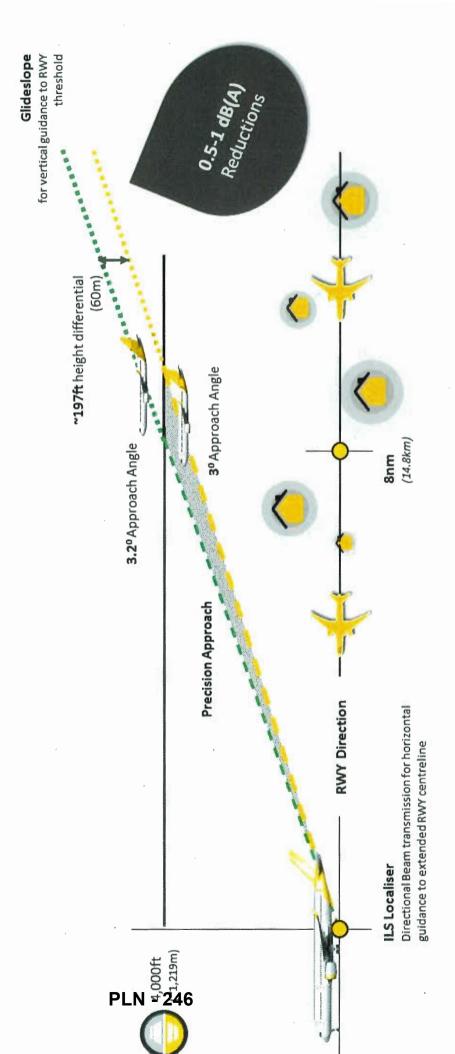
## STEEPER APPROACHES

IATA: LHR & FRA

ICAO: EGLL & EDDF

City: London & Frankfurt

Country: UK & Germany



Note: Illustrative schematic showing the height gained by a 3.2° steeper approach vs. a 3° degree approach at approximately 8nm from touchdown



#### STEEPER APPROACHES



Country: UK & Germany City: London & Frankfurt



which is typically set at a 30 glide path angle. Increasing an aircraft's The international standard Instrument Landing System (ILS) is a beam which is aligned with the runway centreline in order to guide aircraft in a straight line approach to the runway threshold for landing. It consists of two signals, one giving vertical guidance (the glideslope) glide path reduces noise in two ways:

- Fround, increasing the distance over which sound travels before it reaches residents living in local communities. · Firstly, it slightly increases the height of the aircraft over the
- Secondly, it increases an aircraft's rate of descent, and where it will reduce the amount of engine power required and in turn engine power for a 30 descent is not at the minimum setting (idle), reduce the amount of noise being generated on approach.

FRA's new north-west runway, 07L-25R opened in 2011 for bidirectional landings. It is equipped with two ILS systems for each landing direction to enhance operational resilience. On March 31, 2017 the first satellite-supported precision landings using a steeper 3.2° approach commenced on FRA's southern and central runways. The precision-landing, ground-based augmentation system (GBAS) introduced by DFS Deutsche Flugsicherung GmbH, Fraport AG. and Lufthansa in Frankfurt in 2014 facilitates the steeper 3.20 approach angle on all of FRA's runways for appropriately

equipped aircraft. According to the DLR German Aerospace Centre's Institute of Flight Systems in Braunschweig, steeper approaches at FRA have provided 0.5-1.5dB(A) noise reductions depending on the aircraft type and location of the noise measurement station.

differences between the RNAV 3.2° steeper approach and the existing 3° ILS/MLS approach. Unlike ILS approaches the RNAV procedure is Notably, temperatures above 15°C will lead to angles above 3.2°, the UK CAA requested further trials to be completed. LHR therefore conducted a second 3.20 trial on May, 25 2017 to assess the effect of warmer temperatures on the approach angle flown during the LHR trialled an RNAV 3.20 approach procedure between September 2015 and March 2016. Results were analysed to compare the sensitive to temperature and operating the trial during winter reduced the approach angle actually flown, from 3.2° to 3.14°. summer months. The trial was completed on October, 11 2017. Noise reduction benefits from the trials ranged from an average 0.5 dB(A) per approach up to 1.4 dB(A) SEL (Source: Heathrow Airport Limited https://www.heathrow.com/noise)

3.50. The redesign of LHR's airspace in line with the UK Government's Looking to the future, the aim is to introduce approaches of up to Future Airspace Strategy is considering 3.50 approaches.

