City of Richmond

Agenda

General Purposes Committee

Anderson Room, City Hall
6911 No. 3 Road

Tuesday, September 6, 2016
Immediately following the recessed Special (Closed) Council meeting

Pg. # ITEM

MINUTES

GP-5 ***Motion to adopt the minutes of the meeting of the General Purposes Committee held on July 18, 2016.***

COMMUNITY SERVICES DIVISION

1. **EXHIBITIONS FOR LOCAL ARTISTS AT RICHMOND ART GALLERY**
(File Ref. No. 11-7142-01) (REDMS No. 5060950 v.2)

GP-17 See Page **GP-17** for full report

Designated Speaker: Liesl Jauk

STAFF RECOMMENDATION

That the staff report titled, "Exhibitions for Local Artists at the Richmond Art Gallery" dated August 10, 2016, from the Director, Arts, Culture and Heritage Services be received for information.

ENGINEERING AND PUBLIC WORKS DIVISION

2. **VANCOUVER AIRPORT FUEL DELIVERY PROJECT - OIL AND GAS COMMISSION PERMIT**
(File Ref. No. 10-6060-01) (REDMS No. 5106377)

GP-24 See Page **GP-24** for full report

Designated Speaker: Lloyd Bie

STAFF RECOMMENDATION

That the staff report titled "Vancouver Airport Fuel Delivery Project - Oil and Gas Commission Permit," dated August 30, 2016, from the Director, Engineering, which includes comments regarding the Vancouver Airport Fuel Facilities Corporation's application for the BC Oil and Gas Commission permit for the Vancouver Airport Fuel Delivery project, be endorsed for submission to the BC Oil and Gas Commission.

3. **VANCOUVER AIRPORT FUEL DELIVERY PROJECT - ENVIRONMENTAL ASSESSMENT CERTIFICATE AMENDMENT UPDATE**
(File Ref. No. 10-6060-01) (REDMS No. 5153808)

GP-46 See Page **GP-46** for full report

Designated Speaker: Lloyd Bie

STAFF RECOMMENDATION

That the comments regarding the Vancouver Airport Fuel Facility Corporation's application for amendment to the approved Vancouver Airport Fuel Delivery Project's Environmental Assessment Certificate identified in the staff report titled "Vancouver Airport Fuel Delivery Project - Environmental Assessment Certificate Amendment Update" dated August 30, 2016, from the Director, Engineering, be endorsed for submission to the BC Environmental Assessment Office.

4. **GEORGE MASSEY TUNNEL REPLACEMENT PROJECT – APPLICATION COMMENTS FOR THE BRITISH COLUMBIA ENVIRONMENTAL ASSESSMENT PROCESS**
(File Ref. No. 01-0150-20-THIG1) (REDMS No. 5120847 v. 3)

GP-75 See Page **GP-75** for full report

Designated Speaker: Victor Wei

STAFF RECOMMENDATION

That the City's comments on the Provincial Environment Assessment Application for the George Massey Tunnel Replacement Project for the first round of the 30-day Working Group review period, as outlined in Attachment 1 of the staff report, titled "George Massey Tunnel Replacement Project - Application Comments for the British Columbia Environmental Assessment Process" dated August 26, 2016, be conveyed to the BC Environmental Assessment Office for consideration and response.

FINANCE AND CORPORATE SERVICES DIVISION

5. **REQUEST FOR APPROVAL PEOPLESOFT HCM 9.2 UPGRADE CONSULTING SERVICES**
(File Ref. No. 04-1300-01) (REDMS No. 4998945 v. 18)

GP-114 See Page **GP-114** for full report

Designated Speaker: Grant Fengstad

STAFF RECOMMENDATION

(1) That the PeopleSoft HCM 9.2 Upgrade consulting services contract, as detailed in the staff report titled "Request for Approval PeopleSoft HCM 9.2 Upgrade Consulting Services" from the Director of Information Technology dated August 12, 2016, be awarded to Blackstone Consulting Group Inc; and

(2) That the Chief Administrative Officer and the General Manager, Finance and Corporate Services be authorized to negotiate and execute the consulting services contract with Blackstone Consulting Group Inc.

Pg. # ITEM

ADJOURNMENT

City of Richmond

Minutes

General Purposes Committee

Date: Monday, July 18, 2016

Place: Anderson Room
Richmond City Hall

Present: Mayor Malcolm D. Brodie, Chair
Councillor Chak Au
Councillor Derek Dang
Councillor Carol Day
Councillor Ken Johnston
Councillor Alexa Loo
Councillor Bill McNulty
Councillor Linda McPhail
Councillor Harold Steves

Call to Order: The Chair called the meeting to order at 4:00 p.m.

AGENDA

The Chair advised that the order of the agenda would be varied to consider Item No. 2 last.

MINUTES

It was moved and seconded
That the minutes of the meeting of the General Purposes Committee held on July 4, 2016, be adopted as circulated.

CARRIED

DELEGATIONS

1. Tracy Lakeman, CEO, Tourism Richmond and Eda Koot, Chair, Tourism Richmond provided an update and overview regarding 2015 and 2016 Tourism Richmond accomplishments and highlights in the 2015 Annual report and offered the following additional comments:

   - there was a continued trend of high hotel occupancy rate in Richmond in 2015 (78.5%) and year to date in 2016 (75.6%);
   - two major research projects were completed in 2015, including conducting visitor surveys throughout the year in high-traffic visitor locations that will continue to guide Tourism Richmond priorities;
   - in 2016 there is continued promotion of the Tourism Richmond brand, Far East meets West Coast, and the launch of a new website;
   - there are new campaigns to be launched in 2016 in continuation of the 365 Days of Dining campaign, including a dumpling campaign and a destination campaign planned for the fall; and
   - Tourism Richmond will be submitting a full application with Destination Marketing Association International (DMAI) for Destination Marketing Accreditation Program (DMAP) accreditation renewal this year.

FINANCE AND CORPORATE SERVICES DIVISION

2. **COUNCIL POLICIES ON PROVINCIALLY REGULATED LIQUOR ESTABLISHMENTS**
(File Ref. No.) (REDMS No. 4831881 v. 15)

Please see page 9 of these minutes for action on this item.

3. **APPLICATION TO AMEND FOOD-PRIMARY LIQUOR LICENCE - THE PARKS AND PEOPLE HOLDINGS LTD. DOING BUSINESS AS COCORU, UNIT 2140-8391 ALEXANDRA RD.**
(File Ref. No. 12-8275-30-001) (REDMS No. 5055970)

In response to a question from Committee, Carli Edwards, Manager, Customer Services and Licencing, commented that any complaints received regarding a business are investigated and if there are any concerns, there are a number of ways to address issues, including suspension of the business licence and adjusting liquor service hours back to the original liquor licence times.

It was moved and seconded

That the application from The Parks and People Holdings Ltd., doing business as, Cocoru, for an amendment to increase their hours of liquor service under Food Primary Liquor Licence No. 306690 from 9:00 a.m. to midnight Monday to Sunday to 9:00 a.m. to 2:00 a.m. Monday to Sunday, be supported and that a letter be sent to the Liquor Control and Licensing Branch advising that:

(1) Council supports the amendment for an increase in liquor service hours as the increase will not have a significant impact on the community;

(2) Council's comments on the prescribed criteria (set out in Section 53 of the Liquor Control and Licensing Regulations) are as follows:

(a) The potential for additional noise and traffic in the area was considered;

(b) The impact on the community was assessed through a community consultation process; and

(c) Given that there has been no history of non-compliance with the operation, the amendment to permit extended hours of liquor service under the Food Primary Liquor Licence should not change the establishment such that it is operated contrary to its primary purpose;

(3) As the operation of a licenced establishment may affect nearby residents the City gathered the view of the residents as follows:

(a) Property owners and businesses within a 50 meter radius of the subject property were contacted by letter detailing the application, providing instructions on how community comments or concerns could be submitted; and

(b) Signage was posted at the subject property and three public notices were published in a local newspaper. This signage and notice provided information on the application and instructions on how community comments or concerns could be submitted; and

(4) Council's comments and recommendations respecting the view of the residents are as follows:

(a) That based on the number of letters sent and the lack of response received from all public notifications, Council considers that the amendment is acceptable to the majority of the residents in the area and the community.

CARRIED

COMMUNITY SERVICES DIVISION

4. **GARDEN CITY LANDS PARK DEVELOPMENT PLAN**
(File Ref. No. 06-2345-20-GCIT1) (REDMS No. 5061956; 5071741; 5071878)

Mike Redpath, Senior Manager, Parks, Jamie Esko, Manager, Park Planning-Design/Construction and Kevin Connery, Research Planner 2, with the aid of presentation boards depicting information included in the staff report and attachments, provided an update to the Garden City Lands site investigations, design process and consultation process and offered the following additional comments:

- the Garden City Lands development plan report is a brief overview of the proposed development plan that is consistent with the 2015-2016 Capital Development Program which proposes the phased implementation of amenities, including an exterior 3.2 kilometer trail around the perimeter, installation of the water management infrastructure and active community farming on site;
- since the Garden City Lands legacy landscape plan was endorsed in 2014, staff have been working in several different ways to address the challenges of designing the site where the main challenge is to balance protecting and enhancing the bog while enabling agriculture and community uses on the site;
- in 2015 hydrological monitoring began to survey water levels on the site and this will continue as construction of the park moves forward;
- in September 2015 the water and ecological resource management strategy was commissioned to further study site conditions and the implications of the changes that are proposed;
- the consultant team on the water and ecological resource management strategy included bog specialists, hydrological engineers, civil engineers and ecological experts to address the site conditions and the proposed plan;
- the water and ecological resource management strategy started with a site assessment, hydrological investigation and agricultural assessment of the soils and drainage requirements, the results were these key findings and used in the development of the park development plan;
- in February 2016, the services of a design consultant team, including landscape architects, hydrological engineers, ecologists, agricultural specialists and bog specialists, were retained to do site design based on the water and ecological resource management strategy findings and the original landscape legacy plan;

- design team did some detailed design studies and prepared options for consideration at public consultation and the result was the park development plan;
- representatives from nine stakeholder groups went through the findings and their implications;
- two public open houses were held where details of the potential development plan were available and staff generally received support for the proposal;
- staff have continued to consult with the Advisory Committee on the Environment, the Agricultural Advisory Committee and the Agricultural Land Commission to ensure in compliance with policies and regulations in Agricultural Land Reserve;
- park development plan still respects the principles of the legacy plan, one difference, however, is the proposed middle barrier, a central dike, recommended in order to separate the bog and area of the field;
- staff are still in the refining stage of the dike, working with engineering staff and consultants to determine the best location and materials to be utilized;
- the orchard area and perimeter edges will be lined with a native forest to add further design to the site and ecological merit;
- the trail systems will include a number of different trails universally accessible for the public;
- Phase 1 of the park development plan includes the perimeter trail system, including separate bike and pedestrian trails, the central dike and prepping five acres of property for farming and some water infrastructure will be phased in as the Project unfolds and is required; and
- staff are committed to an ongoing monitoring program to learn about agricultural operations and water systems.

In response to questions from Committee, Mr. Redpath commented that the 2014 endorsed legacy landscape plan was for guiding the purposes of the property and provided a range of potential activities and programming for the site including how residents could enjoy the space once development is completed.

In response to a question from Committee, Mr. Connery noted that the proposed barrier of the dike in the development plan will be one of the pioneering explorations of this work and there are no other similar circumstances or environments like it in Richmond. Mr. Connery added that the installation of the barrier would be continually monitored and the findings of its development shared.

In response to queries from Committee, Mr. Redpath stated that (i) staff are looking into utilizing accessible crushed gravel for the trail system, (ii) Kwantlen Polytechnic University is working with the City to develop land designated for farming purposes, (iii) the proposed native forest would contain plants and trees, including fruit bearing trees, consistent with native species within the Agricultural Land Reserve and (iv) $4.4 million of the original budget remains with funds spent getting to this stage of development.

It was moved and seconded

That the Garden City Lands Park Development Plan, provided as Attachments 1 through 9 and as detailed in the staff report titled "Garden City Lands Park Development Plan," dated June 30, 2016, from the Senior Manager, Parks, be received for information.

The question on the motion was not called discussion ensued regarding (i) the sourcing of native plant and tree species, (ii) the restoration strategy for the bog and (iii) the suitability of the soil for agricultural practices.

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

PLANNING AND DEVELOPMENT DIVISION

5. **GEORGE MASSEY TUNNEL REPLACEMENT PROJECT – APPLICATION TO AGRICULTURAL LAND COMMISSION ON HIGHWAY 99 WIDENING FOR TRANSPORTATION, UTILITY AND RECREATIONAL TRAIL USE**

(File Ref. No. 01-0150-20-THIG1) (REDMS No. 5057276 v. 4)

The Chair referred to the staff memorandum dated July 15, 2016 from the Director, Transportation (copy on file, City Clerk's Office), that includes a suggested amendment to part 3 of the staff recommendation, as outlined in the staff report.

In response to questions from Committee, Victor Wei, Director, Transportation stated that (i) the Ministry of Transportation and Infrastructure (the Ministry) has not included any design drawings of moving the telecommunication tower that is at the corner of Sidaway Road and Steveston Highway but would be able to build within the existing highway area, (ii) staff assessed the validity of the traffic statements in the application that 59% of traffic from Highway 99 is coming into Richmond and that research completed approximately 10 years ago shows about a 50-50 split between Richmond and Vancouver, which is comparable to the research included in the application, (iii) staff have questioned Ministry staff about using blue tooth technology as a way of tracking and have not received any information back to confirm the numbers, (iv) staff would prefer to leave respective property owners with land in the proposed widening zone to negotiate with the Ministry directly and that so far property owners have not expressed concerns over the loss of land and (v) staff believe that claims of a net gain in land in the application are vague as the measurements that the application is proposing are very high level with no information of how it will be obtained as the commitment would be dependent on a third party.

Mr. Wei, with the aid of two maps, as provided in Attachment 5 of the staff report, noted that the reclaimed lands outlined on the map in the blue area represent what will be taken away for the highway expansion and the pink area is the reclaimed land that will be given back from current highway use. Mr. Wei added that the Ministry will let property owners adjacent to the open land lease it. He further noted that the some of the application's claims would rely on City involvement in order to deliver and staff recommend that the application not be approved until questions have been sufficiently answered.

Discussion ensued with regard to (i) the future capabilities and quality of the reclaimed land proposed by the Ministry application, (ii) the proposed acquisition the City land comprising the Gardens Agricultural Park and (iii) consultations with the property owners in the proposed reclaimed land areas.

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

It was moved and seconded
That a letter be sent to the Provincial Agricultural Land Commission:

(1) Requesting that the following further detailed information, as outlined in the attached report, be provided by the Ministry of Transportation and Infrastructure regarding its application for Transportation, Utility and Recreational Trail Use along the Highway 99 corridor to allow for the widening of Highway 99 as part of the George Massey Tunnel Replacement Project:

(a) Substantiate the claims of transportation benefits and specify how Rice Mill Road could become a farm route alternative to Steveston Highway without assuming any improvement costs to be borne by the municipality;

(b) Demonstrate how the Project will maintain, protect and enhance the City's riparian management areas and environmentally sensitive areas on both sides of Highway 99 through a net gain approach;

(c) Clarify how topsoil conservation will be undertaken;

(d) Ensure that the highway right-of-way identified for potential return to agricultural use will be farmed upon completion of the Project;

(e) Clarify how the Project will improve the highway right-of-way identified for potential return to agricultural use;

(f) Conduct a soils analysis study to better document and assess the soil capability of the parcels required for the Project and the highway right-of-way identified for potential return to agricultural use; and

(g) Validate that the highway right-of-way identified for potential return to agricultural use will be improved to a soil capability class equal to or better than that of the parcels required for the Project to ensure a net gain in soil quality, not just total area;

(2) Expressing the following concerns regarding the proposed acquisition of a parcel of the City land comprising the Gardens Agricultural Park:

(a) Reduction in the overall size of the park by 17.8 percent;

(b) Reduction in the size of the park elements of the community gardens, agricultural demonstration gardens, and parking lot by 50 percent;

(c) Impact on the approved park design such that a new park design process must be undertaken including public consultation; and

(d) Additional costs and resources required to undertake the park design process; and

(3) Expressing concern that the Province is taking farm land from the west side of Highway 99 as opposed to the east side, as property on the west side of Highway 99 is dedicated to farming purposes pursuant to agreements between the City of Richmond and third parties in the Agricultural Land Reserve; and

(4) Requesting that the approval of the application not be granted until the above information is submitted for further review and the above issues are considered by the Agricultural Land Commission and the City of Richmond, as well as other relevant stakeholders such as the Agricultural Advisory Committee, to be satisfactorily addressed.

The question on the motion was not called as the following **amendment motion** was introduced:

It was moved and seconded

That Part (1)(d) be removed from the main motion.

The question on the amendment motion was not called as discussion ensued with regards to removing the reference to farming the returned land upon completion of the Project.

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

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

FINANCE AND CORPORATE SERVICES DIVISION

2. **COUNCIL POLICIES ON PROVINCIALLY REGULATED LIQUOR ESTABLISHMENTS**
(File Ref. No.) (REDMS No. 4831881 v. 15)

In accordance with Section 100 of the *Community Charter*, Councillor McPhail declared to be in a conflict of interest as her husband has an interest in a beer and wine store in Richmond, she then left the meeting (5:28 p.m.) and did not return.

Carli Edwards, Manager, Customer Services and Licencing referenced the staff memorandum dated July 18, 2016 from the Director, Administration and Compliance (copy on file, City Clerk's Office), that includes a suggested amendment to part 3 of the staff recommendation and a revised Zoning Bylaw 8500, Amendment Bylaw 9591 to include a definition for "Grocery store" in addition to the bylaw amendments presented in the staff report. Ms. Edwards reviewed current Council policies on Provincially regulated liquor establishments and the new Provincial regulations as detailed in the staff report and memorandum from July 18, 2016, and included the following additional comments:

- the staff memorandum amends part 3 of the staff recommendation by adding the definition of "Grocery store" to the proposed Richmond Zoning Bylaw 8500, Amendment Bylaw 9591 and provides a matrix that outlines which policies currently exist, the new Provincial regulations and what new City policies are being proposed;
- City policy in context of the report, is referencing policies related to liquor and wine store sales, there are no substantive changes to bar or restaurant establishments or to the City approval process;
- the changes in the staff report deal only with retail sale of liquor and wine and differentiate liquor from wine;
- the new Provincial regulations would allow wine sales in grocery stores;
- current City policy and rezoning treat wine only stores and liquor stores as the same as they both must be a minimum distance of 500 metres away from schools and parks and any other wine or liquor store;
- the new Provincial regulations include an expanded requirement of how close liquor stores, including Provincial liquor stores, can be to each other which has been set at 1 kilometre;
- the proposed consolidated City policy recommended by staff would harmonize new Provincial regulations and remove the distance requirement between wine only stores and liquor stores while maintaining the distance requirements between wine only stores and schools or parks;
- the proposed zoning amendment separates the definition of a wine store and grocery store in order to treat them separately from a liquor store by allowing wine-only sales in grocery stores without site-specific rezoning;
- the zoning requirements for a liquor store remain unchanged and are still site specific and considered by Council;
- the new Provincial regulation has clear requirements that make a grocery store eligible to sell wine, including the requirement to primarily sell food; and
- in the new consolidated City policy recommended, staff are proposing to allow B.C. only wine sales in grocery stores of a certain size through a liquor licence application and not require site-specific rezoning.

Discussion ensued with regard to the distance recommendations and criteria in the proposed policy and in the Provincial legislation.

It was moved and seconded

(1) That the new consolidated Council Policy titled "Applications for Liquor Licences – New or Amended" (Attachment 1), which harmonizes with Provincial legislation by:

(a) eliminating the 1km buffer requirement for wine stores;

(b) continuing the requirement for a rezoning process for stand-alone liquor or wine stores and for full liquor sales within a grocery store; and

(c) reinforcing the requirement for a neighbourhood survey and Council input for all applications for new or permanent changes to liquor licences;

be approved;

(2) That the following Council policies be rescinded:

(a) Policy 9003 Neighbourhood Public House Applications – Process for Appropriately Zoned Land;

(b) Policy 9305 Liquor Primary Licence and Food Primary Liquor Licence – Hours of Operation;

(c) Policy 9306 Rezoning Applications Intended to Facilitate Provincially Licensed Liquor Primary Uses;

(d) Policy 9307 Licencee Retail Store (LRS) Rezoning Applications;

(e) Policy 9308 Temporary Changes to Liquor Licenses – Short Term Requests by Licence Holders;

(f) Policy 9309 Guidelines for Free Standing Licensee Retail Store (LRS) Rezoning Applications; and

(g) Policy 9310 Guidelines for Liquor Primary Licensed Establishments Rezoning Applications; and

(3) That Richmond Zoning Bylaw 8500, Amendment Bylaw 9591 to:

(a) Amend the definition of "Retail, general" and add a definition of "Grocery store" to allow the sale of BC wines in grocery stores; and

(b) Create a new definition of "Wine store" so that specific regulations can be applied to this use;

be introduced and given first reading.

CARRIED

ADJOURNMENT

It was moved and seconded
That the meeting adjourn (5:49 p.m.).

CARRIED

Certified a true and correct copy of the Minutes of the meeting of the General Purposes Committee of the Council of the City of Richmond held on Monday, July 18, 2016.

Mayor Malcolm D. Brodie
Chair

Amanda Welby
Acting Legislative Services Coordinator

City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	August 10, 2016
From:	Jane Fernyhough Director, Arts, Culture and Heritage Services	**File:**	11-7142-01/2016
Re:	**Exhibitions for Local Artists at Richmond Art Gallery**		

Staff Recommendations

That the staff report titled, "Exhibitions for Local Artists at the Richmond Art Gallery" dated August 10, 2016, from the Director, Arts, Culture and Heritage Services be received for information.