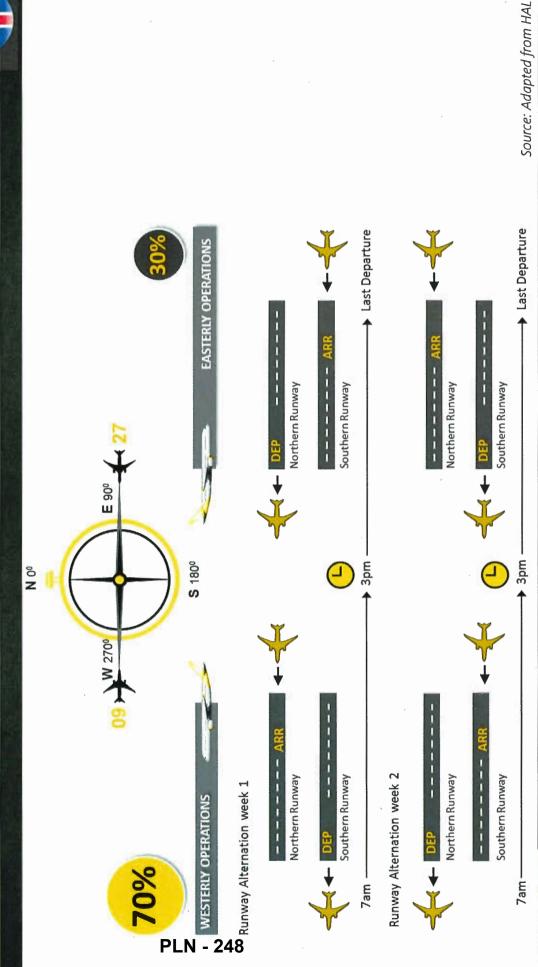
## **RUNWAY ALTERNATION**

ICAO: EGLL

IATA: LHR

Country: United Kingdom 📮

City: London



## **RUNWAY ALTERNATION**

IATA: LHR

ICAO: EGLL

Country: United Kingdom City: London



LHR implements partial runway alternation to provide a level of noise final approach to land on the runway(s). The historic Cranford Agreement which has been in place since 1952 prevents departures from the Northern Runway on easterly operations (09L), which in turn prevents the use of full runway alternation at LHR. Cranford is a respite for residents affected by aircraft arrivals descending on their vil Re at the eastern end of the northern runway (09L)

communities living under the final approach into the airport with periods of relief from aircraft noise. Residents place great importance on the alternation system at LHR and every effort is made to adhere Dung the day, and when the airport is on westerly operations, 'ru**A**way alternation' is used. Primarily this is to provide local

The alternation pattern means that for part of the day one runway is used for arrivals and the other for departures. A unique feature of LHR's runway alternation is that it is scheduled, using a two-week cycle giving predictable respite for a half the day (the switch occurs daily at 15:00) to the extent prevailing winds allow for it (as shown on the previous slide) The inability to alternate runway use when LHR is on easterly operations due to the Cranford Agreement means that any relief provided by runway alternation from westerly operations is offset by

the unpredictable changeover to easterly operations due to prevailing wind conditions. Since the 1950s, the Cranford Agreement favoured residents of Cranford at the expense of other communities such as Windsor and southern parts of Hounslow. in 2010, the then Government confirmed that the Cranford Agreement should be removed and that Heathrow should take the necessary steps to implement easterly alternation as soon as possible to ensure a fairer distribution of noise when operating on easterlies.

Agreement with planning permission granted by the UK Planning After a lengthy planning process a decision was reached to end the inspectorate in February 2017. Although the Agreement is no longer in place LHR is unable to implement full runway alternation on easterly operations due to insufficient taxiway infrastructure being in Furthermore, LHR is planning to move forward with the taxiway infrastructure development in line with London airspace changes to support full easterly operations in 2022/23. No information on quantifiable noise benefits is available (Source: https://www.heathrow.com/file\_source/HeathrowNoise/Static/Runw ay Alternation Programme 2018.pdf)



## **DEPARTURE NOISE LIMITS**

ICAO: EGLL IATA: LHR

City: London Country: United Kingdom 🛁



Source: UK Department for Transport

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## **DEPARTURE NOISE LIMITS**

IATA: LHR

ICAO: EGLL

City: London

Country: United Kingdom

All aircraft departing from LHR must adhere to noise limits set by the There are three limits in place for the day, shoulder and night-time UK Government. The current limits were introduced early in 2001. periods.

Thalimits are (all times local):

- **Z**ay (07:00-23:00) 94dBA Lmax
- Thoulder (23:00-23:30 and 06:00-07:00) 89dBA Lmax
- Night (23:30-06:00) 87dBA Lmax

monitor departure noise limits. The noise limits are based on the of the roll point on the runway and at the same elevation as the airfield. As this is difficult to achieve due to many factors, adjustments are made to the limits to take account of any variances in the monitor There are 12 permanent noise monitors located around Heathrow to assumption that the noise monitors are exactly 6.5km from the start

Each noise monitor has an additional calibration allowance of 0.7dBA to provide a margin of error for the microphone. An aircraft is deemed to have infringed the limits for the time period if it exceeds the limit at any of the permanent monitors.

Aircraft exceeding these noise limits must pay a fine, which is transferred to the Heathrow Community Fund. All proceeds fund ocal community projects in areas affected by the airport's operations. A higher number of infringements typically occur during the nighttime reflecting the number of large, heavy, long haul aircraft which depart later according to international flight schedules or due to disruptions from their planned operational schedules. In 2017 there were 22 noise infringements (16 at night and 6 during the day), which is noticeably lower than the 36 infringements recorded in 2016.

No information on quantifiable noise benefits is available.

# INDUSTRY CODES OF PRACTICE - NOISE REDUCTION

IATA: LHR

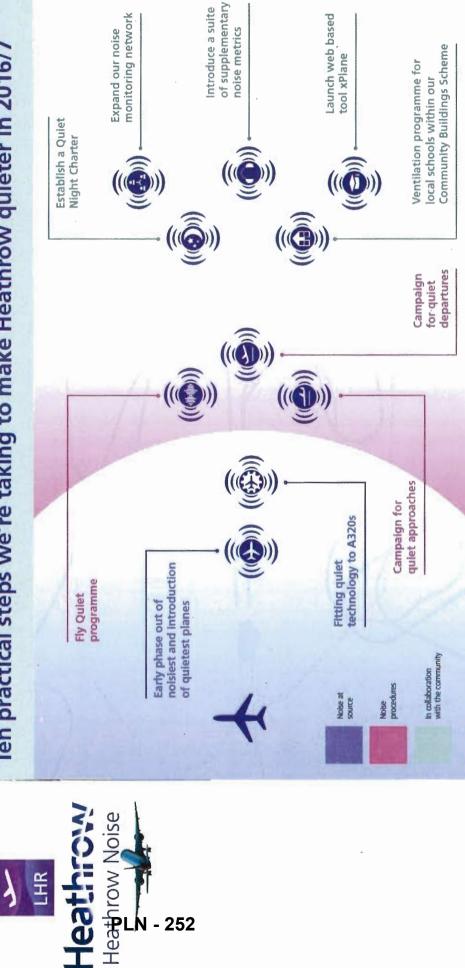
LHR

252

ICAO: EGLL

City: London Country: United Kingdom 🛜 🕟

# Ten practical steps we're taking to make Heathrow quieter in 2016/7





Source: Heathrow Airport Limited

# INDUSTRY CODES OF PRACTICE - NOISE REDUCTION

IATA: LHR

ICAO: EGLL

City: London Country: United Kingdom

Heathrow Airport Limited, the operators of LHR, are committed to air traffic control (ATC) and the ERCD of the UK CAA, voluntary codes operations during ground operations and flight arrivals and limit and where possible reduce the number of people affected by aircraft noise. As part of a group of representing the UK aviation of practice were compiled to provide guidance on operational te-niques which could reduce the environmental impacts of aircraft industry, namely aerospace manufacturers, airlines, airports (i.e. LHR), desprtures. HAL actively contributed to these codes of practice.

Electrical Ground Power (FEGP) and Preconditioned Air (PCA) instead Although these codes of practice were primarily developed for London Heathrow, Gatwick and Stansted airports, many of the techniques are including YVR. Some of the techniques include the use of Fixed CCO; CDA; LPLD; speed control; and Airport Collaborative Decision relevant and applicable to other airports in the UK and worldwide, of running aircraft APUs during block turns; reduced engine taxiing; Making (A-CDM). The codes of practice benefited from the collective experience and knowledge of all participants, to identify steps which could reduce the noise generated by arriving/departing aircraft. As a result the Codes controllers, but they also contain highly relevant advice for airport are technical documents principally written for pilots and ATC operators and aviation regulators.

LHR has identified many strategies to reduce noise - some with quantifiable noise improvements. More information can be found https://www.heathrow.com/file\_source/HeathrowNoise/ Static/Heathrow Blueprint for Noise Reduction 2.pdf





Source: Sustainable Aviation & Heathrow Airport Limited

# LUFTHANSA GROUP - NOISE REDUCTION AT FRA HUB

ICAO: EDFF IATA: FRA

City: Frankfurt Country: Germany

### Less noise. Less fuel. More comfort. The Airbus A320neo



#### 116 aircraft

The Lufthansa Group has a total of 116 aircraft of the A320neo family on order: "neo" stands for "new engine option".

**PLN - 254** 



## Aerodynamic advantages

produce enhanced aerodynamic performance. Wing tip extensions that are 2.4 meters tall

î,sl



#### engines Quieter

50% less

noise

quieter and use less fuel. engines are significantly nology ensures that the Geared turbofan tech-



#### The A320neo is over reduction 15% fuel

han current comparable 15% more fuel efficient models.

> print is only about half as arge as that of compara-At takeoff, the noise foot-

ble preceding models.



#### Reduction of noise levels

A321neo planes are fitted with noise-reducing vortex generators as standard All new A320neo and equipment.



A new, more space-efficient cabin configuration offers more seating capacity in an increased seat pitch in Business Class and Economy Class. Source: Lufthansa Group

FINAL DRAFT REPORT

# **LUFTHANSA GROUP - NOISE REDUCTION AT FRA HUB**

IATA: FRA

ICAO: EDFF

Country: Germany City: Frankfurt

> cleaner aircraft through active fleet renewal, the implementation of optimized flight procedures and the retrofitting of its existing fleet of The Lufthansa Group and its system partners have pioneered many noise prevention and reduction measures for quieter flight operations at FRA and other airports across its route network. Taking centre stage has been the Group's continual investment in modern, quieter, ai**-E**raft to reduce noise at source.

Ingrestingly, almost the entire fleet of the Lufthansa Group in active A320neo which boasts a 50% smaller noise footprint than the model it is replacing (i.e. A320-200). At the end of 2016, Lufthansa started In January 2016, Lufthansa became the launch customer for the new operating the ultra modern, quiet A350-900 which again is reported to have a 40-50% smaller noise footprint compared to the A340service meets or exceeds ICAO's stringent Chapter 4 noise standard. 300s/600s it is replacing. The Lufthansa Group has been actively retrofitting older A320s in its fleet with noise-reducing technologies through close collaboration with the German Aerospace Center (DLR) and various aircraft manufacturers. In early 2014, Lufthansa was also the first airline worldwide to start operating A320s equipped with noise-reducing all A320s in the Lufthansa fleet are equipped vortex generators which vortex generators and, thereby, setting an industry standard. Today, help to eliminate unpleasant tones on approach by up to 4dB.