Jane Fernyhough
Director, Arts, Culture and Heritage Services
(604-276-4288)

Att. 1

REPORT CONCURRENCE	
CONCURRENCE OF GENERAL MANAGER for C. V. Carlile	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS:
APPROVED BY CAO (Acting)	

Staff Report

Origin

This report provides an update to a Council request for information regarding the possibilities for exhibitions for local artists at the Richmond Art Gallery.

This report supports Council's 2014-2018 Term Goal #2 A Vibrant, Active and Connected City:

> *Continue the development and implementation of an excellent and accessible system of programs, services, and public spaces that reflect Richmond's demographics, rich heritage, diverse needs, and unique opportunities, and that facilitate active, caring, and connected communities.*
>
> *2.4. Vibrant arts, culture and heritage opportunities.*

Analysis

History

In 2001, the Vision, Mandate and Mission of the Richmond Art Gallery Association was established following a lengthy facilitated strategic planning process that included community stakeholders, art gallery and cultural services staff, Council representation and invited experts from the regional art community. They are as follows:

- Vision: *to be one of the most important public galleries in Canada, and to increasingly enlarge our audiences and their understanding and enjoyment of contemporary art.*
- Mandate: *to exhibit, preserve and promote contemporary visual arts and to provide exhibition related programming.*
- Mission: *dedicated to promoting dialogue among diverse communities on challenging ideas and issues of today as expressed through local, national and international contemporary art.*

Since 2001, the Gallery has continued to follow the stated mission, seeking to engage Richmond residents with the belief that art opens the door to visit concepts that give the power to transform lives and that art objects embody knowledge of the past and present.

As part of a network of Canadian museums and galleries, the Richmond Art Gallery has attracted reviews in national and local publications, websites and blogs. Visitor comments are overwhelmingly positive. Moreover, the Gallery's high degree of professionalism and capacity to mount sometimes technically and/or thematically ambitious work, as well as to publish related catalogues and essays, have earned it a solid local and national reputation. This reputation is essential to attracting critical investment from the BC Arts Council, Canada Council for the Arts and other key funders of visual arts programs.

While themes, artists and media vary considerably from exhibition to exhibition, the Gallery frequently curates shows that include the work of Richmond artists and/or explore topics that are specifically about Richmond. Since 2001, there have been 33 such exhibitions (Attachment 1).

Examples of professional Richmond artists (who reside, or have lived in Richmond for a substantial period of time) whose work has been showcased at the Gallery include:

- Governor General Award winner and multimedia performance artist, Margaret Dragu;
- celebrated First Nations artist, Lawrence Paul Yuxweluptun;
- UBC professor and media artist, Barbara Ziegler;
- Richmond Arts Award winner and landscape painter, Loraine Wellman;
- public realm mosaic artist, Glen Andersen;
- influential post-War painter, Peter Aspell; and
- Kwantlen instructor and ceramics artist, Eliza Au.

Recent and Upcoming Exhibition Opportunities for Richmond Artists

In 2016, the Gallery presented a retrospective of the work of artist Peter Aspell, who lived in Richmond for ten years. The Gallery's current exhibition, which runs until October 2, 2016, is *Rick Leong: The Transformation of Things* and features the work of three Richmond artists: Winifred Lee, Li Desheng and Ping-Kwong Wong.

The Gallery also occasionally presents group exhibitions that are open to all artists including non-professional and emerging talents. The most recent example of this was the juried exhibition, *ArtRich 2015*, co-produced with the Richmond Arts Coalition, that featured the work of 49 local artists of which 31 were from Richmond. A second *ArtRich* exhibition is planned for 2017 as the Gallery considers establishing a biannual community exhibition in this, or a similar, format.

The Gallery's 2017 exhibition schedule also includes a collaborative exhibition with the Richmond Museum for which five artists will respond to artefacts in the museum collection. Later in the year, there will be an exhibition of landscapes from the Gallery collection presented alongside artworks by local youth.

In addition to the gallery space located at the Richmond Cultural Centre, the Gallery curates exhibition space in the City Hall galleria. In the past two years alone, the work of more than 50 Richmond professional and non-professional artists has been featured on these walls.

Gallery Programming for Richmond Visual Artists

The Gallery's educational public programs, which include a range of tours, panel discussions, artist talks, performances and more, are presented for the benefit of all Richmond residents, including artists.

Two programs are offered specifically for visual artists:

- Art At Work, a series of professional development events and workshops designed to provide artists with the knowledge and skills required for pursuing a professional art practice; and
- Artist Mentorship Program, a monthly professional development initiative open to all visual artists, particularly those who have recently moved to Canada, designed to provide information on how to navigate the Canadian art system.

The Gallery also actively supports young and emerging talents in Richmond through the Richmond Art Gallery Youth Outreach Project, School Art Programs and Richmond Art Gallery Youth Mentorship Program.

Community Art Exhibition Opportunities

Arts Services staff continue to increase the number of public spaces available for the exhibition of work by Richmond artists:

- City Hall Galleria;
- Richmond Cultural Centre;
- Gateway Theatre;
- Thompson Community Centre;
- City Centre Community Centre; and
- South Arm Community Centre.

In addition, City-run events such as the Richmond Maritime Festival, Culture Days and Richmond World Festival offer opportunities to showcase Richmond visual artists. Through the Arts and Culture Grants program, the City also supports arts organizations that facilitate additional exhibition opportunities for artists in Richmond.

As identified in the OCP City Centre Area Plan, a Visual Arts Centre is envisioned for the Arts District in the City Centre and could offer a complementary, distinct gallery space dedicated solely to the exhibition of work by local artists.

Financial Impact

None

Conclusion

The Richmond Art Gallery which is mandated to exhibit, preserve and promote contemporary visual art and to provide exhibition related programming, seeks to engage, inspire and educate all Richmond residents, including local artists. Since the establishment of that mandate in 2001, the Gallery has shown the work of Richmond's visual artists in solo, group, juried and open exhibitions and will continue to profile local artists for the appreciation of residents and visitors alike.

Lies G. Jauk
Manager Arts Services
(604-204-8672)

LJ: lj

Att. 1: Exhibitions featuring Richmond artists and/or topics about Richmond

Exhibitions featuring Richmond artists and/or topics about Richmond at the Richmond Art Gallery

2017:

- Collaborative exhibition with Richmond Museum for which five artists will respond to artifacts in the museum's collection
- second ArtRich 2017 juried exhibition presented with Richmond Arts Coalition
- Exhibition selected from Richmond Art Gallery's collection of landscapes presented with artworks by local youth on the same theme

2016:

- *Peter Aspell: The Mad Alchemist*
- *Rick Leong: The Transformation of Things* with Richmond artists Winifred Lee, Li Desheng and Ping-Kwong Wong
- *Cameron Cartiere and the chART Collective: For All is For Yourself* relating to pollinator pasture public art work in Richmond

2015:

- ArtRich 2015 juried exhibition presented with Richmond Arts Coalition featuring 31 Richmond artists
- *Greg Girard: Richmond/Kowloon,* a two-year project focused on Richmond and residents, resulting in a new body of photographs of the city. Girard has since moved to Richmond.

2014:

- *Interweavings*, exhibition of work by 14 artists, including two originally from Richmond: Lawrence Paul Yuxweluptun and Cody Lecoy
- *City as Site: Public Art in Richmond* including Richmond artist, Glen Andersen

2013:

- *Memory: International Mail Art Exhibition and Swap* (open call exhibition)
- *Margaret Dragu: the wall is in my head/a dance of forgetting*

2012:

- *Stuart McCall and Neil Wedman: Fantasy Gardens*
- *Temporary Assignment* group show including Richmond artist, Ming Yeung
- *Open Conversations: The Art Practice of Carole Condé and Karl Beveridge,* where artists worked with Richmond Cultural Centre staff to produce new work about cultural workers

2010:

- *Artist Trading cards* (open call exhibition)
- *Gu Xiong: Waterscapes,* about the Fraser River and Yangtze River
- *International Mail Art* exhibition (open call exhibition)

2009:

- *Artist Trading Cards* (open call exhibition)

2008:

- *Archive City: Portrait of Lulu Island*
- *Artist Trading cards* (open call exhibition)
- *Marginalia – Getting out of the House* featuring work by Margaret Dragu
- *Barbara Zeigler: Hidden Sites*

2007:

- *Eliza Au: Wreath/Wreathe*
- *Ingrid Koivukangas: The Finn Slough Project*
- *Artist Trading cards* (open call exhibition)

2006:

- *Artist Trading Cards* (open call exhibition)
- *Charlotte Wall: Boundless I and II* referenced Aberdeen Centre façade
- *Mirror Mirror Self Portraits* (open call exhibition/Gallery fundraiser)

2005:

- *Richmond Collects*, showcase of artwork collected by Richmond residents
- *Loraine Wellman: Local Landscapes*

2004:

- *Raymonde Corbeil: Undercurrents*

2003:

- *Althea Thauberger: Childhood* , photographs of a young Richmond resident
- *Asian Heritage Month* group show including Richmond artist, Shirley Inouye
- *Judy Williams: Salmon Stock,* collaboration with Gulf of Georgia Cannery exploring shrinking canneries and salmon stock
- *Monique Genton: The Grass Project*, artist who grew up in Richmond explored subdivisions, land use, urban and rural space

2002:

- *Baco Ohama Miyoshi: A Taste that Lingers Unfinished in the Mouth* about Japanese fishermen's confiscated boats in Steveston

City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	August 30, 2016
From:	John Irving, P.Eng. MPA Director, Engineering	**File:**	10-6060-01/2016-Vol 01
Re:	**Vancouver Airport Fuel Delivery Project - Oil and Gas Commission Permit**		

Staff Recommendation

That the staff report titled "Vancouver Airport Fuel Delivery Project - Oil and Gas Commission Permit," dated August 30, 2016, from the Director, Engineering, which includes comments regarding the Vancouver Airport Fuel Facilities Corporation's application for the BC Oil and Gas Commission permit for the Vancouver Airport Fuel Delivery project, be endorsed for submission to the BC Oil and Gas Commission.

John Irving, P.Eng. MPA
Director, Engineering
(604-276-4140)

Att. 1

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Parks Services	☑	
Fire Rescue	☑	
Development Applications	☑	
Transportation	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** DB	**APPROVED BY CAO** (ACTING)

Staff Report

Origin

The Vancouver Airport Fuel Facilities Corporation (VAFFC) letter to the City of Richmond, dated July 20, 2016, titled " Notification and Consultation" (Attachment 1) declares the VAFFC's intention to apply to the Oil and Gas Commission for permits to construct and operate the pipeline component of the Vancouver Airport Fuel Delivery (VAFD) project. The Oil and Gas Activities Act (the Act) and the Consultation and Notification Regulation requires the VAFFC to notify impacted stakeholders and receive their comments with respect to the VAFD project and this letter serves as that notification.

The consultation and notification process is legislated through the Act and Consultation and Notification Regulation and allows 21 days for stakeholders to comment through this process. Staff's request for extension of the comment period was denied and the Oil and Gas Commission indicated that there is no provision for extension in the Consultation and Notification Regulation. Staff provided comments to the VAFFC and the Oil and Gas Commission within the 21 days and a copy of the response with a covering memo was distributed to Council on August 3, 2016.

Outside of the consultation and notification process, the Act allows for written submissions to the Oil and Gas Commission regarding the VAFD any time prior to a decision on the Oil and Gas Commission application for a permit. This report reviews the consultation and notification letter and recommends comments for a written submission to the Oil and Gas Commission for Council's consideration. An update on the VAFFC Environmental Assessment Certificate Amendment process for the VAFD is being presented in a separate report on the same Committee agenda.

Analysis

Detailed Pipeline Information

The VAFFC consultation and notification letter provides high level information that is consistent with materials presented previously through the Environmental Assessment Certificate Amendment process. More detailed information will be required by the Oil and Gas Commission as part of their permit process and the City has requested that the VAFFC make this more detailed information available for the City's review prior to permit application. Staff has requested this information be made available to the City prior to the VAFFC application for Oil and Gas Commission permit and the VAFFC has verbally committed to do so. To date, the requested information has not been made available to the City. Staff recommend requesting the City be provided this information and given reasonable time to review and comment prior to Oil and Gas Commission decision regarding the permit application.

North Richmond

The VAFFC notification letter identifies three possible routes from Highway 99 to the Moray Channel. The routes are the same as those previously presented by the VAFFC and staff recommends that the City reiterate its strong preference for a pipeline route on Bridgeport Road.

Unopened Road Dedications

The VAFD project includes a proposed alignment in the unopened Francis Road dedication. Through the Environmental Assessment Certificate Amendment process, the City had requested that the pipeline be constructed in a manner that does not impact the City's future ability to build a road in its unopened dedications. The VAFFC response to this comment was that the Municipal Access Agreement will address location-specific installation requirements. There is currently no Municipal Access Agreement and staff recommend that the VAFFC commit to constructing the pipeline in a manner that does not impact the ability to build roads in its unopened dedications. If the issue is deferred to the Municipal Access Agreement, then the City should request that the Oil and Gas Commission decision regarding the permit application be deferred until the Municipal Access Agreement is executed.

Highway 99 and Parks

The George Massey Tunnel Replacement project team has indicated there would be surplus land east of Highway 99 that could be used for farming. Staff recommend that the City request the VAFFC to provide clarification on potential impacts of the pipeline on land east of Highway 99.

A section of the proposed alignment along the Highway 99 corridor is also in close proximity to the Nature Park East. Staff recommend that the City request the VAFFC to construct and operate the pipeline in a manner that does not impact the hydrology of the bog ecosystem on the Nature Park East.

Staff also recommend that the City request the VAFFC to construct and operate the pipeline in a manner that does not interfere with the current and future usage of the Bridgeport trail.

Pipeline Purpose

Staff recommend that the City reiterate concerns regarding the VAFD purpose through a request that the VAFD facilities and pipeline be limited to supplying jet fuel to Vancouver International Airport.

Comments

Staff recommend that the following comments on the proposed VAFD project pipeline be sent to the Oil and Gas Commission prior to their decision on the VAFFC application for the Oil and Gas Commision permit:

1. That the City continues to oppose the development of the VAFD project in its current configuration and that the options to deliver jet fuel directly to Sea Island be considered prior to implementation of the VAFD project;

2. That the City be given reasonable time to review and comment on the detailed information included in the Oil and Gas Commission permit application prior to Oil and Gas Commission decision;

3. That, if not directly delivered to Sea Island, the pipeline route in North Richmond be limited to the Bridgeport Road option due to the significant negative impacts to the future development of North Richmond inherent in the Bridgeport Trail and River Road options;

4. That pipelines constructed in unopened municipal road dedications be constructed in a manner that does not impact the City's ability to build roads on these dedications in the future. If this issue is deferred to the future Municipal Access Agreement, the City requests that decision on the Oil and Gas Commission permit be deferred until the Municipal Access Agreement is completed and executed;

5. That the VAFFC provide clarification on potential impacts of the pipeline on land east of Highway 99, which the George Massey Tunnel Replacement project team has indicated would be surplus land that could be used for farming;

6. That the VAFFC constructs and operates the pipeline in a manner that does not impact the hydrology of the bog ecosystem on the Nature Park East and does not interfere with the current and future usage of and improvements to the Bridgeport trail; and

7. That the VAFD installations and pipeline be limited to supplying jet fuel to YVR.

Financial Impact

None.

Conclusion

The VAFFC has issued notice to the City regarding its intention to apply to the Oil and Gas Commission for permit. The notification was required by the Act and the Consultation and Notification Regulation. A 21 day period for comment is required by the regulations and the City provided comments consistent with those provided through the Environmental Assessment Certificate Amendment process.

The Act allows for written comments to be received by the Oil and Gas Commission outside of the comment period but prior to Oil and Gas Commission decision on the permit. Staff recommend that Council endorse the comments in this report for written submission to the Oil and Gas Commission to be included in their decision making process.

Lloyd Bie, P.Eng.
Manager, Engineering Planning
(604-276-4075)

LB:lb

Att. 1: VAFFC Notification and Consultation letter, dated July 20, 2016

VAFFC / Vancouver Airport
Fuel Facilities Corporation
AN FSM GROUP COMPANY

July 20, 2016

Sent Via Courier

CITY OF RICHMOND
6911 NO. 3 ROAD
RICHMOND BC V6Y 2C1

RE: NOTIFICATION and CONSULTATION

Vancouver Airport Fuel Delivery Project
Pipeline System to Vancouver International Airport
Richmond, British Columbia

In compliance with the *Oil and Gas Activities Act* (**OGAA**) and the Consultation and Notification Regulation (**C&N Regulation**), this letter is to notify you that Vancouver Airport Fuel Facilities Corporation (**VAFFC**) intends to apply to the Oil and Gas Commission (**OGC**), commencing in 2016, for permits to construct and operate an aviation fuel pipeline system, and associated pipeline equipment, approximately 13 km in length (**"Pipeline"**) starting from *15040 Williams Road*, to the *Vancouver International Airport* (**YVR**) on Sea Island, B.C.

The C&N Regulation, and application for a permit under the OGC, are required for the transfer and delivery pipelines, and marine terminal elements located at 15040 Williams Road. For the purposes of this notification package and the application to the OGC, these elements are collectively identified as the "**Pipeline**". The Fuel Receiving Facility (as described below) require construction permits from other agencies.

Pursuant to the requirements under section 22 of the OGAA, this letter is to provide you with information on the project and maps showing the general location of the proposed Pipeline and in relation to your property.

Details of Proposed Project

General

VAFFC has received an Environmental Assessment Certificate from the provincial and federal governments for the Vancouver Airport Fuel Delivery Project. The project, as certified and amended (pending), consists of the following key components:

5. Deep water Marine Terminal on the Fraser River, capable of receiving up to Panamax class vessel shipments of aviation fuel;
6. 600mm diameter transfer pipe approximately 400 meters in length connecting the Marine Terminal to the Fuel Receiving Facility;

7. Fuel Receiving Facility, consisting of 6 storage tanks with a combined capacity of 80 million litres, as well as filtration, pumping and processing systems; and
8. A 13km long 355.6mm diameter delivery pipeline connecting the Fuel Receiving Facility to existing VAFFC storage systems at YVR.

Pipeline

The following table provides more specific information on the Pipeline system, consisting of items 1, 2, and 4 above, which will be detailed within the application to the OGC.

General Description of proposed Project:	The proposed Pipeline will consist of terminal equipment and pipeline infrastructure to transfer aviation fuel from marine vessels to a fuel receiving facility and pipeline infrastructure from the fuel receiving facility to the Vancouver International Airport. The pipeline infrastructure consists of a 400 meter 24" (609.6mm) receiving pipeline and a 13 km 14" (355.6mm) delivery pipeline. Pipeline infrastructure will be located on VAFFC owned or leased land, and within existing right of ways with the majority of the delivery pipeline located inside the right of way of Highway 99. The marine terminal elements include berthing, mooring, and containment structures to receive marine vessels, as well as offloading equipment such as loading arms, control valves, metering devices, and inline inspection systems to connect vessels to the 600mm transfer pipeline.
Delivery Pipeline - Alternate Routes South Richmond	Route A – starts at the marine terminal utilizing the 600mm pipeline to the fuel receiving facility and then after processing flows back through the marine terminal utilizing the 355.6mm pipeline prior to travelling north on Savage Road to connect to the Francis Road right-of-way.
	Route B – starts at the marine terminal utilizing the 600mm pipeline to the fuel receiving facility and exits the fuel receiving facility utilizing the 355.6mm pipeline travelling north paralleling the Cn Rail corridor prior to turning west onto the Francis Road right-of-way.

Delivery Pipeline - Alternate Routes North Richmond	Route A - starts at the intersection of Highway 99 and Bridgeport Road, goes West alongside Bridgeport Road, across the Moray Channel and to the existing facilities on Sea Island.
	Route B – starts at the intersection of Highway 99 and Bridgeport Road and goes Northwest alongside Highway 99 to Bridgeport Trail, to Van Horne Way, southwest along Van Horne Way to Charles, west to River Road and North West along No. 3 Road, then West across the Moray Channel to the existing facilities on Sea Island.
	Route C – the initial route same as Route B but will go South off River Road to connect to Bridgeport Road.
Pipeline Equipment	The pipeline system will be equipped with metering devices and emergency shut-down valves at termination points at the marine terminal, fuel receiving facility, Moray Channel crossing, and fuel storage facility at YVR.
Product	Jet Fuel (Jet A or Jet A1). Jet fuel is a colourless to straw-coloured clear liquid used by almost all commercial airlines worldwide. Similar to diesel fuel, it has a high flash point and low volatility and is considered a combustible rather than flammable liquid. As a refined product, it will almost completely evaporate over time.
Maximum H2S Level:	There is no H2S associated with this pipeline.
Phases	There will be two phases associated with this project. The first is the construction phase, which will include the cleanup of the construction areas. The second will be the operations phase which will include maintenance as set out in the Integrity Management plan.
Project Scheduling:	Construction of the proposed Pipeline (including clearing, soil handling, grading, trenching, testing and cleanup) is anticipated to begin in early 2017 (Subject to the receipt of regulatory approval). Construction phasing includes the following general segments: • 600mm transfer pipeline: 2 months • 355.6mm pipeline to Highway 99: 4 months • 355.6mm pipeline along Highway 99: 7 months • 355.6mm pipeline along Bridgeport Road: 3 months • 355.6mm pipeline across Moray Channel and YVR: 3 months • Some segment schedules may overlap, with a total anticipated construction period of twelve to eighteen months, beginning in early 2017. The proposed Project is expected to be in-service by late 2018.

Equipment Required:	Equipment for the construction of the proposed Project will include: regular pickup trucks, welding trucks, tracked excavators, pipe layers, dozers, side booms, dump trucks, tractor trailer units and horizontal drilling rigs.
Flaring/Incineration Operations:	There will be no flaring/incineration associated with the operation of the pipeline.
Noise:	Prior to construction VAFFC will have an approved Noise Management Plan in place. Noise will be monitored and managed in accordance with Richmond city bylaws, as well as special conditions contained in the EAC that are relevant to the Pipeline system. Once in-service, noise will be limited to vehicles involved in routine maintenance, occurring typically during business hours.
Traffic:	During the construction phase of the proposed Project there will be a slight increase in traffic along the route. VAFFC will work closely with the Ministry of Transportation and Infrastructure (MOTI) and the City of Richmond to manage various road and traffic strategies to ensure that impacts to public roads and related residents are minimized. Some of these strategies may include traffic control, dust control and coordination of access in sensitive areas. There will be some temporary traffic disruptions on St. Edwards Road, Bridgeport Road and as well as some portions of the undeveloped road allowance on Francis Road. Once construction is complete there will be minimal traffic during routine maintenance. Please see the attached "Road Used For Activities" map showing the main roads to be used during Construction and Reclamation.
Air Quality and Dust Control	Prior to construction VAFFC will have an approved Air Quality and Dust Control Management Plan. Construction equipment emissions will be monitored in accordance with conditions of the Environmental Assessment Certificate. Dust will be controlled within constructions sites along the Pipeline corridor with sweepers or suppressed with water spray. Once construction is complete there will be no dust or emissions associated with the normal operation of the Pipeline.
Safety	VAFFC takes safety very seriously. All activities associated with the design, construction and operation of the proposed Project will be conducted in accordance with applicable safety regulations, OGC requirements and VAFFC's and its contractor's safety programs. Prior to Construction VAFFC will have an approved Emergency Response Plan in place.

Consultation

As a person receiving this Notification, you may provide a written response to VAFFC within 21 days of receiving this notice, either:

iv) advising VAFFC that you do not object to the proposed Project, or

v) setting out the reasons why the proposed activities, that will be the subject of the applicant's application, should be modified, or

vi) request a meeting with VAFFC to discuss the proposed Project in more detail.

Please also note that pursuant to Section 22(5) of the OGAA you also have the ability to file a written submission directly to the OGC at any point, prior to permits being issued for the proposed Pipeline. Please consult the OGC's website and publications for more information on filing a written submission. The written submission form can be downloaded from the OGC website at (https://www.bcogc.ca/content/written-submission-form).

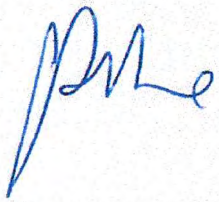
If your residence falls within the area of the Alternate Routes as described above we will inform you of the final route selection once we have decided on the optimum route.

VAFFC Contact

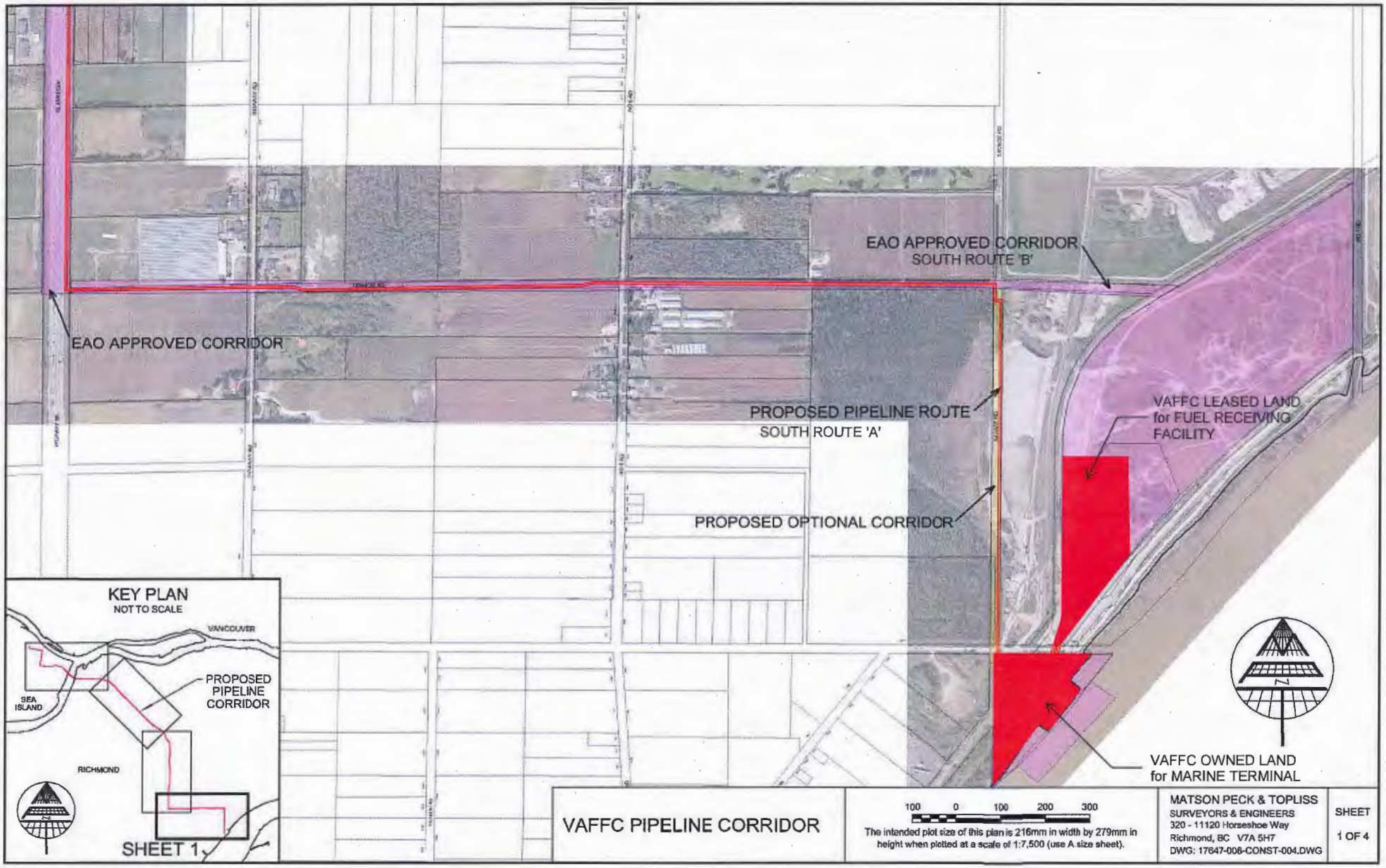
Any questions or objections regarding this project can be directed to the following:

Adrian Pollard, Project Director
Vancouver Airport Fuel Delivery Project
Box 34, 505 Burrard Street, Vancouver, BC V7X 1M4
Phone: 604-638-7463 Fax: 604-684-6981
Email: info@vancouverairportfuel.ca

Yours truly,
Vancouver Airport Fuel Facilities Corporation



Adrian Pollard, P.Eng.
Project Director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for FUEL RECEIVING
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for MARINE TERMINAL
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VAFFC PIPELINE CORRIDOR
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MATSON PECK & TOPLISS
SURVEYORS & ENGINEERS
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Richmond, BC V7A 5H7
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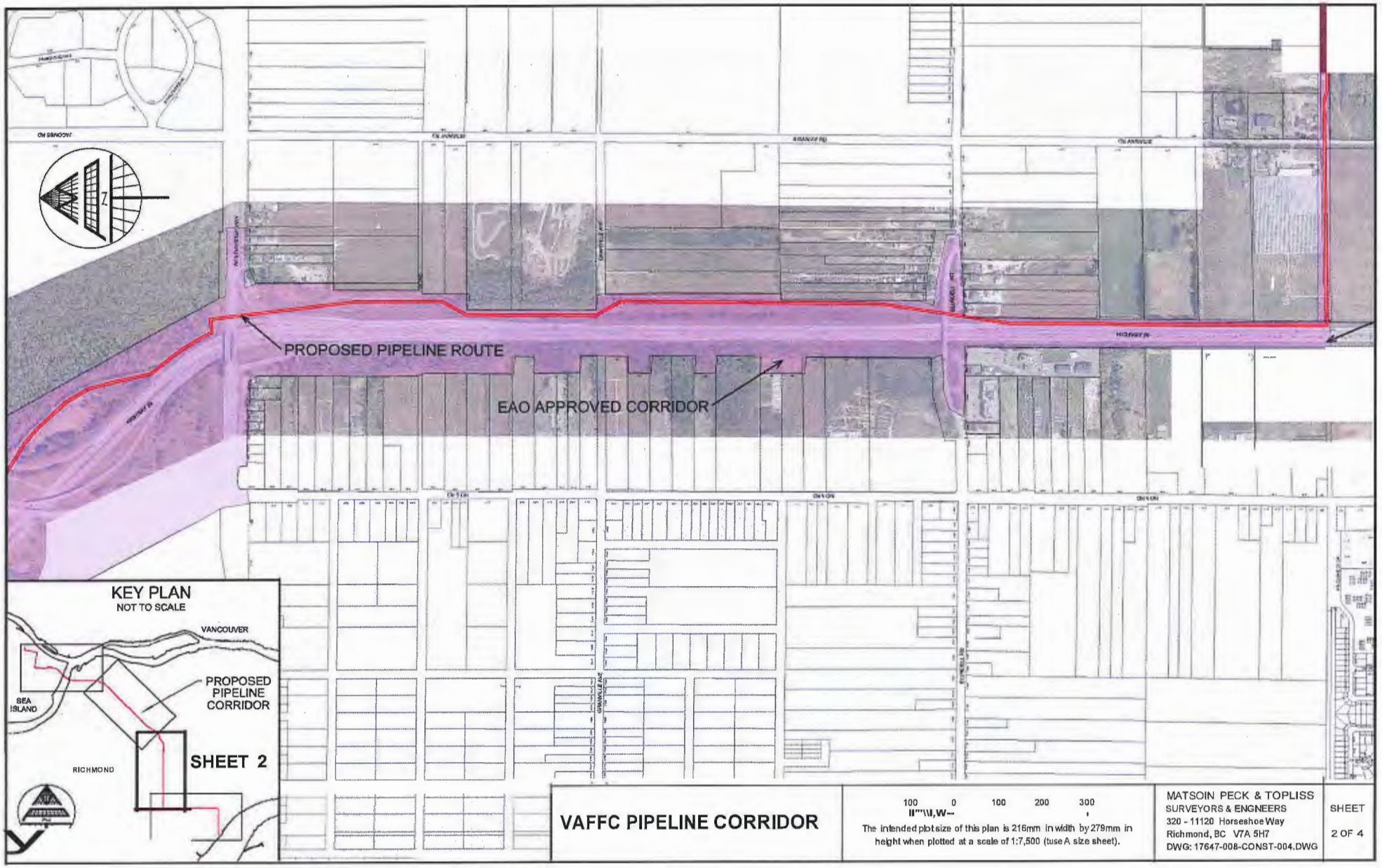
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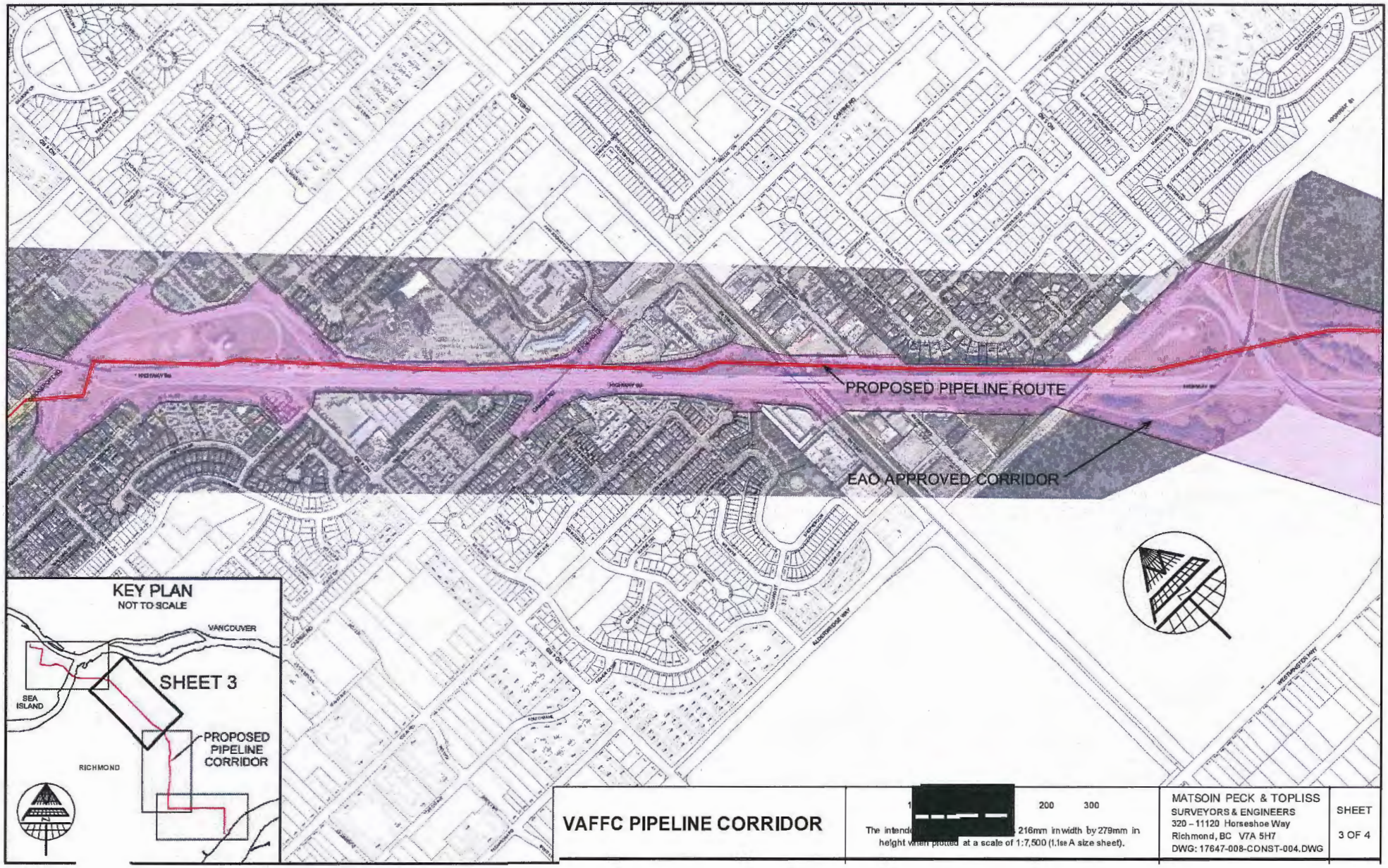
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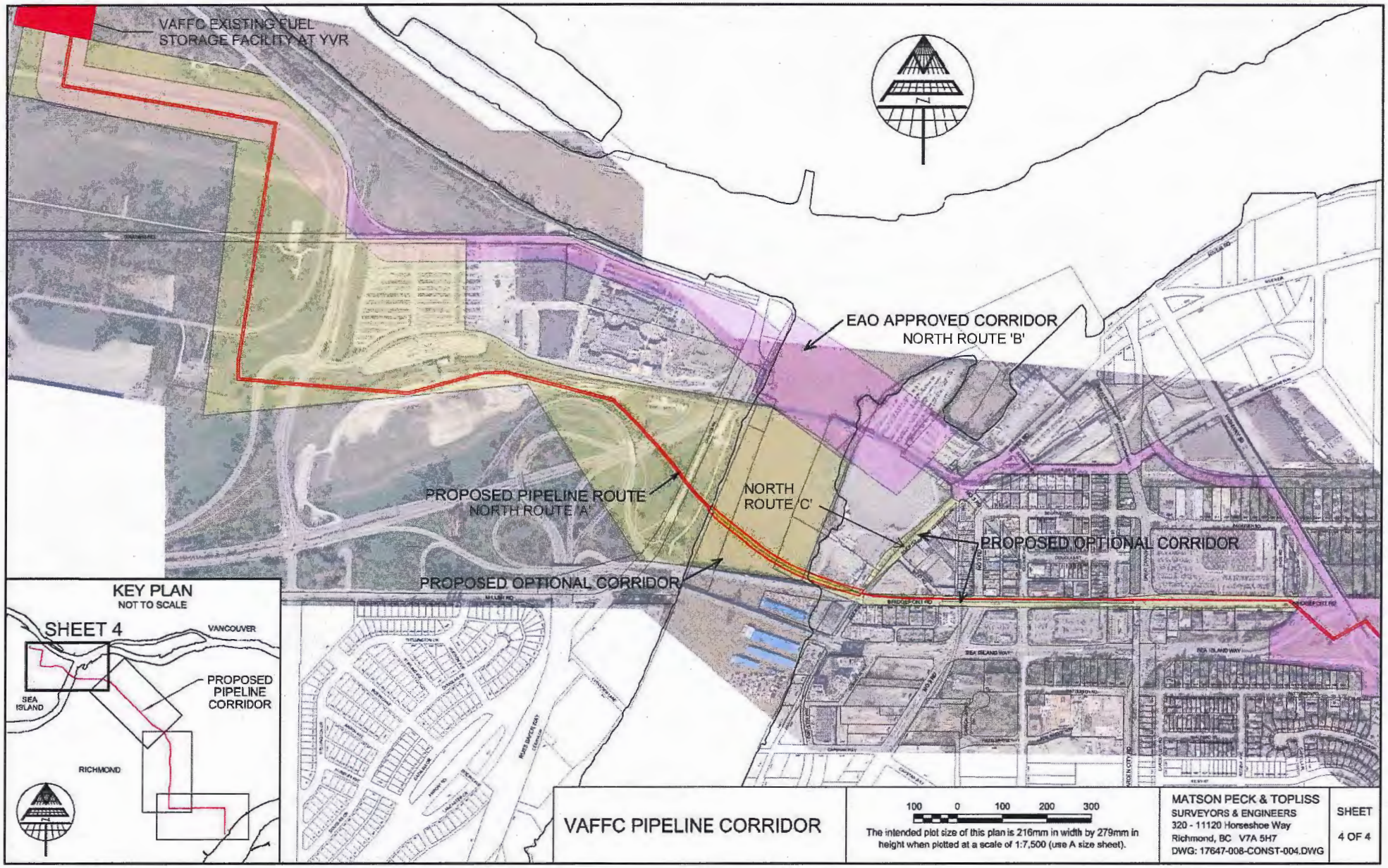
VAFFC EXISTING FUEL STORAGE FACILITY AT YVR
EAO APPROVED CORRIDOR
NORTH ROUTE 'B'
PROPOSED PIPELINE ROUTE
NORTH ROUTE 'A'
NORTH
ROUTE 'C'
PROPOSED OPTIONAL CORRIDOR
PROPOSED OPTIONAL CORRIDOR
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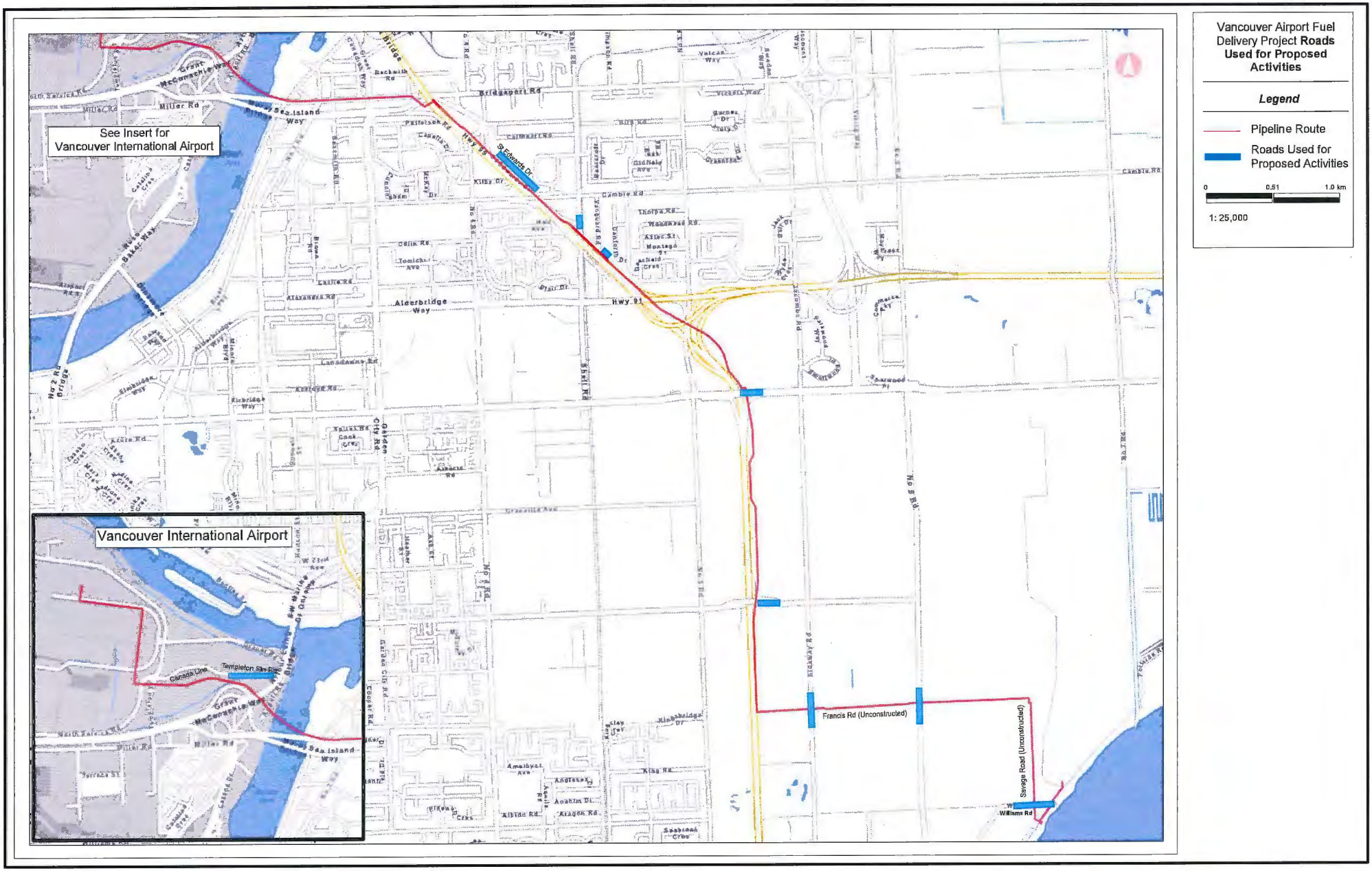
See Insert for Vancouver International Airport
Vancouver International Airport
Francis Rd (Unconstructed)
Savage Road (Unconstructed)
Vancouver Airport Fuel Delivery Project Roads Used for Proposed Activities
Legend
Pipeline Route
Roads Used for Proposed Activities
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Vancouver Airport
Fuel Facilities Corporation
AN FSM GROUP MANAGED CORPORATION

Vancouver Airport Fuel Delivery Project

ABOUT THE PROJECT

Vancouver Airport Fuel Facilities Corporation (VAFFC) is constructing a new aviation fuel delivery system to serve the airlines at Vancouver International Airport (YVR). It includes a Marine Terminal and Fuel Receiving Facility at existing industrial sites on the South Arm of the Fraser River and an underground pipeline connecting the facility with YVR.