To fly more quietly at FRA, the Lufthansa Group, together with its system partners, also adopt continuous rates of descent, steeper approaches (3.20), scheduled runway alternation to predictable periods of noise respite.



Source: Lufthansa Group

# NOISE MANAGEMENT PRIORITIES

ICAO: EFHK IATA: HEL

City: Helsinki

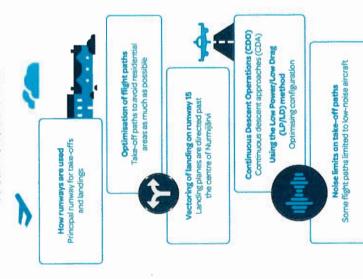
Country: Finland



#### measures in a nutshell Finavia's noise control

as few inhabitants as possible in the area. The safety and We are reducing air-traffic noise in a variety of different ways. Our goal is as little air-traffic noise as possible and fluidity of air trafficare always the priority.

### FINAVIA'S OPERATIONS





Source: Finavia

85

# NOISE MANAGEMENT PRIORITIES

IATA: HEL ICAO: EFHK



Finavia, the operators of HEL, implement a comprehensive package of noise management both in the air and on the ground.

In 2016, 21% of all landings and 30% of night-time (22:00-07:00 local) landings used the primary landing direction - i.e. Runway 2 (15). This wall lower than the previous year due to runway maintenance and retabilitation. 62% of all take-offs and 70% of night-time take-offs used the primary take-off direction - Runway 3 (22R). Only 4% of take-off were towards the south-east.

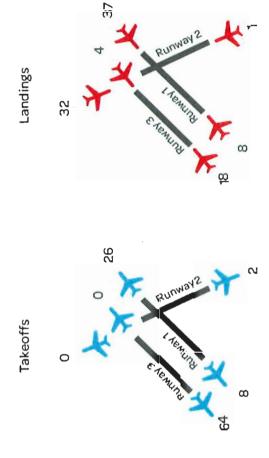
In 2017, 71% of sircraft arrivals used CDA (slightly up from 70% in 2016). Source: <a href="https://www.finavia.fi/en/about-finavia/responsibility/environment/environmental-work">https://www.finavia.fi/en/about-finavia/responsibility/environment/environmental-work</a>

Finavia has also worked closely with its airlines, particularly Finnair on the late deployment of landing gear according to safety and operational criteria.

Landing gear is typically deployed in the final approach phase and for some aircraft its deployment can also be linked to a flap setting. It significantly increases aircraft drag and airframe noise, and to maintain the flight path/descent profile increased engine power is required giving rise to increased engine noise. This could in some instances increase the noise of arriving aircraft by up to 5dB (Source:

Landing gear deployment must align with airline and manufacturer safety requirements and SOPs, which vary by aircraft type. Typically deployment must occur no later than 5nm or 1,500ft aal to safely stabilise the aircraft on approach in the landing configuration by 1,000ft.

Newer generation aircraft glide through the air with less friction, significantly reducing noise ad emissions. This benefits the communities they fly over.



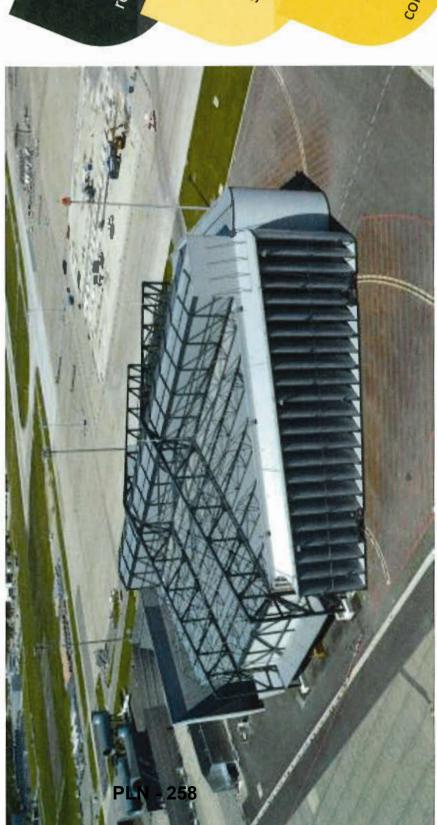
## **NOISE REDUCTION HANGAR**

IATA: ZRH

ICAO: LSZH

City: Zurich

Country: Switzerland





Source: Flughafen Zurich A.G.

## **NOISE REDUCTION HANGAR**

ICAO: LSZH IATA: ZRH

Country: Switzerland City: Zurich

> In 2014, Flughafen Zurich AG, the operators of ZRH, opened a new 'state-of-the-art', noise protection hangar to reduce the noise impacts on residents living in the surrounding municipalities from aircraft engine tests. Hangar construction was completed in 20 months and followed by a 6-week testing and training program before it was fully operational on August, 12014.