In December 2013, following more than a decade of comprehensive planning, research, review and consultation by VAFFC, the project completed a comprehensive harmonized federal/provincial environmental assessment process, with the BC Environmental Assessment Office (EAO) coordinating the review requirements of both the Canadian Environmental Assessment Act and BC Environmental Assessment Act.

The assessment included Environment Canada, Transport Canada, Health Canada, Department of Fisheries and Oceans, Canadian Coast Guard, Canadian Wildlife Service, Natural Resources Canada, Canadian Transportation Agency, Port Metro Vancouver, 12 First Nations, Metro Vancouver, City of Richmond, Corporation of Delta, BC Oil & Gas Commission, BC Utilities Commission, BC Ministry of Environment, Ministry of Community, Sport & Culture and Vancouver Airport Authority.

On a stand-alone basis, the risks of this project are few and will be managed to insignificant levels with well understood and proven risk management methods, best practices and technology. On a comparative basis, the risks of this project are far less than the current fuel delivery methods and infrastructure.

PROJECT COMPONENTS

Marine Terminal

The new Marine Terminal will be located on the north shore of the south arm of the Fraser River, at one of the widest and deepest sections of the river. An upgrade of an existing wharf, in an area that is already zoned for heavy industrial use, will be based on best practice designs and incorporate state-of-the-art mooring and offloading technologies.

The marine terminal will be designed to handle small barge shipments and large overseas shipments. These will be short in duration and only a few times a month, based on projected YVR fuel demand. A barge could be expected to deliver fuel once every two weeks with an unloading time around 12 hours, while a Panamax class vessel could be expected once a month with an unloading time of between 24 to 36 hours.

Marine Terminal and Fuel Receiving Facility

Vessels:

- All vessels will be double-hulled for optimal safety
- All vessel movements will be guided by tugboats and government-certified marine pilots on the river and at the Marine Terminal
- All vessels calling on the terminal will be pre-screened and vetted through a tanker acceptance program
- All vessels will have a Shipboard Oil Pollution Emergency Plan, and required to carry pollution liability insurance

Operations:

- Fuel will be transferred from vessels to shore using hydraulically-operated articulated unloading arms
- The unloading arms will be designed with flexibility for tides and ship movement during offloading
- If the movement of the vessel exceeds the safe range, the fuel transfer process will be automatically stopped and the arms will be disconnected using leak-free emergency release couplings
- The terminal will be equipped with pre-deployed permanent booming complete with a pile deflection/ protection system and skimmers to collect any fuel spilled

Emergency Preparedness and Response:

- Spill response vessels will be deployed upon arrival of a vessel in the river, and will accompany the vessel to the terminal
- Before a vessel is offloaded, booms and skimmers will be positioned around the vessel to contain a spill in the unlikely event of an accidental release of product onto water, and to recover the product as quickly as possible
- The response boats would be on standby to deploy containment and absorbent booms in the water if required

The Marine Terminal site will be protected by perimeter fencing and landscape barriers along the dyke trail. The dyke trail will connect users in the Waterstone Pier area with existing and future trail systems further upstream.

Rendering of Fuel Receiving Facility – view looking north

Fuel Receiving Facility

The Fuel Receiving Facility will include six above-ground vertical carbon steel single wall tanks, each approximately 33.5 metres in diameter and 14.6 metres high, with an overall height of 21 metres above sea level. The tanks will provide a combined total capacity of approximately 80 million litres.

Operations:

- The Fuel Receiving Facility will operate quietly with little noticeable activity
- Fuel will be moved through contained systems from pipes to tanks with pumps that will be housed to reduce operating noise levels
- Tank systems will be equipped to reduce vapour emissions during fuel transfers and will be only locally noticeable
- Lighting and security of the facility will use state-of-the-art LED and motion detection to reduce the ambient level of light during night-time operation
- Noise, air quality and traffic will be mitigated through our comprehensive Operations Environmental Management Plan which will include a telephone information line

The tanks will have impermeably lined secondary containment areas

Emergency Preparedness and Response:

The Fuel Receiving Facility will be constructed to the National Building Code and the B.C. Building Code.

The facility will feature state-of-the-art fire detection and suppression systems including:

- Early detection systems inside tanks and in the piping/process area
- Automatic fire valves on tanks in the process area
- Foam suppression system inside each fuel storage tank
- Foam/water monitors and tank cooling system
- Fire hydrants at strategic and perimeter locations for access and operation by Richmond Fire Rescue
- Auxiliary and portable fire-fighting equipment

Environmental protection measures will include:

- Secondary containment and under-tank leak detection
- Redundant high level control to prevent tank overfill
- SCADA process monitoring system
- Emergency shut-down devices and emergency shut-down valves
- Process equipment located on concrete pads, with all drainage connected to an oil/water separator
- Drainage detection system to prevent a product release to ditches
- 24/7 monitoring by operations staff, with on-site spill response equipment, including portable spill response kits, spill response trailer and a vacuum truck

Pipeline

Modern pipeline systems have the benefit of precise locating technologies, new materials and coatings, and high-tech installation techniques to reduce disturbances during construction.

The pipeline will be about 14 kilometres long, 355.6 millimetres in diameter and buried for its entire length approximately 2.5 metres underground.

The pipeline will consist of specialty steel pipe and will be installed to meet a minimum Canadian Standards Association (CSA) Standard Z245.1 Grade 359 for Oil and Gas Pipeline Systems. The pipeline installation and operation will be regulated by the BC Oil and Gas Commission.

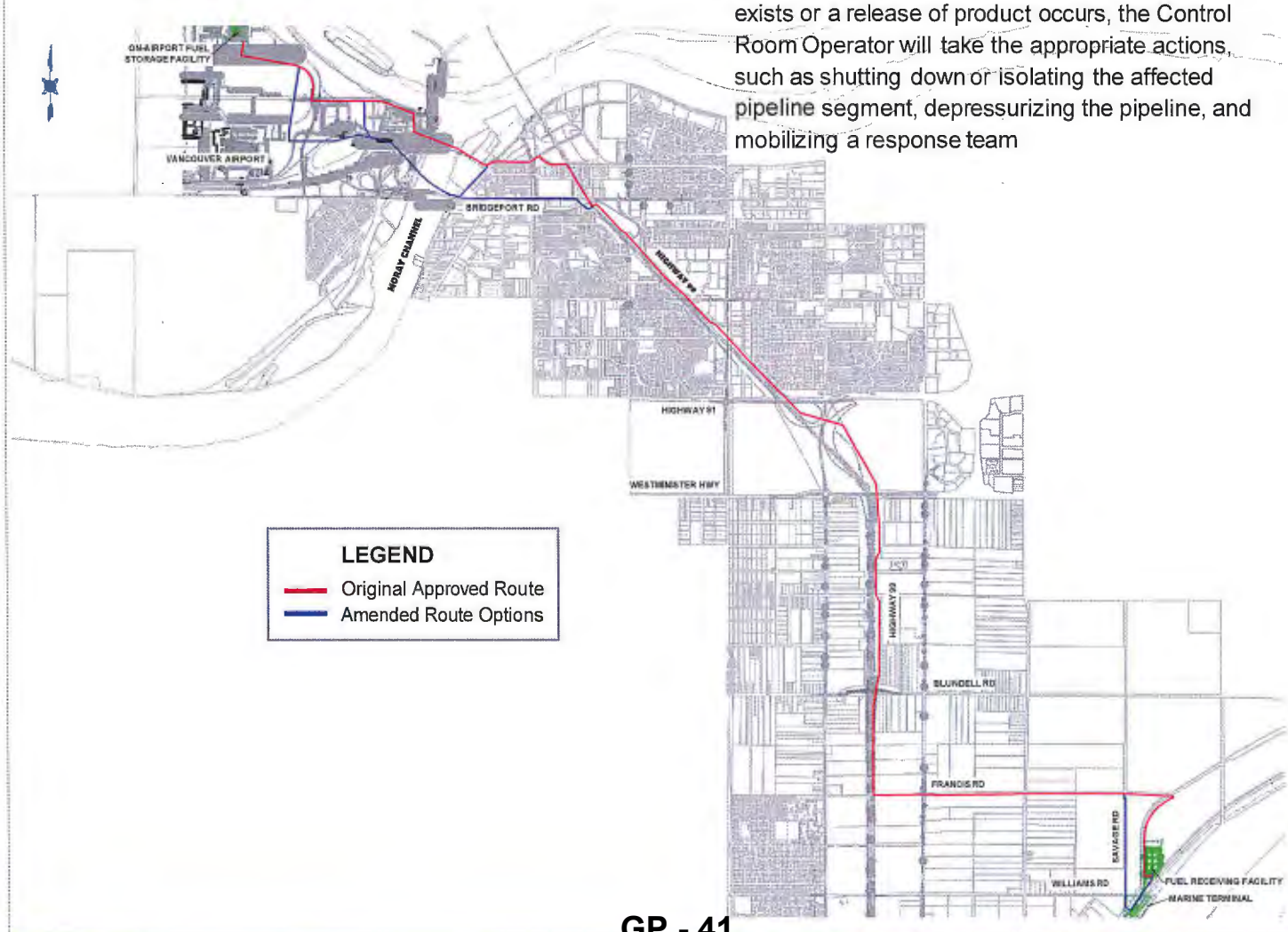
Prior to commissioning, the pipeline will be thoroughly tested and cleaned in accordance with construction and operational requirements, and clearly marked along its entire length. Similar to all other utility installation, location information will be provided to the City of Richmond and locator services.

Operations:

- The pipeline will be controlled and monitored by operations personnel during all fuel transfer activities
- It will be pressurized only during fuel transfer operations between the Fuel Receiving Facility and YVR (it will not operate 24/7)

Emergency Preparedness and Response:

- Prior to construction, an emergency response plan will be developed in conjunction with other municipal and regional emergency response plans
- The pipeline will include state-of-the-art corrosion protection and leak detection technologies
- The pipeline will be equipped automatic emergency shutdown devices, and pressure and flow monitors that will transmit data to a Control Centre
- Any abnormalities in pressure or flow will trigger an alarm or shutdown
- If the unlikely event that an abnormal condition exists or a release of product occurs, the Control Room Operator will take the appropriate actions, such as shutting down or isolating the affected pipeline segment, depressurizing the pipeline, and mobilizing a response team



CONSTRUCTION

Marine Terminal

The Marine Terminal construction is expected to start in late 2016, beginning with modifications to the existing dock. To meet the seismic performance requirements of the facility, significant rehabilitation of the shoreline will be undertaken to allow construction of off-shore mooring structures. Shoreline and underwater habitat will be restored as part of the development. Significant barge activity will occur during the fall and winter seasons, however no significant pile driving is anticipated until 2017.

Most noticeable activity in 2016 and early 2017 will be associated with the removal of unsuitable fill materials and components of the existing dock structure. These materials will be transported off-site. New structures will begin being installed in mid to late 2017.

Fuel Receiving Facility

The project recently received a Project Permit from the Vancouver Fraser Port Authority to commence construction of the Fuel Receiving Facility to be located on Port Authority owned land. This permit was awarded following a technical review and public consultation held in August/September 2015.

The Fuel Receiving Facility construction will begin in spring 2016 and consist of the following two key phases:

First phase

- The first phase will involve site preparation and ground improvement to provide the stability for the tanks to withstand a major seismic event
- This will involve heavy machinery movements and some localized ground vibrations. Some activity at the marine terminal is expected for delivery of bulk materials

Second phase

- In 2016, construction will start on the utilities, foundations and structural steel components of the fuel receiving facility
- Locally supplied materials such as concrete, rebar, mechanical and electrical components will arrive by road, while large-scale tank steel components, pipe, and other bulk materials are expected to arrive through the Marine Terminal
- Tank and foundation construction will take approximately one year and consist mostly of crane work and welding
- The final stage of construction will include perimeter road works, paving, fencing and landscaping, including screening vegetation

Pipeline

The pipeline will be constructed with resilient materials to current seismic design standards. Construction will include extensive use of directional drilling (particularly for water body crossings and intersections) to mitigate potential environmental impacts and avoid disruption of vehicle and marine vessel traffic.

Construction activities will include surveying and staking, preparing the right-of-way, digging the trench in which the pipeline will be placed, preparing the pipeline for installation (fitting it to the terrain) and applying a protective coat, installing the pipeline and associated valves and fittings, covering the pipeline and testing.

Pipeline construction is expected to begin in late 2016 or early 2017.

WHY THE PROJECT IS NEEDED

- The project is needed because the existing fuel delivery system it will replace is unsustainable. It relies on only two sources of fuel – the Chevron Refinery in Burnaby and the BP Cherry Point Refinery in Washington State. If one of these refineries shut down for an extended period, airport and airline operations would be jeopardized.
- Chevron supplies 40% of the airport's needs through the 40-km Kinder Morgan pipeline that originates near Burrard Inlet and crosses Burnaby and north Richmond.
- The pipeline was built at a time when four local refineries were operating. Chevron is the only one still in operation.
- Cherry Point supplies the remaining 60%, of which 40% is shipped via barges to the Westridge Marine Terminal, from where it is offloaded and shipped to the airport through the Kinder Morgan pipeline, and the remaining 20% is via tanker truck deliveries, which can total up to 40 a day.
- The Kinder Morgan pipeline, which is only 150 mm (6 in) diameter, is at capacity and since the late 1990s the tanker truck deliveries have been required to meet YVR's fuel demand.
- Any growth in fuel demand at YVR depends on more cross-border fuel truck shipments. For example, adding just one daily flight to Asia would require an additional 800 trucks a year.

PROJECT BENEFITS

- The project's spill prevention and response strategies for the Fraser River are robust and go well beyond industry standards and best practices, and is described by Environment Canada as the current state-of-the-art for spill modelling and potential incident preparation.
- The project will enhance the response capability on the Fraser River that will benefit all other users on the river.
- The project will have a smaller environmental footprint than the existing fuel delivery system, and will remove all the tanker trucks that carry fuel to YVR (over 1,200 each month) from Washington State through Surrey, Delta and Richmond.
- The project will help ensure that YVR remains a critical part of British Columbia's role as Canada's Pacific Gateway.
- The project will also help is needed to ensure YVR continues to have the fuel capacity to add the new flights.
- The project represents a $110 million investment and construction jobs in the Lower Mainland.

VANCOUVER AIRPORT FUEL FACILITIES CORPORATION

Vancouver Airport Fuel Facilities Corporation (VAFFC) is a not-for-profit company owned by a consortium of commercial airlines representing most of the domestic and international carriers serving Vancouver International Airport (YVR).

VAFFC owns and operates fuel storage and distribution facilities at YVR. These facilities are shared among the airlines, allowing them to avoid duplication and minimize costs. Similar fuel facility corporations operate at all of the major international airports across Canada and throughout the world.

The company has more than 20 years of experience in aviation fuel handling activities at YVR.

VAFFC contracts the management, construction and operation of its facilities to qualified organizations, and draws expertise from a network of experienced engineering and environmental consultants specializing in aviation fuel infrastructure.

FOR MORE INFORMATION

Email: info@vancouverairportfuel.ca
Phone: 604.638.7463
Website: vancouverairportfuel.ca

Vancouver Airport
Fuel Facilities Corporation
AN FSM GROUP [illegible]

Pipeline Construction

The pipeline will consist of specialty steel pipe manufactured in accordance with the American Society for Testing and Materials (ASTM) Standard A53 (Grade B) and will installed to the standards established by the Canadian Standards Association (CSA) Standard Z662-03 for Oil and Gas Pipeline Systems. The pipeline installation and operation will be regulated by the BC Oil and Gas Commission.

Pipeline construction will follow these phases:

Surveying and staking
Crews survey and mark the right-of-way and temporary workspace. Not only will the right-of-way contain the pipeline, it is also where all construction activities occur.

Preparing the right-of-way
The clearly marked right-of-way is cleared of trees and brush and the top soil is removed and stockpiled for future reclamation. The right-of-way is then leveled and graded to provide access for construction equipment.

Digging the trench
Once the right-of-way is prepared, a trench is dug and the centre line of the trench is surveyed and re-staked. The equipment used to dig the trench varies depending on the type of ground conditions. (Fig. 1)

(Fig. 1)

Stringing the pipe
Individual lengths of pipe are brought in from stockpile sites and laid out end-to-end along the right-of-way.

Bending and joining the pipe
Individual joints of pipe are bent to fit the terrain using a hydraulic bending machine. Welders join the pipes together using either manual or automated welding technologies. Welding shacks are placed over the joint to prevent the wind from affecting the weld. The welds are then inspected and certified by X-ray or ultrasonic methods.

Coating the pipeline
Coating both inside and outside the pipeline are necessary to prevent it from corroding either from ground water or the product carried in the pipeline. The pipes arrive at the construction site pre-coated, however the welded joints must be coated at the site.

Positioning the pipeline
The welded pipeline is lowered into the trench using equipment with special cranes called sidebooms. (Fig. 2)

Backfilling the trench
Once the pipeline is in place in the trench, the topsoil is replaced in the sequence in which it was removed and the land is re-contoured and re-seeded for restoration. Sections that are along roadways will be repaved.

Pressure Testing
The pipeline is pressure tested before it begins operations.

Final clean-up
The final step is to reclaim the pipeline right-of-way and remove any temporary facilities.

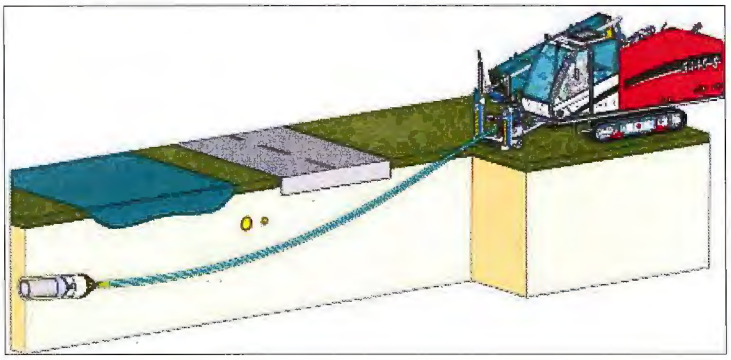
Construction information courtesy of the Canadian Energy Pipeline Association

(Fig. 2)

Directional Drilling

Construction will include extensive use of directional drilling (particularly for water body crossings and intersections) to mitigate potential environmental impacts and avoid disruption of vehicle and marine vessel traffic.

Directional drilling allows for extended sections of pipeline to be installed below congested or sensitive ground surfaces with very small surface disturbance. For example, the proposed section under the Moray Channel will be almost 800m long, almost 50 meters deep under the river bed, and enter and exit more than 100 meters from the water's edge.



City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	August 30, 2016
From:	John Irving, P.Eng. MPA Director, Engineering	**File:**	10-6060-01/2016-Vol 01
Re:	**Vancouver Airport Fuel Delivery Project - Environmental Assessment Certificate Amendment Update**		

Staff Recommendation

That the comments regarding the Vancouver Airport Fuel Facility Corporation's application for amendment to the approved Vancouver Airport Fuel Delivery Project's Environmental Assessment Certificate identified in the staff report titled "Vancouver Airport Fuel Delivery Project - Environmental Assessment Certificate Amendment Update" dated August 30, 2016, from the Director, Engineering, be endorsed for submission to the BC Environmental Assessment Office.

John Irving, P.Eng. MPA
Director, Engineering
(604-276-4140)

Att. 1

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Parks Services	☑	
Fire Rescue	☑	
Development Applications	☑	
Transportation	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:**	**APPROVED BY CAO** (Acting)

Staff Report

Origin

On December 12, 2013 the Minister of Environment and the Minister of Natural Gas Development issued a conditional Environmental Assessment Certificate for the Vancouver Airport Fuel Delivery (VAFD) project. On April 18, 2016, the Vancouver Airport Fuel Facilities Corporation (VAFFC) submitted an application to the BC Environmental Assessment Office to amend the Environmental Assessment Certificate. On May 13, 2016, the City provided comments to the Environmental Assessment Office on the amendment application as directed by Council at the regular Council meeting held on Monday, May 9, 2016. The Environmental Assessment Office has distributed a draft Amendment Assessment Report and draft Section 19 Certificate Amendment for the VAFD (Attachment 1) for final comments from the Working Group. The Environmental Assessment Office has set a deadline for September 6, 2016) for comment on the draft material.. This report recommends comments to be sent to the Environmental Assessment Office for Council's consideration. An update on the VAFD Oil and Gas Commission Permit process is being presented in a separate report on the same Committee agenda.

Analysis

At the regular Richmond City Council meeting held on Monday, May 9, 2016, City Council resolved to respond to the BC Environmental Assessment Office's invitation to comment on the Vancouver Airport Fuel Facilities Corporation's application for amendment to the approved Vancouver Airport Fuel Delivery Project and the comments were sent on May 13, 2016.

After considering stakeholder comments, the Environmental Assessment Office drafted an Amendment Assessment Report and a Section 19 Certificate Amendment (Attachment 1) for the VAFD amendment application and circulated these documents to the project Working Group for final comments. The report and Section 19 Certificate add additional corridors for potential pipeline installation but do not remove any that are in the original Environmental Assessment Certificate. They also allow the increase in pipeline diameter from nominal 300 mm to nominal 350 mm.

The following reviews the City's comments in order and the response to those comments in the Amendment Assessment Report and the Section 19 Certificate Amendment.

Comment 1

That the City continues to oppose the development of the VAFD project in its current configuration and that options to deliver jet fuel directly to Sea Island be considered prior to implementation of the VAFD project.

There is no reference to the City's objection in either the Amendment Assessment Report or the Section 19 Certificate Amendment.

Comment 2

That the pipeline route in North Richmond be limited to the Bridgeport Road option due to the significant negative impacts to the future development of North Richmond inherent in the Bridgeport Trail and River Road options.

The Amendment Assessment Report indicates that the City of Richmond has a preference for the Bridgeport Road option over the Bridgeport Trail and River Road options and includes Bridgeport as a potential pipeline corridor. However, it does not limit the pipeline corridor to Bridgeport Road and will continue to allow pipeline installation on the Bridgeport Trail or River Road at the discretion of the VAFFC.

Comment 3

That pipelines constructed in unopened municipal road dedications be constructed in a manner that does not impact the City's ability to build roads on these dedications in the future.

The Amendment Assessment Report does not explicitly indicate that the pipeline must be built in a manner that does not impact the City's ability to build roads on its unopened road dedications.

Comment 4

That the VAFD installations and pipeline be limited to supplying jet fuel to YVR.

There is no reference to limiting the VAFD installations and pipeline to supplying jet fuel to YVR in either the Amendment Assessment Report or the Section 19 Certificate Amendment. The original Environmental Assessment Certificate limits the VAFD to transferring jet fuel, but it does not preclude supplying jet fuel outside of Sea Island.

Comment 5

Request that the Federal and Provincial governments change the process to include more than one option during the environmental assessment process.

This comment is not addressed in either the Amendment Assessment Report or the Section 19 Certificate Amendment.

Further Comments

Staff recommends sending the City's five comments on the VAFD Environmental Assessment Certificate Amendment to the Environmental Assessment Office a second time given that the comments were not adequately addressed in the Amendment Assessment Report or the Section 19 Certificate Amendment.

Financial Impact

None

Conclusion

The VAFFC was issued a conditional EAC in December 2013 that identified overall VAFD system configuration and pipeline route. On April 18, 2016, the VAFFC applied to the BCEAO for an amendment to the approved EAC to include additional pipeline routes in North Richmond, South Richmond, and Sea Island as well as an increase in pipeline diameter from 300 mm to 350 mm. On May 13, 2016, the City provided comments to the Environmental Assessment Office on the amendment application. The Environmental Assessment Office reviewed stakeholder comments and drafted an Amendment Assessment Report and a Section 19 Certificate Amendment for the VAFD project. The City's concerns are not adequately represented in these documents and Staff recommends that the City's concerns be sent to the Environmental Assessment Office again in response to their request for final comments on the amendment.

Lloyd Bie, P.Eng.
Manager, Engineering Planning
(604-276-4075)

LB:lb

Att. 1: Environmental Assessment Office's draft Assessment of an Application for Amendment, Vancouver Airport Fuel Delivery Project, and Section 19 Certificate Amendment for the VAFD, 2016.

EAO | Environmental Assessment Office

EAO's Assessment of an Application for Amendment

Vancouver Airport Fuel Delivery Project, EA Certificate # E13-02

Requested by:

Vancouver Airport Fuel Facilities Corporation

[Date], 2016 - *DRAFT*

Pursuant to section 19 of the Environmental Assessment Act, S.B.C. 2002, c.43

1.0 OVERVIEW OF PROPOSED AMENDMENT

On December 11, 2013, the Vancouver Airport Fuel Facilities Corporation (the Holder) was issued an Environmental Assessment Certificate # E13-02 (Certificate) under the *Environmental Assessment Act* (Act) for the Vancouver Airport Fuel Delivery Project (the Project). The Project consists of the construction and operation of a new aviation fuel delivery system to serve the airlines at Vancouver International Airport (YVR). The Project includes a marine terminal and fuel receiving facility at existing industrial sites on the South Arm of the Fraser River and an underground fuel pipeline of approximately 14 kilometers in length with a nominal diameter of 300 millimeters (mm) (outside diameter 323.9 mm or NPS 12) that runs between the fuel receiving facility and YVR.

On April 15, 2016, the Holder submitted an amendment application to the Environmental Assessment Office (EAO). The application requested an amendment to increase the delivery pipeline diamater and to revise the location of the delivery pipeline as certified in the existing Certified Project Description (CPD), as detailed in Appendix A of Schedule A of the Certificate. The amendment requests are made as a result of the Holder's most recent design work, and consultation with stakeholders adjacent to the certified pipeline corridor (CPC).

Change in Nominal Maximum Pipeline Diameter:
The Holder proposed an increase in the maximum nominal pipeline diameter from 300 mm (outside diameter 323.9 mm), to 350 mm (outside diameter 355.6 mm or NPS 14). A pipeline with a nominal diameter of up to 350 mm would move the same volume of fuel but at a lower pressure. This would reduce the construction and maintenance costs, as well as reduce power consumption by 754,000 kWh, resulting in a 34% annual energy savings.

Change in Pipeline Corridor Options in South Richmond:
Design changes in the configuration and precise footprint of the fuel receiving facility and other neighbouring developments requires a change to the CPC in South Richmond. The CPD currently certifies the delivery pipeline as exiting the north side of the fuel receiving facility and crossing under the Canadian National Railway (CNR) property to reach the Francis Road corridor. The Holder now proposes that the delivery pipeline follow one of two options (Figure 2 of the amendment application); one of which would be selected by the Holder for final routing through the BC Oil and Gas Commission permitting process and requirements:

1. Exit the fuel receiving facility at the north side of the Port of Vancouver (PV) property to reach the Francis Road corridor (as currently certified in the CPD); or
2. Exit the fuel receiving facility at the south west corner of the PV property, continue west on the Holder's property and then north along the Savage Road corridor.

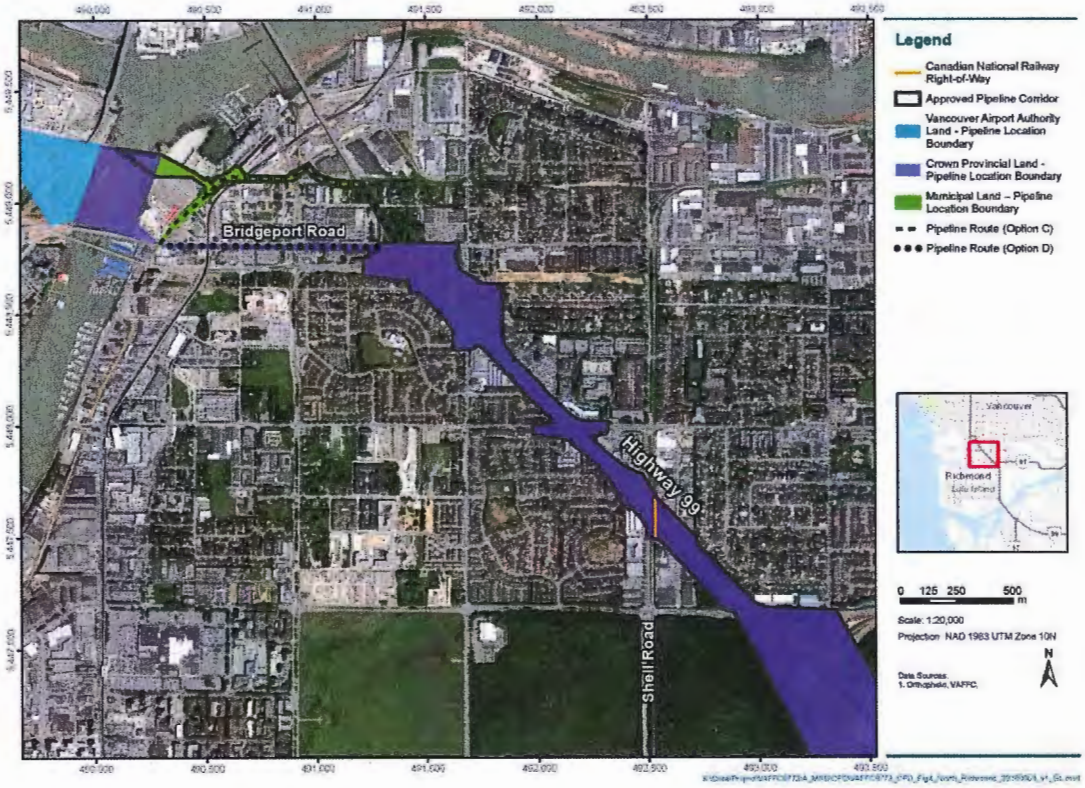
If the Savage Road corridor is selected, it is expected that the pipeline in this corridor would be installed through a directional drilling technique, thereby minimizing potential impacts.

Change in Pipeline Corridor Options in North Richmond:
Since the Certificate was issued, the City of Richmond has indicated a strong preference for the Holder to use the Bridgeport Road corridor instead of the CPC in the CPD. Support for the corridor option on

Bridgeport Road is provided by the Jingon International Development Group who have expressed concern about the west end of the CPC where the corridor initates the crossing of the Moray Channel.

The Holder proposes that the pipeline corridor leave the Highway 99 right-of-way, and follow one of three options as depicted in Figure 4 below. One of these options would be selected by the Holder for final routing through the BC Oil and Gas Commission permitting process and requirements.

Figure 4 Pipeline Corridor in North Richmond.



Change of Pipeline Corridor on Vancouver Airport Authority Lands:
Due to current and future developments, Vancouver Airport Authority (VAA) has requested that the pipeline corridor be located in the region north of Bridgeport Road, and south of Templeton Station Road prior to turning north toward the existing Fuel Storage Facility (Figure 5 of amendment application).

2.0 AMENDMENT REVIEW PROCESS

In January 2016, EAO initiated contact with key federal, provincial and municipal government agencies and Aboriginal groups to establish a Working Group to provide assistance with the review of the amendment application.

EAO accepted the amendment application for review on April 18, 2016, and determined the following approach to consultation:

- The proposed amendment did not require an in-depth consultation with the public due to the inclusion of these pipeline amendments in the application of the environmental assessment (EA) and engagement by the public on these route amendments during the EA. Accordingly, EAO required the Holder to host two public information sessions in the City of Richmond to share information (May 14 and May 25, 2016) and to seek public comment. In addition, the Holder was directed to consult all landowners and tenure holders overlapping or located directly adjacent to the amended pipeline corridor through information mailouts and to hold a 21 day public comment period from May 20th to June 4th, 2016; and
- EAO's preliminary view was that the proposed amendment was unlikely to change the potential effects on Aboriginal Interests (rights and title) identified in the EA and therefore the potential impact on Aboriginal Interests was viewed as low to moderate. As a result, the Holder was required to consult with the Aboriginal groups who wished to meet to identify concerns and potential impacts of the amendment to Aboriginal Interests and to identify measures to accommodate any such impacts.

The amendment application was provided to the Working Group on April 18, 2016 for three weeks to review and comment. EAO organized an introductory Working Group teleconference meeting on April 20, 2016, in order to provide an overview of the amendment process and for the Holder to provide an overview of the amendment application and to respond to initial questions.

The Holder provided responses to all Working Group comments. The Working Group was invited to review these responses and contact EAO if they had any questions or concerns. The Working Group review and comment on the amendment application was completed in July 2016.

3.0 SUMMARY OF ISSUES AND EFFECTS

The Holder's amendment application provided an overview of the potential changes to the effects assessment resulting from the increase in pipeline diameter and route alternatives and assesses whether adverse effects have changed. No key issues related to the effects of the proposed amendment were raised by the public or Working Group. EAO concurs with the Holder's conclusion that potential residual adverse effects and cumulative effects would not change as a result of the increased pipeline diameter or pipeline route alternatives. Consequently, no significant adverse effects are identified for the amendment application.

4.0 ABORIGINAL CONSULTATION

In January 2016, EAO sent letters to potentially affected Aboriginal groups outlining the proposed amendment assessment process, associated timelines, and EAO's approach to consultation. The letters provided a summary of EAO's initial assessment of each Aboriginal group's strength of claim. The assessment of strength of claim was based on consultation conducted during the EA for the Project, the initial assessment of Aboriginal Interests in relation to the proposed George Massey Tunnel Replacement Project located in the same vicinity, and the potential impacts of the proposed amendment on asserted Aboriginal Interests.

EAO consulted with the following Aboriginal groups in the review of the proposed amendment application:

- Cowichan Tribes
- Halalt First Nation
- Kwantlen First Nation
- Lake Cowichan First Nation
- Lyackson First Nation
- Musqueam Indian Band
- Penelakut Tribe
- Semiahmoo First Nation
- Stz'uminus First Nation
- Tsawwassen First Nation
- Tsleil-Waututh Nation

EAO offered capacity funding and requested comments from these Aboriginal groups. In addition, EAO offered to meet to discuss the relevance and adequacy of mitigation measures and commitments of the Certificate as related to the amendment application. Capacity funding was accepted by Cowichan Tribes, Kwantlen First Nation, and Tsleil-Waututh Nation. Comments on the amendment application were received by Musqueam Indian Band and Tsleil-Waututh Nation.

During the amendment review, EAO also provided Hwiltsum First Nation, Katzie First Nation, Kwikwetlem First Nation, Qayqayt First Nation, Squamish Nation, and Tsawout First Nation with notification of the application, key milestones, and the EAO's initial assessment of each Aboriginal group's strength of claim.

The following table summarizes the key concerns raised by Aboriginal groups and the Holder's responses. The Holder has committed to continued engagement and consultation with participating Aboriginal groups who expressed an interest in doing so during the review process. The Holder also consulted on the Project and provided opportunities for Aboriginal groups to ask questions and provide feedback.

Table 1. Summary of Concerns and Responses

Summary of Key Concerns	EAO's Summary of the Holder's Response
Tsleil-Waututh Nation	
Concern related to the footprint of the new system and rationale to change the pumping system, and GHG emissions resulting from the new diameter.	The original scope did not include the use of multi-stage pumps, however, detailed engineering design stage identified that a marginal increase in the nominal diameter of the delivery pipeline could avoid the need for costly, more noisy and power intensive pumps. The physical footprint of the pump system and pipeline would be unchanged. A combination of factors contributed to this change in pipeline diameter, specifically operational efficiency, and the long-term benefits from using a pump system that will have less operational and maintenance costs and energy savings. The Holder estimated there would be fewer GHG emissions because of less power consumption, although neither system would be a significant source of GHG emissions. There will be an overall decrease in regional GHG emissions because of the avoided emissions from the existing tanker truck deliveries and existing multi-stage delivery system.
Musqueam Indian Band	
Musqueam Indian Band expressed concerns related to protection of the Fraser fisheries.	Although the concern expressed was outside of the scope of the amendment application, the Holder explained that it responded to this concern during the original EA by undertaking additional study of the risks and then designing and testing specific spill prevention and response measures to mitigate those risks. The Holder also committed to notice protocols to advise Musqueam Indian Band and other interested Aboriginal groups of vessel deliveries.

Based on the issues raised and the Holder's responses, EAO is satisfied that the issues were adequately addressed.

5.0 CONCLUSIONS

Based on:

- Information contained in the Holder's amendment application;
- The Holder's and EAO's consultation with the Aboriginal groups, federal, provincial and local government agencies, and the Holder's commitment to ongoing consultation;
- Comments on the amendment application by Aboriginal groups, federal, provincial agencies, as members of EAO's Working Group, and the Holder's and EAO's responses to these comments; and
- Issues raised by Aboriginal groups regarding potential impacts of the amendment application and the Holder's responses and actions to address these issues.

EAO is satisfied that:

- The review has adequately identified and assessed the potential changes to the conclusions about potential adverse environmental, economic, social, heritage and health effects of the Project resulting from the proposed amendment;
- Consultation with Aboriginal groups and the Working Group on the proposed amendment application has been adequately carried out by the Holder and will, as necessary, be ongoing;

- Issues identified by the Working Group, which were within the scope of the assessment of the proposed amendment application, were adequately and reasonably addressed by the Holder;
- Practical means have been identified to prevent or reduce any potential adverse environmental, social, economic, heritage or health effects of the proposed amendment such that no significant adverse effect is predicted or expected;
- The potential for adverse effects on Aboriginal Interests has been avoided, minimized or otherwise accommodated to an acceptable level; and
- The provincial Crown has fulfilled its obligations for consultation and accommodation to Aboriginal groups relating to the issuance of an amendment to EAC # E13-02.

IN THE MATTER OF
THE *ENVIRONMENTAL ASSESSMENT ACT,* S.B.C. 2002, C. 43 (ACT)

AND

IN THE MATTER OF
ENVIRONMENTAL ASSESSMENT CERTIFICATE # E13-02 (CERTIFICATE)
ISSUED TO
VANCOUVER AIRPORT FUEL FACILITIES CORPORATION (HOLDER)
FOR THE
VANCOUVER AIRPORT FUEL DELIVERY PROJECT (PROJECT)

AMENDMENT #1 TO THE CERTIFICATE # E13-02

WHEREAS:

A. The Certificate was issued to the Holder on December 11, 2013;

B. The Holder is authorized to construct a delivery pipeline with a maximum length of 16 km and a maximum diameter of 300 mm (323.9 mm outside diameter or NPS 12) to deliver aviation fuel from the fuel receiving facility to facilities at Vancouver International Airport (YVR);

C. On April 15, 2016, the Holder applied to the Environmental Assessment Office (EAO), pursuant to section 19(1) of the Act to amend its Certificate to increase the delivery pipeline diameter and to revise the location of the delivery pipeline as certified in the existing Certified Pipeline Corridor;

D. Notice of the application to amend the Certificate (application) and an opportunity to provide comments was provided to the Working Group, consisting of representatives of federal, provincial and local governments, and the following Aboriginal groups: Cowichan Tribes, Halalt, Kwantlen Nation, Lake Cowichan, Lyackson, Musqueam Indian Band, Penelakut Tribe, Semiahmoo Nation, Stz'uminus, Tsawwassen Nation and Tsleil-Waututh Nation;

E. Notice of the application and key project milestones was sent to Hwlitsum Nation, Katzie Nation, Kwikwetlem Nation, Qayqayt Nation, Squamish Nation, and Tsawout Nation; and

F. The Executive Director has delegated his power under section 19(3) and (4) of the Act to the undersigned, and the undersigned has considered the application.

NOW THEREFORE:

I amend Schedule A of the Certificate # E13-02 to accommodate the following changes:

1. Section 4, No. 2 is rescinded and replaced with:

   A delivery pipeline with a maximum length of 16 kilometres and a maximum nominal diameter of 350 millimetres (355.6 mm outside diameter or NPS 14).

2. Section 4.1.2 Delivery Pipeline is rescinded and replaced with:

   4.1.2 Delivery Pipeline

   The delivery pipeline must be located within the corridor route described below and shown on Figures 2 to 7:

   - Marine Terminal and Fuel Receiving Facility Property Location and Pipeline Corridor in South Richmond (Figure 2):
     - Exiting the Vancouver Fraser Port Authority Federal land at the north side of the property and crossing under a Canadian National Railway right-of-way to reach the Francis Road corridor; or
     - Exiting the Vancouver Fraser Port Authority Federal land at the south west corner of the property, crossing under Williams Road to the Marine Terminal site, crossing a Canadian National Railway right-of-way and continuing west on VAFFC property to reach the Savage Road corridor, crossing under Williams Road to the Savage Road corridor, and continuing north to reach the Francis Road corridor;
   - West along the Francis Road right-of-way to Highway 99. The corridor width required for locating and constructing the pipeline is the Francis Road right-of-way.

   - Pipeline Corridor in Central Richmond (Figure 3):
     - North along Highway 99 to Bridgeport Road. The corridor width required for locating and constructing the pipeline is the Highway 99 right-of-way;

   - Pipeline Corridor in North Richmond (Figure 4):
     - Continuing north on Highway 99 right-of-way and then northwest along Bridgeport Trail to Van Horne Way, southwest along Van Horne Way to Charles Street, west along Charles Street to River Road, southwest along River Road and northwest along No.3 Road to the pipeline crossing under Moray Channel. The pipeline corridor width required for locating

and constructing the pipeline is the respective widths of trail and road right-of-way's which make up this segment; or

- Continuing north on Highway 99 right-of-way and then northwest along Bridgeport Trail to Van Horne Way, southwest along Van Horne Way to Charles Street, west along Charles Street to River Road, southwest along River Road to reach Bridgeport Road, under a disused railway line corridor owned by the City of Richmond and Crown provincial land, to reach the crossing of the Moray Channel. The pipeline corridor width required for locating and constructing the pipeline is the respective widths of trail and road right-of-ways which make up this segment; or
- Turning west along the Bridgeport Road corridor, under Crown provincial land, and a disused railway line corridor owned by the City of Richmond, to reach the crossing of the Moray Channel. The pipeline corridor width required for locating and constructing the pipeline is the Bridgeport Road right-of-way.

- Pipeline Corridor on Vancouver Airport Authority Land (Figure 5):
  - Crossing under the Moray Channel to Sea Island. The crossing under the Moray Channel will begin immediately north of the Bridgeport Road bridge.
  - West then north on Sea Island to the existing fuel storage and handling facilities. The pipeline corridor will be located in the area between the north of Bridgeport Road and south of Templeton Station Road. The corridor width required for locating and constructing the pipeline is the area defined and georeferenced with coordinates as described in Section 3.4 of the amendment application and shown in Figure 5:
    - The northern boundary of this area will cross Templeton Station Road, running along the eastern boundary of the YVR employee parking lot, before turning west on Grauer Road and north along the western side of Ferguson Road toward the fuel storage and handling facilities.
    - The southern boundary of this area will turn north to run through the Arthur Laing Bridge interchange area, and west, south of the Canada Line SkyTrain, before turning north and west toward the fuel storage and handling facilities.
  - The corridor required for locating and constructing the pipeline must be located within the boundaries of property owned by the Vancouver Airport Authority, as shown on Figure 5.
  - The pipeline will terminate on airport land leased by VAFFC.

A complete delivery pipeline route is shown in Figure 6.