ZRH can use the hangar for engine tests. The key dimensions of the The hangar's design lets air through while reducing noise at the same tion. It can accommodate aircraft up to Boeing B747-8 size with a wing span of 68.5m. All aircraft types which are serviced regularly at hangar are as follows:

- Interior Height: 12m at the side walls to 16m in the centre
- Width: 86m
- Length: 111m long (doors closed) and 126m (doors opened)
- redirect the high-speed jet blast up at an angle of 90° without Jet Blast Deflector: 16m high and flat at the rear of the hangar to generating turbulence

The hangar's facade is cladded with high-performance sound insulation materials. Six microphones have been installed inside the hangar to measure and record noise levels during the tests.

A noise reduction of between 25-30 dB(A) was published by Flughafen projects/construction-of-new-noise-protection-hangar and the G+H Zurich and the G+H Group, respectively (Source: https://www.zurichairport.com/the-company/zurich-airport-ag/completed-construction-Group).



Source: Flughafen Zurich A.G.

types

Saircraft. noise

categories

Extra charges

levied at

night-time

Source: Flughafen Zurich A.G.

Immat



## DIFFERENTIAL NOISE CHARGES

IATA: ZRH ICAO: LSZH

City: Zurich Country: Switzerland

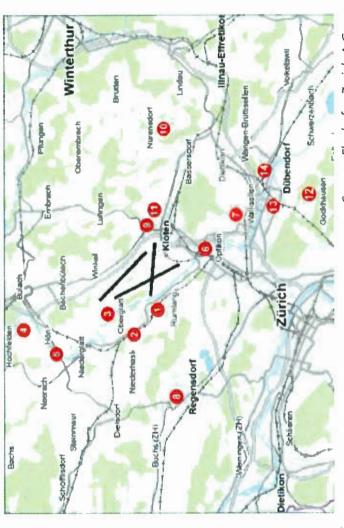
Differential noise charges are levied on all aircraft types operating at ZRH. Every aircraft is classified in one of five noise categories based on average peak noise values during take-off, as measured at the noise monitoring stations at and around the airport.

Note class I comprises the noisiest and noise class V the least noisy air aft types. The noise charge increases with each noise class and ranges in the daytime per landing from CHF 0 (noise class V) to CHF 2, \$\frac{1}{2}\$0.00 (noise class I). During the night between 22:00-06:00 local additional night-time noise charges are levied, which increase in half-hourly increments. Since 2013, flights between 06:00-07:00 local and 21:00-22:00 local have also had to pay a noise charge supplement. The aim is to ensure that as few noisy flight movements as possible occur in the sensitive shoulder hours and during the night.

All revenue from noise charges is credited to the Airport of Zurich Noise Fund (AZNF) and is used only for specific purposes, i.e. for costs relating to aircraft noise.

The charging regime is designed to incentivize airlines to operate their newest, quietest aircraft. In doing so, communities around the airport benefit from less noise exposure on an individual aircraft overflight hasis

The current noise charges regime are valid from September 1, 2016.



Source: Flughafen Zurich A.G.

Source: www.zurich-airport.com/business-and-partners/flight-operations/charges



FINAL DRAFT REPORT



Airbiz Aviation Strategies, Ltd. #250 – 1820 Fir Street Vancouver, BC V6J 3B1 Canada

# Summary of Work Against Initiatives in the 2014-2018 YVR Noise Management Plan

No.	Issue	Objective	Initiative/Action	Summary and Highlights of Completed Actions
D	and like	Build on existing collaborative partnership and work with local municipalities on land use planning to minimize the level of aircraft noise, nuisances and disturbances for those living in the vicinity of the airport.	Review the 2015 YVR Noise Exposure Forecast Contours  The 2015 Noise Exposure Forecast planning contours, created in 1994, were meant to provide guidance to municipalities on land use planning efforts. To account for future growth in air traffic and changes in aircraft fleet mix, the Airport Authority will review the existing 2015 Noise Exposure Forecast contour to assess future noise exposure and provide information to municipalities to help with long term land use planning decisions. Following this review, relevant noise mitigation measures and documents (e.g., brochures, policies, bylaws covenants, noise mitigation standards) will be updated as required.	<ul> <li>Review of 2015 Noise Exposure Forecast (NEF) Contours was completed as part of YVR 2037 Master Plan process.</li> <li>Review concluded that the current 2015 NEF contour provides sufficient protection for future traffic growth and potential airfield expansion; as a result, the 2015 NEF contour was retained as the airport's long-term planning contour and was included in the Master Plan documents.</li> <li>Methodology and results of the review were shared with the YVR Noise Management Committee and City of Richmond policy planning staff.</li> </ul>
⊣ IN 262	planning	Maintain and enhance safe aircraft operations, while minimizing aircraft noise exposure, and consider desires to maximize building heights.	Review of existing YVR Aeronautical Zoning Regulations The heights of buildings and obstacles in close vicinity to the airport are governed by the YVR Aeronautical Zoning Regulations, which set maximum building heights to ensure safe aircraft operations. The Airport Authority will conduct a review of the Zoning Regulations to seek protection for runway options identified in the YVR Master Plan, and to protect existing runways given increased zoning requirements. As part of this review, the Airport Authority will also consult with the City of Richmond and other stakeholders to explore maximizing City Centre viability by possible increases in building height around City Hall to improve sustainability, social, economic and environmental benefit.	<ul> <li>The project to create new Airport Zoning Regulations is ongoing.</li> </ul>
,	Awareness -	Better inform the public about aircraft operations, flight paths, and noise management measures to enable a	Improve online media tools to enhance communication with  2.1 the public of noise management information and program efforts.	<ul> <li>Noise management factsheets were translated in both French and simplified Chinese and made available online.</li> <li>Completed a review of noise management information on the YVR website and updated information and materials where required.</li> </ul>
,	Community	greater understaining of the implications of aircraft noise and airport operations, and to match public expectations with experience.	Explore and implement better methods of communicating with the public regarding aircraft noise and over-flight impacts, such as respite charts, N70 (number of events over 70 dBA) Contours, and flight path density maps.	<ul> <li>To support the YVR 2037 Master Plan process, Number of Event (N70) contours and flight path maps were created to help communicate the possible changes in air traffic levels to accommodate forecasted growth.</li> </ul>