3. Where two or more options for the Certified Pipeline Corridor are set out in Appendix A on Figures 2 and 4, the pipeline is constructed within one of the options, not all.

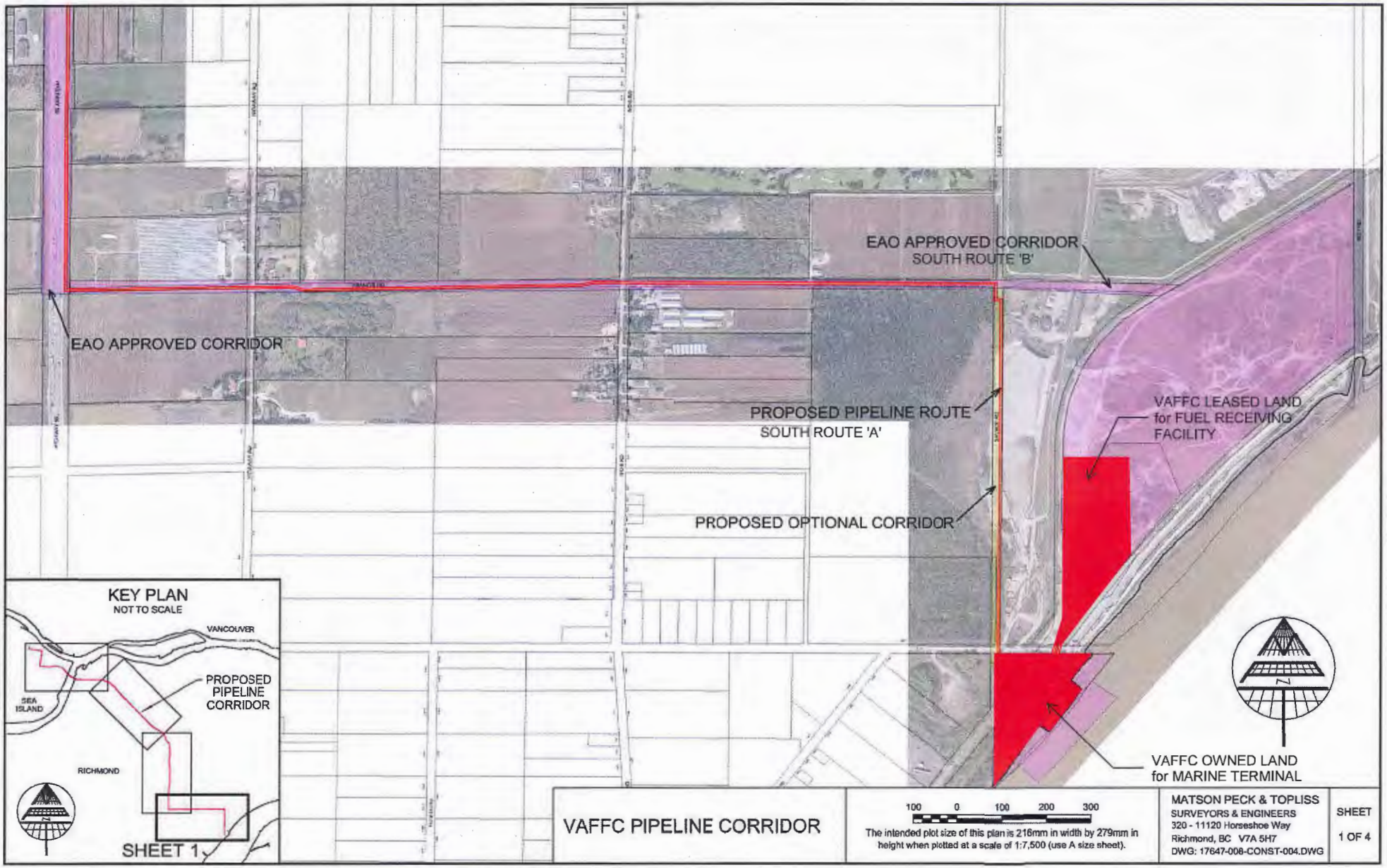
4. Figures 1 to 7 are rescinded and replaced with Figures 1 to 7 attached as Appendix A of this Order.

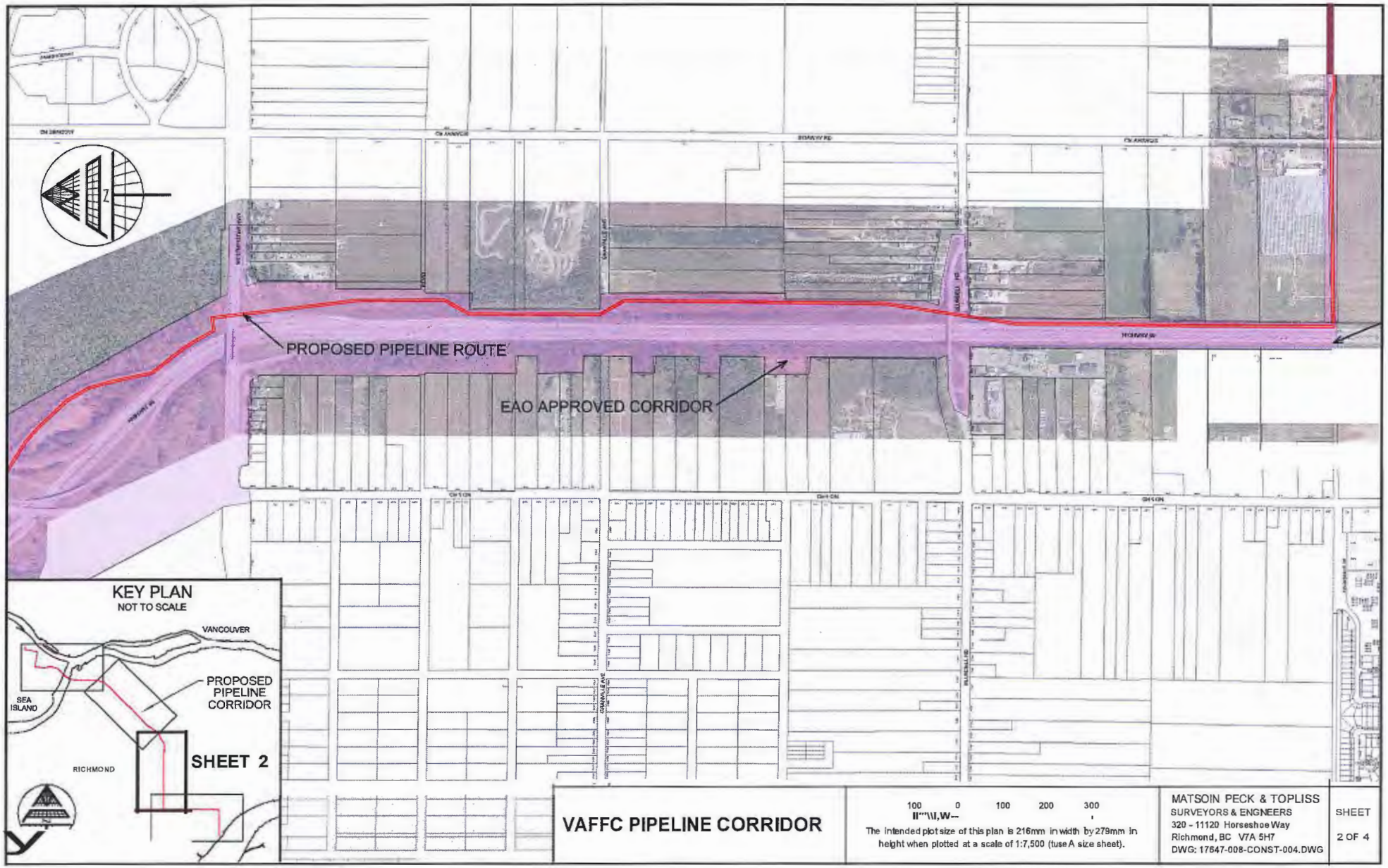
_____

Michelle Carr, Assistant Deputy Minister
Environmental Assessment Office

Issued this ____ day of _____, 2016

APPENDIX A
[Route Mapsheets]


EAO APPROVED CORRIDOR
SOUTH ROUTE 'B'
EAO APPROVED CORRIDOR
PROPOSED PIPELINE ROJTE
SOUTH ROUTE 'A'
PROPOSED OPTIONAL CORRIDOR
VAFFC LEASED LAND
for FUEL RECEIVING
FACILITY
VAFFC OWNED LAND
for MARINE TERMINAL
KEY PLAN
NOT TO SCALE
VANCOUVER
PROPOSED
PIPELINE
CORRIDOR
SEA
ISLAND
RICHMOND
SHEET 1
VAFFC PIPELINE CORRIDOR
100 0 100 200 300
The intended plot size of this plan is 216mm in width by 279mm in height when plotted at a scale of 1:7,500 (use A size sheet).
MATSON PECK & TOPLISS
SURVEYORS & ENGINEERS
320 - 11120 Horseshoe Way
Richmond, BC V7A 5H7
DWG: 17647-008-CONST-004.DWG
SHEET
1 OF 4



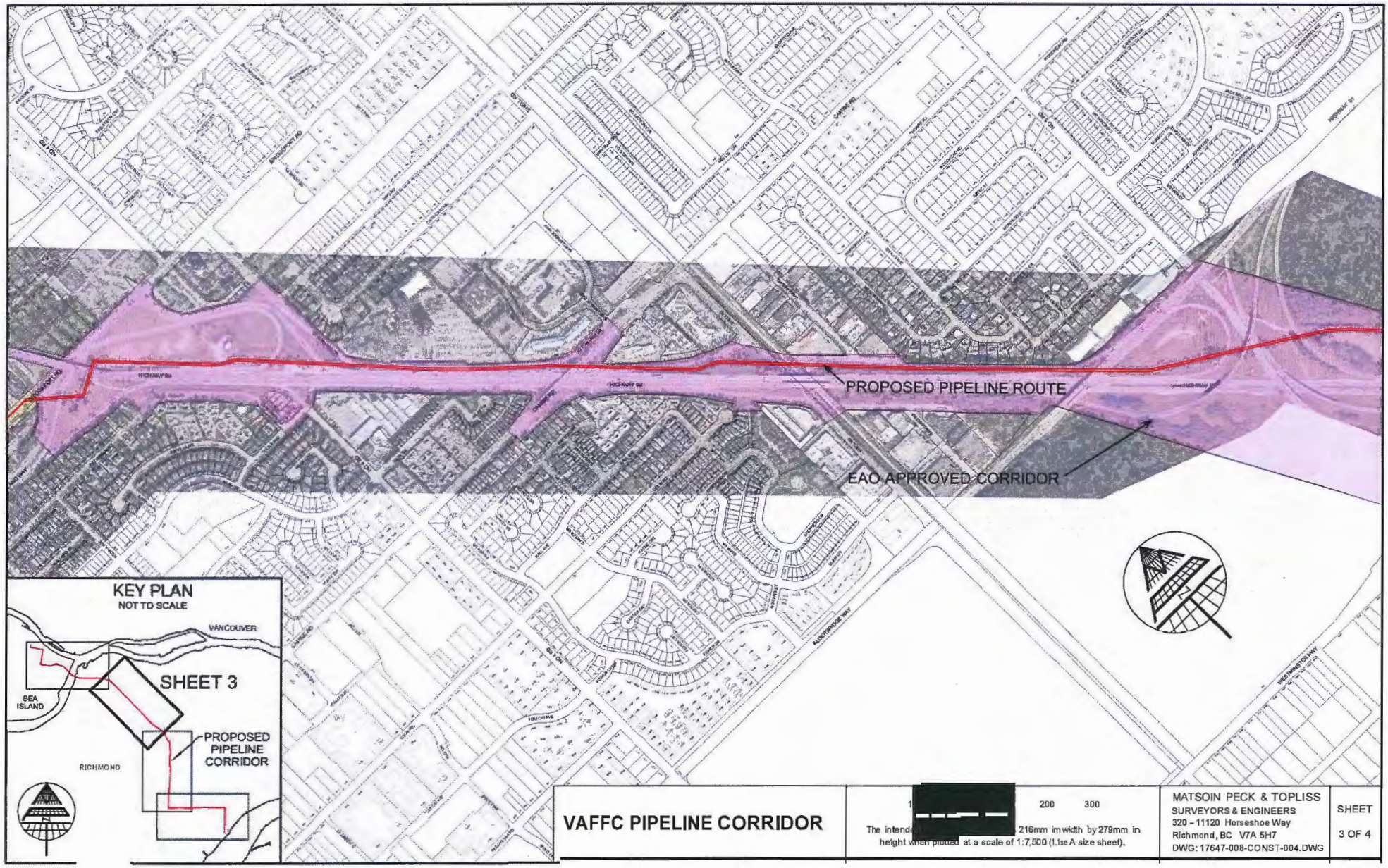
VAFFC PIPELINE CORRIDOR

100 0 100 200 300

The intended plot size of this plan is 216mm in width by 279mm in height when plotted at a scale of 1:7,500 (use A size sheet).

MATSOIN PECK & TOPLISS
SURVEYORS & ENGINEERS
320 - 11120 Horseshoe Way
Richmond, BC V7A 5H7
DWG: 17647-008-CONST-004.DWG

SHEET 2 OF 4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MATSOIN PECK & TOPLISS
SURVEYORS & ENGINEERS
320 - 11120 Horseshoe Way
Richmond, BC V7A 5H7
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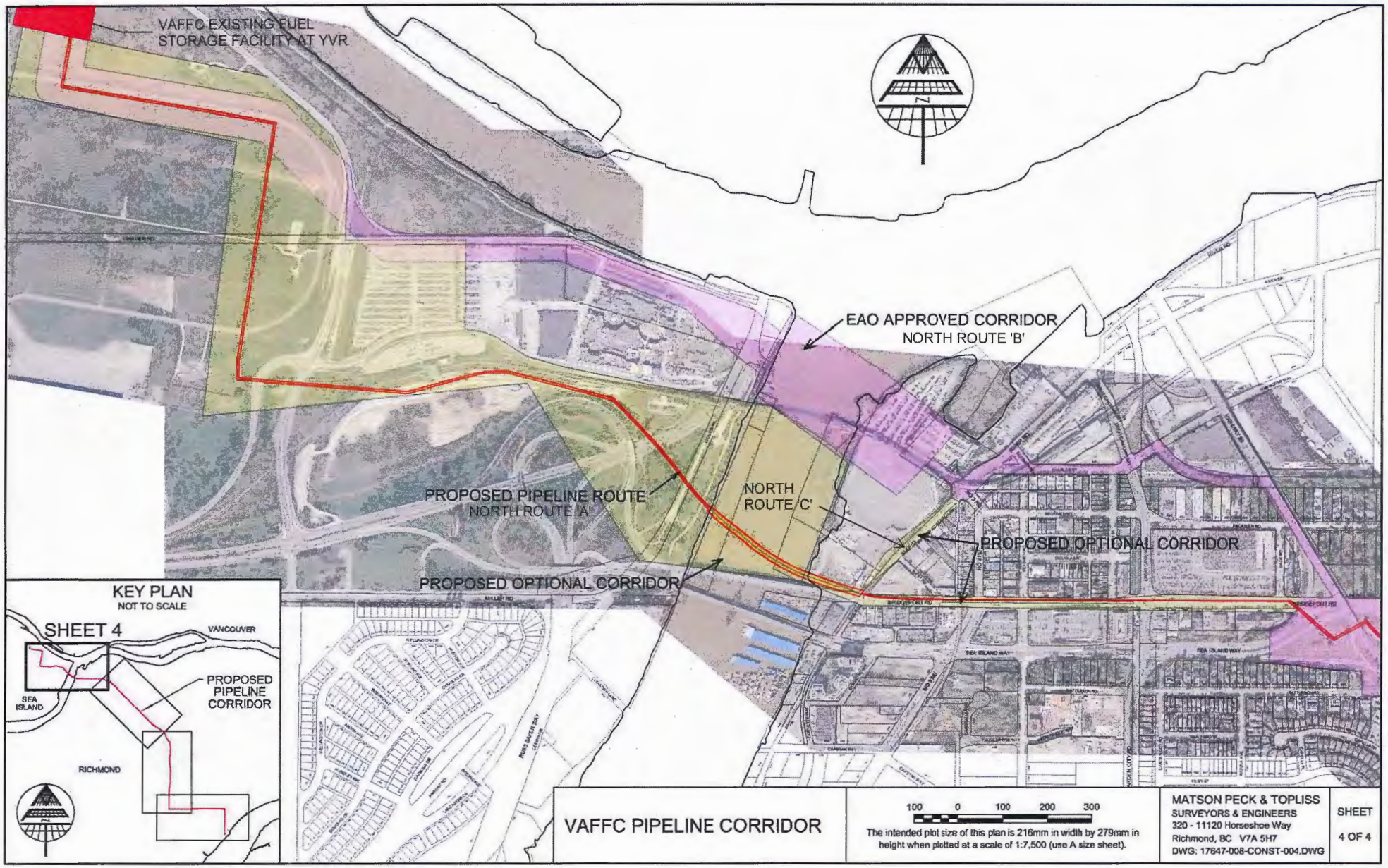
VAFFC EXISTING FUEL STORAGE FACILITY AT YVR
EAO APPROVED CORRIDOR
NORTH ROUTE 'B'
PROPOSED PIPELINE ROUTE
NORTH ROUTE 'A'
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ROUTE 'C'
PROPOSED OPTIONAL CORRIDOR
PROPOSED OPTIONAL CORRIDOR
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MATSON PECK & TOPLISS
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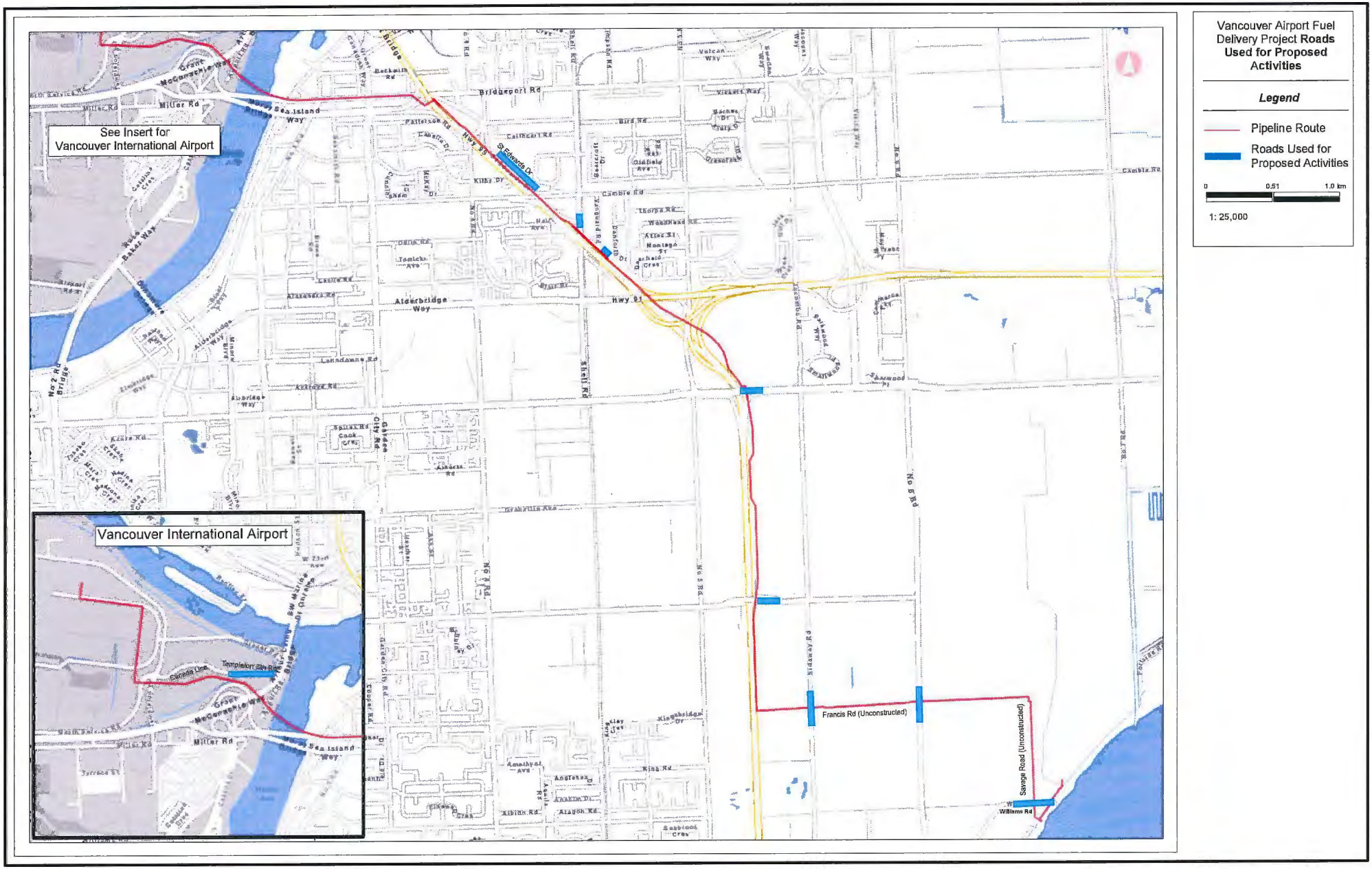
See Insert for Vancouver International Airport
Vancouver International Airport
Francis Rd (Unconstructed)
Savage Road (Unconstructed)
Williams Rd
Bridgeport Rd
Alderbridge Way
Hwy 91
Sea Island Way
Miller Rd
No 5 Rd
Vancouver Airport Fuel Delivery Project Roads Used for Proposed Activities
Legend
Pipeline Route
Roads Used for Proposed Activities
0
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Vancouver Airport
Fuel Facilities Corporation
AN PSM GROUP MANAGED CORPORATION

Vancouver Airport Fuel Delivery Project

ABOUT THE PROJECT

Vancouver Airport Fuel Facilities Corporation (VAFFC) is constructing a new aviation fuel delivery system to serve the airlines at Vancouver International Airport (YVR). It includes a Marine Terminal and Fuel Receiving Facility at existing industrial sites on the South Arm of the Fraser River and an underground pipeline connecting the facility with YVR.

In December 2013, following more than a decade of comprehensive planning, research, review and consultation by VAFFC, the project completed a comprehensive harmonized federal/provincial environmental assessment process, with the BC Environmental Assessment Office (EAO) coordinating the review requirements of both the Canadian Environmental Assessment Act and BC Environmental Assessment Act.

The assessment included Environment Canada, Transport Canada, Health Canada, Department of Fisheries and Oceans, Canadian Coast Guard, Canadian Wildlife Service, Natural Resources Canada, Canadian Transportation Agency, Port Metro Vancouver, 12 First Nations, Metro Vancouver, City of Richmond, Corporation of Delta, BC Oil & Gas Commission, BC Utilities Commission, BC Ministry of Environment, Ministry of Community, Sport & Culture and Vancouver Airport Authority.

On a stand-alone basis, the risks of this project are few and will be managed to insignificant levels with well understood and proven risk management methods, best practices and technology. On a comparative basis, the risks of this project are far less than the current fuel delivery methods and infrastructure.

PROJECT COMPONENTS

Marine Terminal

The new Marine Terminal will be located on the north shore of the south arm of the Fraser River, at one of the widest and deepest sections of the river. An upgrade of an existing wharf, in an area that is already zoned for heavy industrial use, will be based on best practice designs and incorporate state-of-the-art mooring and offloading technologies.

The marine terminal will be designed to handle small barge shipments and large overseas shipments. These will be short in duration and only a few times a month, based on projected YVR fuel demand. A barge could be expected to deliver fuel once every two weeks with an unloading time around 12 hours, while a Panamax class vessel could be expected once a month with an unloading time of between 24 to 36 hours.

Marine Terminal and Fuel Receiving Facility

Vessels:

- All vessels will be double-hulled for optimal safety
- All vessel movements will be guided by tugboats and government-certified marine pilots on the river and at the Marine Terminal
- All vessels calling on the terminal will be pre-screened and vetted through a tanker acceptance program
- All vessels will have a Shipboard Oil Pollution Emergency Plan, and required to carry pollution liability insurance

Operations:

- Fuel will be transferred from vessels to shore using hydraulically-operated articulated unloading arms
- The unloading arms will be designed with flexibility for tides and ship movement during offloading
- If the movement of the vessel exceeds the safe range, the fuel transfer process will be automatically stopped and the arms will be disconnected using leak-free emergency release couplings
- The terminal will be equipped with pre-deployed permanent booming complete with a pile deflection/ protection system and skimmers to collect any fuel spilled

Emergency Preparedness and Response:

- Spill response vessels will be deployed upon arrival of a vessel in the river, and will accompany the vessel to the terminal
- Before a vessel is offloaded, booms and skimmers will be positioned around the vessel to contain a spill in the unlikely event of an accidental release of product onto water, and to recover the product as quickly as possible
- The response boats would be on standby to deploy containment and absorbent booms in the water if required

The Marine Terminal site will be protected by perimeter fencing and landscape barriers along the dyke trail. The dyke trail will connect users in the Waterstone Pier area with existing and future trail systems further upstream.

Rendering of Fuel Receiving Facility – view looking north

Fuel Receiving Facility

The Fuel Receiving Facility will include six above-ground vertical carbon steel single wall tanks, each approximately 33.5 metres in diameter and 14.6 metres high, with an overall height of 21 metres above sea level. The tanks will provide a combined total capacity of approximately 80 million litres.

Operations:

- The Fuel Receiving Facility will operate quietly with little noticeable activity
- Fuel will be moved through contained systems from pipes to tanks with pumps that will be housed to reduce operating noise levels
- Tank systems will be equipped to reduce vapour emissions during fuel transfers and will be only locally noticeable
- Lighting and security of the facility will use state-of-the-art LED and motion detection to reduce the ambient level of light during night-time operation
- Noise, air quality and traffic will be mitigated through our comprehensive Operations Environmental Management Plan which will include a telephone information line

The tanks will have impermeably lined secondary containment areas

Emergency Preparedness and Response:

The Fuel Receiving Facility will be constructed to the National Building Code and the B.C. Building Code.

The facility will feature state-of-the-art fire detection and suppression systems including:

- Early detection systems inside tanks and in the piping/process area
- Automatic fire valves on tanks in the process area
- Foam suppression system inside each fuel storage tank
- Foam/water monitors and tank cooling system
- Fire hydrants at strategic and perimeter locations for access and operation by Richmond Fire Rescue
- Auxiliary and portable fire-fighting equipment

Environmental protection measures will include:

- Secondary containment and under-tank leak detection
- Redundant high level control to prevent tank overfill
- SCADA process monitoring system
- Emergency shut-down devices and emergency shut-down valves
- Process equipment located on concrete pads, with all drainage connected to an oil/water separator
- Drainage detection system to prevent a product release to ditches
- 24/7 monitoring by operations staff, with on-site spill response equipment, including portable spill response kits, spill response trailer and a vacuum truck

Pipeline

Modern pipeline systems have the benefit of precise locating technologies, new materials and coatings, and high-tech installation techniques to reduce disturbances during construction.

The pipeline will be about 14 kilometres long, 355.6 millimetres in diameter and buried for its entire length approximately 2.5 metres underground.

The pipeline will consist of specialty steel pipe and will be installed to meet a minimum Canadian Standards Association (CSA) Standard Z245.1 Grade 359 for Oil and Gas Pipeline Systems. The pipeline installation and operation will be regulated by the BC Oil and Gas Commission.

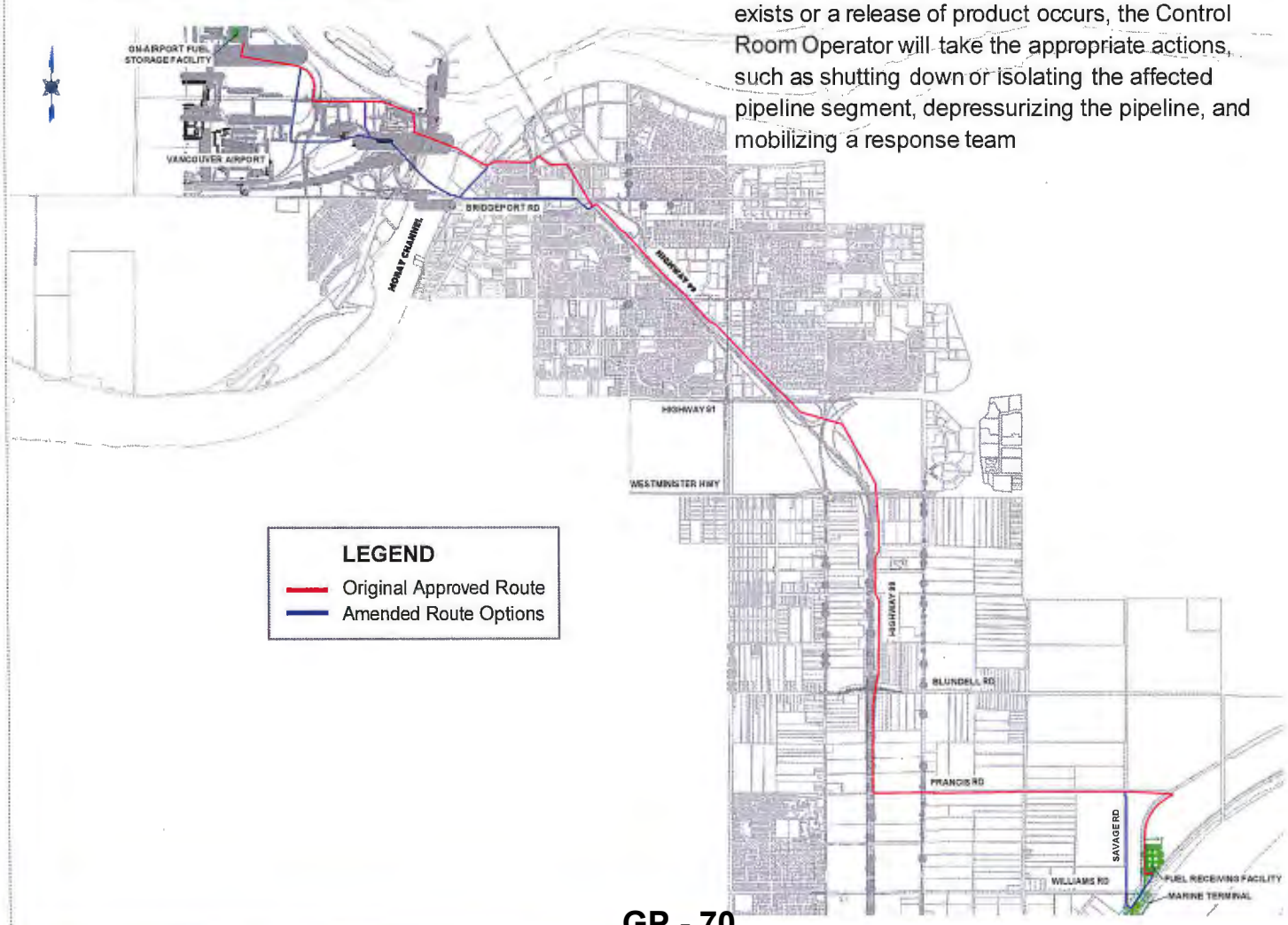
Prior to commissioning, the pipeline will be thoroughly tested and cleaned in accordance with construction and operational requirements, and clearly marked along its entire length. Similar to all other utility installation, location information will be provided to the City of Richmond and locator services.

Operations:

- The pipeline will be controlled and monitored by operations personnel during all fuel transfer activities
- It will be pressurized only during fuel transfer operations between the Fuel Receiving Facility and YVR (it will not operate 24/7)

Emergency Preparedness and Response:

- Prior to construction, an emergency response plan will be developed in conjunction with other municipal and regional emergency response plans
- The pipeline will include state-of-the-art corrosion protection and leak detection technologies
- The pipeline will be equipped automatic emergency shutdown devices, and pressure and flow monitors that will transmit data to a Control Centre
- Any abnormalities in pressure or flow will trigger an alarm or shutdown
- If the unlikely event that an abnormal condition exists or a release of product occurs, the Control Room Operator will take the appropriate actions, such as shutting down or isolating the affected pipeline segment, depressurizing the pipeline, and mobilizing a response team



CONSTRUCTION

Marine Terminal

The Marine Terminal construction is expected to start in late 2016, beginning with modifications to the existing dock. To meet the seismic performance requirements of the facility, significant rehabilitation of the shoreline will be undertaken to allow construction of off-shore mooring structures. Shoreline and underwater habitat will be restored as part of the development. Significant barge activity will occur during the fall and winter seasons, however no significant pile driving is anticipated until 2017.

Most noticeable activity in 2016 and early 2017 will be associated with the removal of unsuitable fill materials and components of the existing dock structure. These materials will be transported off-site. New structures will begin being installed in mid to late 2017.

Fuel Receiving Facility

The project recently received a Project Permit from the Vancouver Fraser Port Authority to commence construction of the Fuel Receiving Facility to be located on Port Authority owned land. This permit was awarded following a technical review and public consultation held in August/September 2015.

The Fuel Receiving Facility construction will begin in spring 2016 and consist of the following two key phases:

First phase

- The first phase will involve site preparation and ground improvement to provide the stability for the tanks to withstand a major seismic event
- This will involve heavy machinery movements and some localized ground vibrations. Some activity at the marine terminal is expected for delivery of bulk materials

Second phase

- In 2016, construction will start on the utilities, foundations and structural steel components of the fuel receiving facility
- Locally supplied materials such as concrete, rebar, mechanical and electrical components will arrive by road, while large-scale tank steel components, pipe, and other bulk materials are expected to arrive through the Marine Terminal
- Tank and foundation construction will take approximately one year and consist mostly of crane work and welding
- The final stage of construction will include perimeter road works, paving, fencing and landscaping, including screening vegetation

Pipeline

The pipeline will be constructed with resilient materials to current seismic design standards. Construction will include extensive use of directional drilling (particularly for water body crossings and intersections) to mitigate potential environmental impacts and avoid disruption of vehicle and marine vessel traffic.

Construction activities will include surveying and staking, preparing the right-of-way, digging the trench in which the pipeline will be placed, preparing the pipeline for installation (fitting it to the terrain) and applying a protective coat, installing the pipeline and associated valves and fittings, covering the pipeline and testing.

Pipeline construction is expected to begin in late 2016 or early 2017.

WHY THE PROJECT IS NEEDED

- The project is needed because the existing fuel delivery system it will replace is unsustainable. It relies on only two sources of fuel – the Chevron Refinery in Burnaby and the BP Cherry Point Refinery in Washington State. If one of these refineries shut down for an extended period, airport and airline operations would be jeopardized.
- Chevron supplies 40% of the airport's needs through the 40-km Kinder Morgan pipeline that originates near Burrard Inlet and crosses Burnaby and north Richmond.
- The pipeline was built at a time when four local refineries were operating. Chevron is the only one still in operation.
- Cherry Point supplies the remaining 60%, of which 40% is shipped via barges to the Westridge Marine Terminal, from where it is offloaded and shipped to the airport through the Kinder Morgan pipeline, and the remaining 20% is via tanker truck deliveries, which can total up to 40 a day.
- The Kinder Morgan pipeline, which is only 150 mm (6 in) diameter, is at capacity and since the late 1990s the tanker truck deliveries have been required to meet YVR's fuel demand.
- Any growth in fuel demand at YVR depends on more cross-border fuel truck shipments. For example, adding just one daily flight to Asia would require an additional 800 trucks a year.

PROJECT BENEFITS

- The project's spill prevention and response strategies for the Fraser River are robust and go well beyond industry standards and best practices, and is described by Environment Canada as the current state-of-the-art for spill modelling and potential incident preparation.
- The project will enhance the response capability on the Fraser River that will benefit all other users on the river.
- The project will have a smaller environmental footprint than the existing fuel delivery system, and will remove all the tanker trucks that carry fuel to YVR (over 1,200 each month) from Washington State through Surrey, Delta and Richmond.
- The project will help ensure that YVR remains a critical part of British Columbia's role as Canada's Pacific Gateway.
- The project will also help is needed to ensure YVR continues to have the fuel capacity to add the new flights.
- The project represents a $110 million investment and construction jobs in the Lower Mainland.

VANCOUVER AIRPORT FUEL FACILITIES CORPORATION

Vancouver Airport Fuel Facilities Corporation (VAFFC) is a not-for-profit company owned by a consortium of commercial airlines representing most of the domestic and international carriers serving Vancouver International Airport (YVR).

VAFFC owns and operates fuel storage and distribution facilities at YVR. These facilities are shared among the airlines, allowing them to avoid duplication and minimize costs. Similar fuel facility corporations operate at all of the major international airports across Canada and throughout the world.

The company has more than 20 years of experience in aviation fuel handling activities at YVR.

VAFFC contracts the management, construction and operation of its facilities to qualified organizations, and draws expertise from a network of experienced engineering and environmental consultants specializing in aviation fuel infrastructure.

FOR MORE INFORMATION

Email: info@vancouverairportfuel.ca
Phone: 604.638.7463
Website: vancouverairportfuel.ca

Vancouver Airport
Fuel Facilities Corporation

Vol 1. May 2016

Pipeline Construction

The pipeline will consist of specialty steel pipe manufactured in accordance with the American Society for Testing and Materials (ASTM) Standard A53 (Grade B) and will installed to the standards established by the Canadian Standards Association (CSA) Standard Z662-03 for Oil and Gas Pipeline Systems. The pipeline installation and operation will be regulated by the BC Oil and Gas Commission.

Pipeline construction will follow these phases:

Surveying and staking
Crews survey and mark the right-of-way and temporary workspace. Not only will the right-of-way contain the pipeline, it is also where all construction activities occur.

Preparing the right-of-way
The clearly marked right-of-way is cleared of trees and brush and the top soil is removed and stockpiled for future reclamation. The right-of-way is then leveled and graded to provide access for construction equipment.

Digging the trench
Once the right-of-way is prepared, a trench is dug and the centre line of the trench is surveyed and re-staked. The equipment used to dig the trench varies depending on the type of ground conditions. (Fig. 1)

(Fig. 1)

Stringing the pipe
Individual lengths of pipe are brought in from stockpile sites and laid out end-to-end along the right-of-way.

Bending and joining the pipe
Individual joints of pipe are bent to fit the terrain using a hydraulic bending machine. Welders join the pipes together using either manual or automated welding technologies. Welding shacks are placed over the joint to prevent the wind from affecting the weld. The welds are then inspected and certified by X-ray or ultrasonic methods.

Coating the pipeline
Coating both inside and outside the pipeline are necessary to prevent it from corroding either from ground water or the product carried in the pipeline. The pipes arrive at the construction site pre-coated, however the welded joints must be coated at the site.

Positioning the pipeline
The welded pipeline is lowered into the trench using equipment with special cranes called sidebooms. (Fig. 2)

Backfilling the trench
Once the pipeline is in place in the trench, the topsoil is replaced in the sequence in which it was removed and the land is re-contoured and re-seeded for restoration. Sections that are along roadways will be repaved.

Pressure Testing
The pipeline is pressure tested before it begins operations.

Final clean-up
The final step is to reclaim the pipeline right-of-way and remove any temporary facilities.

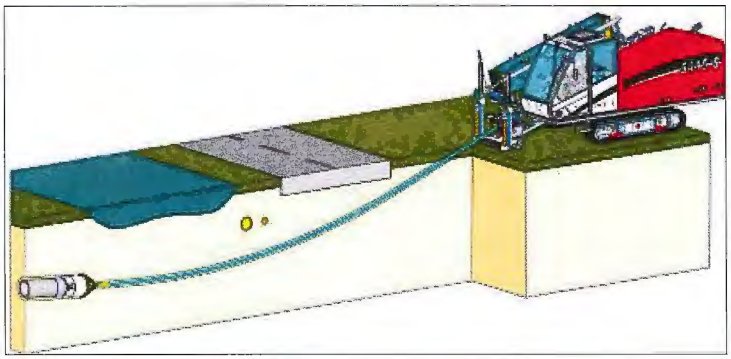
Construction information courtesy of the Canadian Energy Pipeline Association

(Fig. 2)

Directional Drilling

Construction will include extensive use of directional drilling (particularly for water body crossings and intersections) to mitigate potential environmental impacts and avoid disruption of vehicle and marine vessel traffic.

Directional drilling allows for extended sections of pipeline to be installed below congested or sensitive ground surfaces with very small surface disturbance. For example, the proposed section under the Moray Channel will be almost 800m long, almost 50 meters deep under the river bed, and enter and exit more than 100 meters from the water's edge.



City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	August 26, 2016
From:	John Irving, P.Eng. MPA Director, Engineering Victor Wei, P.Eng. Director, Transportation	**File:**	01-0150-20- THIG1/2016-Vol 01
Re:	**George Massey Tunnel Replacement Project - Application Comments for the British Columbia Environmental Assessment Process**		

Staff Recommendation

That the City's comments on the Provincial Environment Assessment Application for the George Massey Tunnel Replacement Project for the first round of the 30-day Working Group review period, as outlined in Attachment 1 of the staff report, titled "George Massey Tunnel Replacement Project - Application Comments for the British Columbia Environmental Assessment Process" dated August 26, 2016, be conveyed to the BC Environmental Assessment Office for consideration and response.

John Irving, P.Eng. MPA
Director, Engineering
(604-276-4140)

Victor Wei, P.Eng.
Director, Transportation
(604-276-4131)

Att. 1

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Economic Development	☑	
Parks	☑	
Policy Planning	☑	
Fire-Rescue	☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:** DB	**APPROVED BY CAO** (Acting)

Staff Report

Origin

On July 27, 2016, the British Columbia Environmental Assessment Office (BCEAO) advised the City that the 180-day Application Review stage for the George Massey Tunnel Replacement Project (the Project) was initiated.[1] During this period, the BCEAO will receive and review comments from the Working Group (includes City staff) and public as well as compile the Assessment Report for the Minister, which should be completed by January 23, 2017.

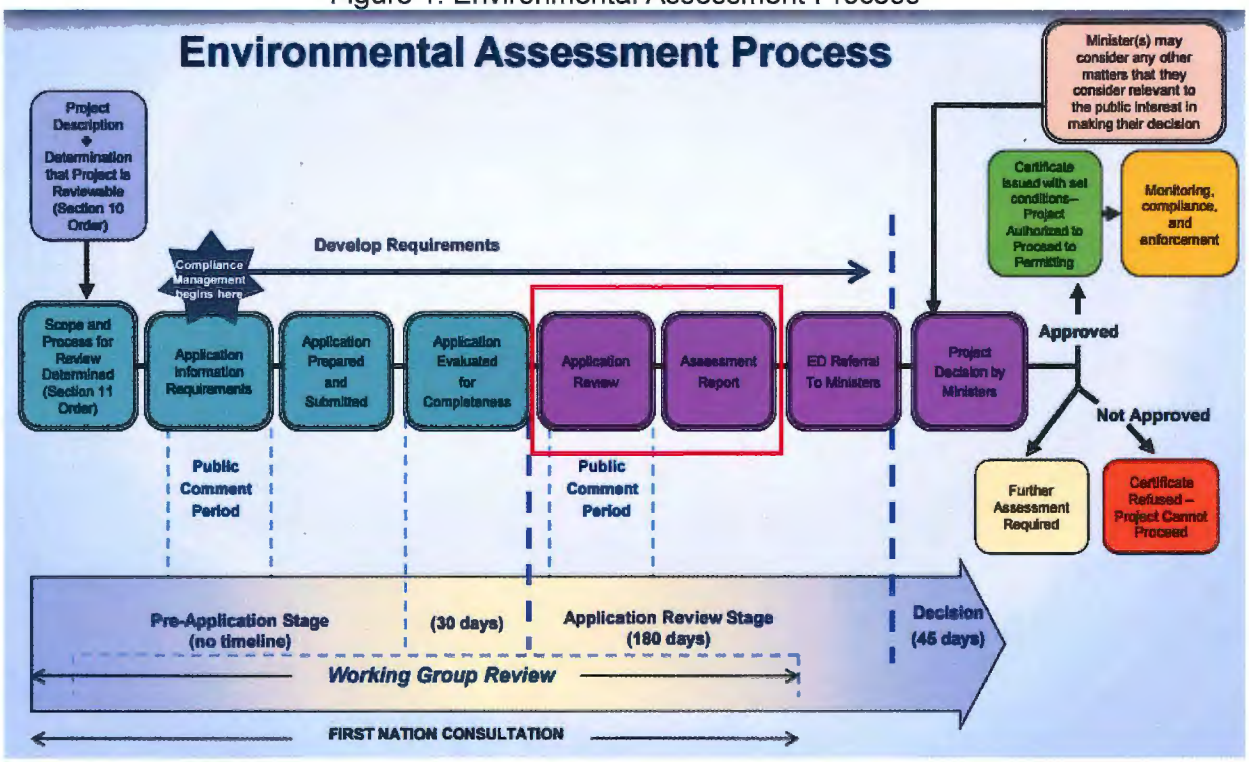
This report presents staff's initial comments on the Environmental Assessment Application (the Application) as part of the 30-day Working Group comment period (July 27-August 26, 2016), which is intended to comprise a technical review of the Application and the identification of outstanding issues that require clarification, analysis, mitigations, and possible conditions of the Environmental Assessment Certificate.