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No.	Issue	Objective	Initiative/Action	Summary and Highlights of Completed Actions
	8	'		<ul> <li>This materiol was used in information session and online materials far the YVR 2037 Master Plan and was also included in the 2016 annuol noise management report.</li> </ul>
		'	Track, report, and profile progress and trends towards the use of quieter aircraft at YVR and provide this information in the annual noise report.	<ul> <li>Completed and ongoing.</li> <li>The breakdown of jet aircraft daytime and nighttime movements by noise certification is included in the noise management annual reports.</li> </ul>
			Provide better information to the public on airport operations and aircraft noise management efforts to help educate new homebuyers and provide existing homeowners with suggestions on how to sound insulate older homes.	<ul> <li>Completed.</li> <li>Home Buyer &amp; Owner Guide was created to provide infarmation on airport and aircraft operations and recommendations for sound insulation.</li> <li>The guide is available on the YVR website and hardcopies are available upon request.</li> </ul>
			Develop a training module on noise management for flight schools to raise awareness of noise issues within the aviation community.	<ul> <li>It was decided not to undertake this initiotive.</li> <li>The objective of this initiative was to create materials to increase awareness and promote good noise management practices amongst aircraft operators at VVR. This objective has been achieved by presenting at the annual YVR Chief Pilots Meeting and awarding the YVR Fly Quiet Awards to recognize airline performance.</li> </ul>
		Engage with aviation stakeholders to	Host regular meetings with Transport Canada to discuss roles and responsibilities, and exchange information on noise management opportunities.	Ongoing dialogue with Transport Canada accurs and will continue.
m	Awareness – Industry	improve noise management activities and discussions about aircraft noise	3.3 Host regular meetings with NAV CANADA to dialogue and exchange information on noise management opportunities.	<ul> <li>Ongoing dialogue with NAV CANADA occurs and will continue.</li> </ul>
		management.	Host regular meetings with other major airports in Canada to dialogue and exchange information on noise management opportunities, and to coordinate responses and positions to national issues.	<ul> <li>Completed and ongoing.</li> <li>A new Noise &amp; Communications Working Group was formed under the Canodian Airports Council (CAC), and meetings are hosted regularly to share noise management practices and information and to discuss issues on a national level.</li> <li>While participation on the Working Group is open to any CAC member airport, the core active participants include staff from Vancouver, Calgary, Toronto, Montreal, and Hamilton.</li> <li>Mark Cheng (YVR) serves as the current chair of this Working Group and Anne Marcotte (YUI) serves as co-chair.</li> </ul>

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	Control of the Contro				
No.	Issue	Objective	Initiat	Initiative/Action	Summary and Highlights of Completed Actions
			3.5	Review the YVR Fly Quiet Award and explore possible opportunities for further recognition and engagement of the aviation community.	<ul> <li>Airport Authority explored options to introduce floatplane and helicopter categories in the YVR Flight Quiet Awards; however, this was not pursued due to the low number of float plane and helicopter operators at YVR, the challenges of capturing good noise monitoring data required for the analysis, and the high variability of the flight tracks associated with these operations.</li> </ul>
	Night-time	Monitor and report on the number of	4.1	Ongoing review of approval guidelines for night-time operations.	Completed and ongoing.
4	Operation	night operations.	4.2	Report annually on the number of night operations by aircraft noise certification.	<ul> <li>Completed and ongoing. Information provided in the annual noise management report.</li> </ul>
DIN 2			4.3	Review and create a summary report on the nature of marginally compliant Chapter 3 aircraft operations at YVR.	<ul> <li>This initiative is no longer relevant as the number of marginally compliant Chapter 3 aircraft operating at YVR (i.e. the Boeing 8737-200 and the Boeing 727) has decreased significantly over the past four years at YVR.</li> <li>In 2014, there were a total of 2,028 operations of the Boeing 727 and 737-200 aircraft at YVR, which accounted for 1.4% of all jet aircraft operations during that year.</li> <li>In 2017, this number decreased to a total of 76 operations at YVR, which accounted for 0.05% of all jet aircraft operations that year.</li> </ul>
S E	YVR ANMC	Ensure that the YVR ANMC remains relevant and functional.	5.1	Update the Terms of Reference for the YVR ANMC and review membership, expectations, scope, objectives, etc.	<ul> <li>Review underway. Will be completed before end of this year.</li> </ul>
ى	Run-ups	Further manage noise from engine runups.	6.1	Review existing engine run-ups procedures and directives with a focus on optimizing noise reduction opportunities at all non-GRE run-up locations.	<ul> <li>A review of run-up operations occurring outside the GRE facility was completed to identify further procedural or operational controls to mitigate noise.</li> <li>The review concluded that the existing procedures used to manage run-ups provides the best possible noise reduction based on the current aircraft types being maintained at YVR.</li> <li>The review recommended regular monitoring of the types of run-ups and consider additional remedies if the nature and trends of maintenance activities change in the future (e.g. new aircraft types or changes/additions to the approved run-up locations).</li> <li>This recommendation has been carried into the 2019-2023 YVR</li> </ul>
^	Performance Based	Better understand the potential impacts associated with PBN procedures, and	7.1	Support and participate in national discussions on PBN arrival and departure procedures through the Canadian Airports	<ul> <li>Canadian Airports Council assigned a representative, James Hall from Kelowna Airport, to this group.</li> </ul>

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No.	Issue	Objective	Initiati	Initiative/Action	Summary and Highlights of Completed Actions
	(PBN)	ensure that noise emissions and capacity impacts of PBN are considered during implementation.		Council, and in conjunction with the Transport Canada PBN Working Group (soon to become the Canadian Performance Based Aviation Action Team).	
			7.2	Provide assistance with the evaluation of noise associated with PBN procedures, and assist with the review of altitudes when turns can be commenced, degree of turns, aircraft destination, RNAV departure routes or vectors, aircraft altitude over residential communities, etc.	<ul> <li>Input provided during the development of the Required Navigation Performance (RNP) arrival procedure for runway 08L.</li> </ul>
			7.3	Undertake a study to determine and better understand potential flight routings associated with PBN arrival and departure procedures.	<ul> <li>Not completed, as only one PBN procedure was published for YVR between 2014-2018.</li> </ul>
			7.4	Ensure community is advised before any changes to flight paths are implemented.	<ul> <li>The Airspace Change Communications and Consultation Protocol (ACCCP) was developed in 2015 jointly by Canadian airports and NAV CANADA to address communication and consultation requirements for changes to airspace procedures. YR contributed to the development of the ACCCP by working with other airports through the Canadian Airports Council.</li> <li>During the time period 2014-2018, only one RNP arrival procedure was introduced at YVR. This procedure was for Runway 08L arrivals and was published in October 2015. Prior to the implementation, the Airport Authority worked collaboratively with NAV CANADA to communicate the change per provisions outlined in the ACCCP. Information was made available online by YVR and NAV CANADA, and a briefing was provided to the YVR Noise Management Committee.</li> </ul>
	YVR Float	Further manage noise impacts from YVR	8.1	Continue ongoing dialogue and work with YVR float plane operators to assess ways to further manage noise.	<ul> <li>Ongoing participation on the YVR Noise Management Committee by the Floatplane Operators Association is appreciated.</li> </ul>
<b>x</b> 0	Plane Operations	float plane operations.	8.2	Review current float plane operating procedures and routes and identify opportunities if any to mitigate noise.	<ul> <li>Ongoing review of float plane operations completed.</li> </ul>
	Noise		9.1	Undertake annual review of published Noise Abatement Procedures for YVR with the aim of ensuring clarity and continual improvement.	<ul> <li>Annual reviews of the published Noise Abatement Procedures were completed.</li> </ul>
6	Abatement Procedures	Ensure procedures to manage noise remain relevant and current.	9.2	Undertake a gap analysis of the YVR Aeronautical Noise Management Program by comparing to other airports of similar size to identify opportunities for improvement in core program elements.	<ul> <li>Completed the AIRBIZ report in 2018 to support the creation of the 2019-2023 YVR Noise Management Plan.</li> </ul>

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No. Issue	e	Objective	Initiative/Action	kction	Summary and Highlights of Completed Actions
Man	Managing	Ensure runway system at YVR is used effectively to reduce delays while	10.1 Qua	Quantify current level of delays at YVR and associated costs.	<ul> <li>This initiative is deferred to the 2019-2023 YVR Noise Management Plan.</li> </ul>
TO KUN	unway	managing noise impacts on the	10.2 Asse	ssess airside capacity and determine optimal use of runway	<ul> <li>This initiative is deferred to the 2019-2023 YVR Noise</li> </ul>
	3	community.	.	system.	Management Plan.

# DRAFT 2019-2023 YVR Noise Management Plan Initiatives

No.	Work Focus	Objective	Initiative / Action	/ Action
			1.1	Identify and implement new online web tools to enhance information sharing and analytical capabilities to better inform the community about aeronautical noise and aircraft operations.
			1.2	Report the results of noise monitoring, aircraft operations, complaints statistics, and progress on noise management initiatives in the annual noise report.
		Inform the community	1.3	Track the trend of the use of quieter aircraft designs at YVR and provide updates in the annual noise report.
-	Awareness - Community	about aircraft / airport operations and noise management efforts.	1.4	Review noise management information on the YVR website to ensure information is upto-date and relevant. Where possible, look to convert materials to other forms of media to increase accessibility of information.
			1.5	Engage Musqueam Indian Band to provide information and enhance knowledge of airport and aircraft operations.
			1.6	Track and provide educational information on emerging trends in aircraft and navigation technologies.
			1.7	Include information on annual traffic forecasts and growth in the annual noise report to provide clear expectations to the community.
			2.1	Participate in discussions with other major airports in Canada to share and exchange information on emerging trends and noise management strategies, and to coordinate
		Engage with aviation		responses and positions on national issues.
2	Awareness – Industry	stakeholders on noise management activities at	2.2	Host regular meetings with NAV CANADA to discuss and exchange information on noise management strategies.
			2.3	Acknowledge airline partners that demonstrate good noise management practices by presenting the YVR Fly Quiet Awards annually and explore opportunities for further recognition and engagement.

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Š.	Work Focus	Objective	Initiative / Action	/ Action
			3.1	Perform an annual review of the Airport Authority's guidelines for approving operations at night to ensure the guidelines remain relevant.
ď	Night-time	Monitor and report on the	3.2	Report on the number of night operations by aircraft noise certification in annual noise reports.
<b>)</b>	Operation	operations.	3.3	Monitor compliance with the night-time approval requirement and report suspected violations to Transport Canada.
			3.4	Assess and communicate the benefits and economic contribution of 24-hour operations.
3	YVR Aeronautical Noise	Ensure that the YVR	4.1	Review the YVR ANMC Terms of Reference for membership, expectations, scope, objectives, etc. Host at least three meetings in a year and consult members on emerging issues
•	Management Committee (ANMC)	and functional.	4.2	Develop customized reports for ANMC city staff and citizen representatives to support their role on the Committee
5	Aircraft Noise Monitoring & Flight Tracking	Ensure functional and reliable collection of noise	5.1	Assess the current network for Noise Monitoring Terminals (NMTs) and determine locations in the City of Delta, Musqueam, and other areas Metro Vancouver area where new NMTs could be located to capture noise data related to current and future operations.
	System (ANOMS)	and operations data.	5.2	Prepare a multi-year system plan for ANOMS to schedule hardware replacement and software enhancements.
9	Temporary Noise Monitoring	Deploy the portable NMT to capture objective data on noise exposure.	6.1	Identify potential locations for temporary noise monitoring, deploy the portable Noise Monitoring Terminal, and make available a summary of results.
			7.1	Undertake an annual review of the Engine Run-up Directives and Procedures with a focus on optimizing noise reduction opportunities at all run-up locations.
7	Run-ups	Further manage noise from engine run-ups.	7.2	Report the number of run-ups by hour, location, and power setting in the annual noise report.
			7.3	Provide new operators at YVR with information on engine run-up procedures and directives.

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No.	Work Focus	Objective	Initiative / Action	/ Action
				Assist with evaluating community and noise impacts associated with the introduction of
			8.1	new flight paths and procedures, and ensure that noise and emissions reductions and
	Performance	•		capacity impacts are considered during design.
	Based	Identify opportunities for		During the design phase of creating new procedures, provide baseline information on
	Navigation	noise mitigation during	8.2	current aircraft activity levels over the community to assist with identifying mitigation
α	(PBN)	the development of new		options to lessen current impacts where feasible.
	Procedures/	flight paths or procedures	0	Support the development and introduction of PBN procedures at YVR by providing
	Flight Path	where feasible.	g.5	resources, information, and data to assist in the design process.
	Changes			Collaborate with aviation partners to ensure community is engaged and advised before any
			8.4	changes to flight paths are implemented as outlined in the Airspace Change
				Communication & Consultation Protocol.
	Noise	Ensure procedures to		Perform an appual review of the published Noise Abatement Procedures for YVR with the
6	Abatement	manage noise remain	9.1	aim of ensuring clarity and continual improvement.
	Procedures	relevant and current.		
		Ensure runway system at	101	Work to quantify current level of delays at YVR and costs associated with various aspects
		WR is used effectively to		of operations, including noise restrictions.
		reduce delays while		Support efforts to assess airside capacity and determine optimal use of the runway system
		managing noise impacts	10.2	at YVR, and assist with the assessment of short, medium, and long term capacity
10	Managing	on the community.		enhancement strategies.
	Capacity	Develop analytics and		
		identify data requirements		Identify evaluation criteria, metrics, and analysis requirements to assess future noise
		to evaluate impacts of	10.3	impacts associated with potential new runways and airfield infrastructure and work
		future runways.		collaboratively with Cities and stakeholders to ensure required data is collected.
	YVR Float	Further manage noise		
1	Plane	associated with YVR float	11.1	Continue ongoing dialogue and work with YVR float plane operators to assess ways to
	Operations	plane operations.		Turtner manage noise.
		Promote compatible land	12.1	Work with adjacent communities to promote the adoption of compatible land use and
		use planning in the vicinity		design standards that refrect an port operations and prairs.
ç	Land Use	of the airport.	12.2	Provide comment and input into community plans, rezoning, and development applications where and when applicable.
7	Planning	Minimize noise from		
		future airport	12.3	As part of the process for development on airport property, assess the use of berms,
		developments on Sea	)	barriers, and landscaping as ways to minimize noise from airport ground based activities.
		Island		

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