Findings of Fact

180-Day Application Review Stage

Figure 1 depicts the stages of the environmental assessment process. The Application Review stage (highlighted by red box) includes Working Group and public comment periods (described further below) and the drafting of the Assessment Report (the Report) by the BCEAO.

Figure 1: Environmental Assessment Process



[1] The Application and related documents are available on the BCEAO website at http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_home_430.html.

The Report documents the findings of the assessment, including the extent to which concerns have been addressed and whether any issues remain outstanding. Following the Working Group and public comment periods, the BCEAO will share its draft assessment report with the Ministry of Transportation & Infrastructure (which is the proponent) and the Working Group and seek input. The BCEAO typically provides approximately three weeks for such comment.

Working Group 30-Day Comment Period

The City and other Working Group members have 30 days beginning July 27, 2016 to provide the BCEAO with comments on the Application. This is the last remaining opportunity that the City and other Working Group members have to identify technical issues, gaps and omissions as subsequent discussions between the BCEAO and Working Group members would focus on the items raised. Facilitated by the BCEAO, the Ministry of Transportation & Infrastructure (the Ministry) will respond to the Working Group comments and Working Group members will then have a second opportunity (tentatively September 12-30, 2016) to respond to the proponent's comments. Two Working Group meetings are scheduled during this time: September 20 (all day) and September 21 (half day).

Due to the relatively short and poorly scheduled comment period for the Working Group, City staff requested a 30-day extension to the deadline; the BCEAO granted an extension to September 14, 2016 to enable staff to bring forth this report for Committee and Council consideration.

Public 60-Day Comment Period

The 60-day public comment period is occurring August 3-October 3, 2016. During this period three open houses are scheduled as shown in Table 1. Application materials are also available at the Project office (2030-11662 Steveston Highway) at Ironwood Plaza. Staff will attend the open house to be held in Richmond.

Table 1: BCEAO Public Open Houses

Date	Location	Time
Aug 17 Sep 14	Delta Town and Country 6005 Highway 17A (at Highway 99) Delta, BC	2:00 pm to 8:00 pm
Sep 13	Sandman Signature Hotel Vancouver Airport 10251 St. Edwards Drive Richmond, BC	2:00 pm to 8:00 pm

The intention of seeking public comments is to ensure that all potential effects – environmental, economic, social, heritage, and health – that might result from the proposed Project are identified for consideration as part of the environmental assessment process.

Referral to Ministers and Project Decision

In addition to the Assessment Report, the BCEAO provides two ministers (the Minister of Environment and the Minister of Community, Sport & Cultural Development) with recommendations as to whether or not to issue an environmental assessment certificate and a draft of the certificate. The draft certificate will identify the details according to which the Project must be designed and constructed, and the commitments the proponent has made to address concerns raised through the environmental assessment process. The ministers have 45 days in which to make a decision and have three choices: (1) issue an environmental assessment certificate with any conditions they consider necessary; (2) refuse to issue the certificate; or (3) require further study or assessment.

Analysis

There are significant gaps in the assessment of the impacts of the Project, omissions of technical analysis as well as unsubstantiated claims of predicted Project benefits. Key issues and concerns are summarized below for the relevant sections of the Application. Attachment 1 contains a draft list of all staff comments on the Application. Following Council approval, these comments would be forwarded to the BCEAO.

Traffic

Impacts on Local Roads

The Application includes existing (2014) and forecast (2045) traffic volume information for Highway 99 interchanges and one municipal intersection (Steveston Highway-No. 5 Road) in Richmond but there is no analysis of the impacts of this increased traffic on local roads and intersections upstream and/or downstream of the Project, and thus no identification of measures to mitigate any impacts.

Table 2 identifies the forecast increases in traffic volumes for key locations that are of significant concern. Increases in traffic volumes range from 33 to 164 percent during the peak periods. Of particular concern is the Steveston Highway Interchange where all Highway 99 on- and off-ramps will be free flow (i.e., not controlled by traffic signals). There is a substantial downstream impact on the Steveston Highway-No. 5 Road intersection, particularly for westbound traffic approaching No. 5 Road where traffic volumes are forecast to increase by 890 vehicles per hour (117 percent) in the PM peak. The concern of increased westbound traffic volumes is exacerbated by the potential increase in conflicts arising from southbound traffic exiting Highway 99 at Steveston Highway and seeking to weave across the lanes to make a westbound-to-southbound left-turn at the intersection.

Table 2: Existing and Forecast Traffic Volumes at Key Locations in Richmond

Location	Direction	Forecast Traffic Increase
Bridgeport Road-Sea Island Way Interchanges	EB Sea Island Way to SB Hwy 99	+500 vph (124%) in AM peak +520 vph (48%) in PM peak
	NB Highway 99 Off-Ramp to Bridgeport Road	+570 vph (51%) in AM peak +480 vph (78%) in PM peak
Shell Road Interchange	NB On-Ramp to Highway 99	+490 vph (64%) in PM peak
Westminster Highway Interchange	EB Westminster Hwy to SB Hwy 99	+930 vph (107%) in PM peak
	NB Hwy 99 Off-Ramp	+440 vph (58%) in AM peak
	WB Westminster Hwy to SB Hwy 99	+380 vph (89%) in PM peak
Steveston Highway Interchange	NB Hwy 99 Off-Ramp	+250 vph (33%) in AM peak +590 vph (164%) in PM peak
	EB Steveston Hwy to SB Hwy 99	+750 vph (88%) in PM peak
	SB Hwy 99 Off-Ramp	+170 vph (142%) in PM peak
Steveston Highway-No. 5 Road	EB Steveston Hwy approaching No. 5 Road	+540 vph (69%) in PM peak
	SB No. 5 Road to EB Steveston Hwy	+130 vph (70%) in PM peak
	NB No. 5 Road to EB Steveston Hwy	+300 vph (43%) in PM peak
	WB Steveston Hwy approaching No. 5 Road	+420 vph (33%) in AM peak +890 vph (117%) in PM peak
NB=northbound SB=southbound EB=eastbound WB=westbound vph=vehicles per hour AM peak=7:30-8:30 am PM peak=4:30-5:30 pm		

Forecast traffic volume data as well as detailed analysis assumptions (e.g., lane capacity, number of lanes, traffic signal phasing, geometric characteristics) and outputs (e.g., level of service, volume/capacity ratios, queuing analysis, other capacity performance indicators) are required so that the traffic impacts on municipal roads can be assessed and improvements identified, including but not limited to the following locations:

- Proposed Transit Only Lanes: intersection of lanes at Van Horne Way and Great Canadian Way-Van Horne Way.
- Bridgeport Road-Sea Island Way Interchanges: Garden City Road-Sea Island Way, Garden City Road-Bridgeport Road, and Bridgeport Road-Highway 99 northbound off-ramp.
- Shell Road Interchange: Cambie Road-Shell Road and Shell Road-Highway 99 ramps.
- Highway 91 Interchange: Alderbridge Way-Shell Road.
- Westminster Highway Interchange: Westminster Highway-No. 5 Road and Westminster Highway-Sidaway Road.
- Steveston Highway Interchange: Steveston Highway-No. 5 Road and Steveston Highway-Sidaway Road.
- Proposed Rice Mill Road Ramps: intersection of ramps at Rice Mill Road and No. 5 Road-Rice Mill Road.

Richmond Fire-Rescue has also identified that the projected increases in traffic volumes at the above locations, which include locations with relatively higher rates of traffic crashes, may lead to an increase in calls for service, potential rescue calls and possible longer response times due to increased traffic congestion on local roads. Given the increase in hourly vehicle volumes, ICBC should be requested to provide forecast collision data for these locations.

To enable faster response times to crashes on Highway 99 or elsewhere in the city using Highway 99 as a response route, Richmond Fire-Rescue suggest new additional on-ramps accessible by first responders only at the following two locations:

- Northbound on-ramp to Highway 99 from westbound Westminster Highway
- Southbound on-ramp to Highway 99 from eastbound Cambie Road

The Project should be responsible for the funding and implementation of any necessary local road improvements to facilitate the impact of the increased traffic and thus achieve the benefits of increased safety, reliability and travel time savings claimed by the Project. The stated benefits should not rely on the actions of a third party, such as the host municipality.

Impacts on Local Pedestrian and Cycling Networks

The new interchanges and same forecast traffic volume increases identified for local roads will also impact local pedestrian and cycling networks. Of particular concern are the proposed transit only lanes underneath the Oak Street Bridge that will cut across the Bridgeport Trail and the off-street multi-use pathway on Van Horne Way with the latter being the key pedestrian-cycling connection to the Canada Line Bridge. Both facilities also provide links between the Bridgeport Canada Line Station and Transit Exchange and the Tait neighbourhood to the east. Despite anticipated frequencies of one bus every three minutes using the transit only lanes during peak periods, the Application provides no discussion, analysis or measures to mitigate this significant impact to trail and path users.

Similarly, Rice Mill Road is a popular cycling route used by cyclists destined to east Richmond that allows bypass of the Steveston Highway Interchange. Rice Mill Road is currently has a rural two-lane cross-section with gravel shoulders. The proposed Highway 99 on- and off-ramps connecting to Rice Mill Road will introduce significantly higher traffic volumes on the roadway but, again, the Application does not identify any improvements to address this impact to other road users such as cyclists.

The new interchanges at Westminster Highway and Steveston Highway, which both feature free flow on- and/or off-ramps, and the forecast increased traffic volumes at local intersections in the vicinity of the interchanges (e.g., Steveston Highway-No. 5 Road) will also impact pedestrians and cyclists crossing the intersections and/or Highway 99.

The Ministry's Cycling Policy states that "*Our goal to integrate bicycling on the province's highways by providing safe, accessible and convenient bicycle facilities and by supporting and encouraging cycling*" and "*Provisions for cyclists are made on all new and upgraded provincial highways.*" Given that the Project scope extends from Bridgeport Road in Richmond to Highway 91 in Delta and the current reference concept does not include continuous cycling facilities along this section of the Highway 99 corridor, the Project should be responsible for the funding and implementation of alternative cycling facilities within the host municipalities. This would enable a continuous, safe and convenient route that will help achieve the Project's stated goals to encourage a higher mode share for cycling, walking and transit in line with local and regional targets.

Impacts at Oak Street Bridge

The Application states that traffic volumes over the Oak Street Bridge have declined between 2010 and 2015 since the introduction of the Canada Line but also acknowledges that northbound AM peak period traffic may make "*queue lengths at Oak Street a little longer during the busiest part of the rush hour.*" Forecast traffic volumes at the Sea Island Way Interchange indicate a notable increase of 720 vehicles per hour (24 percent) for northbound highway traffic approaching the Oak Street Bridge in the AM peak. The Application states that the transit improvements included in the Project will "*enable a mode shift toward greater use of transit in the Highway 99 corridor, including the Canada Line, and away from single occupancy vehicle-based commuting trips across the Oak Street Bridge*" but does not provide any evidence to substantiate this claim.

Given that 40 percent of the traffic through the Tunnel is to/from Vancouver as determined by the Ministry's Bluetooth origin-destination surveys, the project scope should include the Oak Street Bridge as otherwise the anticipated travel time savings or improved travel time reliability for traffic travelling to/from Vancouver would not be achieved in the peak periods. Further, the Application does not identify any contingency plan to address the potential lengthening queues at the Oak Street Bridge during the peak periods.

Impacts at Alex Fraser Bridge

One of the Provincial tolling guidelines is that tolls will be implemented only if a reasonable non-tolled alternative is available. The Application states that the Project will be tolled. The non-tolled alternative crossing for the south arm of the Fraser River, the Alex Fraser Bridge, is

forecast to experience an increase of 20,000 vehicles per day (17 percent) with a tolled Project in place versus without the Project (from 120,000 to 140,000 vehicles per day). The Application states that the Alex Fraser Bridge already experiences greater congestion than the Tunnel during the peak periods; the forecast traffic diversion will only exacerbate this issue. The Ministry announced planned improvements in the Highway 91 corridor (i.e., new interchange at Highway 91-72nd Avenue) in June 2016 but the Application does not identify this work or to what extent, if any, the changes may mitigate the impact of the traffic diversion. The forecast scenario also reinforces the need to move to a region-wide mobility pricing policy consistent with the Mayors' Council vision for regional transportation investments in Metro Vancouver.

Modal Shift Change

There are repeated qualitative comments in the Application regarding the putative positive effects of the Project on modal split but there is no technical evidence to substantiate these statements such as traffic model forecasts showing the modal split. Even with these potential positive impacts the Application states that "*Analysis indicates that improvements in HOV and transit alone will not substantially address the current Highway 99 traffic challenges*" but again does not offer any supporting analysis for this claim. The Project includes improved transit infrastructure but there is no complementary funding to support enhanced transit service to help achieve a modal shift. The Application cites the success of the Canada Line as the rationale for declining vehicle volumes across the Oak Street Bridge but, conversely, does not consider this same scenario of improved transit service to the south of Fraser region as a viable Project alternative.

Traffic Forecasts and Rationale for 10-Lane Bridge

The Application states that the Tunnel currently carries an average of 80,000 vehicles per day and traffic would grow to 100,000 vehicles per day by 2045 without a new bridge. Based on traffic forecasts with a new tolled bridge, traffic volumes would drop to 71,000 vehicles per day in the first year and grow to 84,000 vehicles per day by 2045.

Separate information in Appendix B (Traffic Data Overview) to the Traffic chapter states that "*Modelling results...predict that by 2045 traffic through the existing Tunnel will grow to approximately 100,000 vehicles per day and that traffic over a new 10-lane bridge will be approximately 115,000 vehicles per day.*" Presumably, these forecast traffic volumes are based on a non-tolled crossing. These higher traffic volumes appear to be used to support the design of Project elements including the determination of the number of lanes required for the bridge.

However, the Application clearly states that the new bridge will be tolled. Thus, given that the forecast daily traffic volumes in 2045 are not substantially different from current daily traffic volumes for a tolled crossing, it is unclear why such an expansion of vehicle capacity (more than doubling from four to 10 lanes) is necessary. Moreover, per the Ministry's traffic data program, average annual daily traffic volumes for the Tunnel have declined over the 2003 to 2014 period from 82,297 to 79,105 vehicles (-0.36 percent annual growth).

Land Use

Compatibility with Provincial, Regional and Local Land Use and Transportation Plans

The Application references *A Long-Range Transportation Plan for Greater Vancouver: Transport 2021*, jointly produced in 1993 by the Ministry of Transportation and Highway (MoTH) and the Greater Vancouver Regional District and developed in support of the 1996 Livable Region Strategic Plan, and states that the report identified "the need" for additional capacity across the north and south arms of the Fraser River. However, the Transport 2021 report context is that the suggested additional capacity is one of several long-term corridor options for investigation, not an identified need. Moreover, the report states that "*The choke points of the bridges and tunnels across the Fraser River and across Burrard Inlet would be used to "draw the line" and limit access to the single-occupant vehicle*" and that a single occupant vehicle restraint strategy should be followed with no increase in mixed traffic peak hour capacity (i.e., high and single occupant vehicles).

The Mayors' Council *Regional Transportation Investments: a Vision for Metro Vancouver* has a headline target to "*make half of all trips by walking, cycling and transit.*" One of the five goals of *Metro Vancouver 2040: Shaping our Future* (Metro Vancouver's Regional Growth Strategy) is to "*Support sustainable transportation choices.*" While the Project includes dedicated transit-HOV lanes, the expanded vehicle capacity for single occupant vehicles is not consistent with the Vision and the Regional Growth Strategy, or with the City's modal shift targets of the *2041 Official Community Plan* given the lack of substantiation in the Application regarding forecast modal split.

With respect to cycling and walking, the proposed cycling and pedestrian infrastructure would be implemented primarily within the Highway 99 right-of-way only and any new overpasses would have a sidewalk on one side only. As noted above, municipalities appear to be responsible for any tie-ins to local networks with no additional cost-share funding to be made available. Instead, Richmond would have to compete for provincial BikeBC funding, which is currently limited to $6 million annually for the entire province.

Impacts on the City of Richmond's Gardens Agricultural Park

The Application contains no information on the impacts of the Project to the City's Gardens Agricultural Park. The Project requires 0.875 hectares of land within the park and the loss of this land would result in the eastern park boundary shifting, on average, 35 metres to the west of its current location and equates to an overall 17.8 percent reduction in the size of the park. Such a shift in the park's eastern boundary would significantly impact the approved park plan. In particular, the parking lot, community gardens, agricultural demonstration gardens, and landscape buffer would all be reduced in size by approximately 50 percent and would no longer function in the manner envisioned in the approved park plan. Mitigating measures to address the impacts should include:

- Financial support to the City to prepare and implement a new park plan based on a re-examination of the park's original program elements and an assessment of the extent to which the displaced elements can be integrated into the new plan or accommodated

elsewhere in the city including additional consulting services and a new public consultation process; and

- Identification of how the Project impacts of the widening of Highway 99 and the multi-level Steveston Highway Interchange will be managed to attenuate the additional traffic noise and reduce the poorer quality impacts on the recently approved private "Gardens" mixed use (e.g., residential, commercial, child care) development.

Impacts on the Richmond Nature Park

The Richmond Nature Park is bisected by Highway 99. While the widening of Highway 99 in this area is understood to be contained within the existing right-of-way, the additional infrastructure to be constructed in this area (i.e., wider highway, new Westminster Highway Interchange, new ramp connection from Highway 91) could have the potential to impact water levels and quality in the area and, in turn, the sustainability of the adjacent bog. The Application should include an assessment of this potential impact and, if required, identify any mitigating measures.

Agricultural Use

Widening of Highway 99 to West versus East

The Application does not contain any discussion or rationale as to why the widening of Highway 99 in Richmond will occur on the west side as opposed to the east side. Given that adjacent property is required for the Project, the City's preference is to widen Highway 99 on the east side as property on the west side is within the City's *Backlands Policy* area. In 1990, the City of Richmond and the Agricultural Land Commission (ALC) entered into an agreement to increase farming within the Backlands; as such, the west side should not be affected.

Impacts to Agricultural Lands

The Application states that the total projected removal of land within the Agricultural Land Reserve (ALR) is a maximum of approximately 20 hectares (ha), of which approximately 17 ha is currently productive. As discussed in the staff report regarding the Ministry's application to the Provincial Agricultural Land Commission for Transportation, Utility and Recreational Trail Use to allow for the widening of Highway 99 considered by Council at its July 25, 2016 meeting, the highway right-of-way identified for potential return to agricultural use is currently not farmed nor can the Ministry guarantee that it will be farmed. Given that there is no certainty that there will be new farming activity to off-set the loss of the actively cultivated parcels that are required for the Project, the Application should identify any mitigation measures to ensure that the Project will not negatively impact agricultural lands.

The Application provides information on the land capability rating for soils that are presently adjacent to the Highway 99 alignment and proposes the offset of land in the ALR that is anticipated to be of similar or better capability than land acquired for the Project. Further information is required to clarify how topsoil conservation will be undertaken and to validate that the highway right-of-way identified for potential return to agricultural use will be improved to a soil capability class equal to or better than that for the parcels required for the Project to ensure a net gain in soil quality, and a net zero or positive impact to agricultural land.

Riparian Management Area/ Environmentally Sensitive Area

The Application does not reference the City's designated Riparian Management Areas (RMAs) or *2041 Official Community Plan* Environmentally Sensitive Areas (ESAs), which are located on both sides of Highway 99, or the Ecological Network Management Strategy. During biweekly meetings with the proponent for the past year or more, City staff have repeatedly articulated the need to replace, compensate and establish a net gain of RMA and ESA habitat. The current Application does not include any information regarding these details. The Application should demonstrate how the Project will maintain, protect and enhance the City's RMAs and ESAs within agricultural lands on both sides of Highway 99 through a net gain approach.

Impacts to Drainage and Irrigation

The Application proposes to improve irrigation and drainage infrastructure. However, it does not include drainage plans that consider the impacts to and status of the RMAs. Detailed plans should show the future status of RMAs and also enhance drainage and irrigation water supply to agricultural lands east and west of the Project. Compensating irrigation and drainage infrastructure should be proposed and funded as part of the Project.

Flood Protection

The Application identifies the proposed construction of a median barrier along Highway 99 for Mid-Island flood protection, which the City supports. Further details regarding how this essential life safety protection element will be designed, constructed and funded are required.

The Application should also specify that the City's perimeter dike, which is within close proximity of the proposed bridge, will be upgraded to 4.7 m GSC (Geodetic Survey of Canada datum) as part of the Project, and that the bridge landing area accommodate the future dike upgrade to a minimum of 5.5 m GSC.

Visual Quality

The Application includes a Visual Quality Assessment (VQA) for the project with a primary focus on the impacts of the proposed bridge; however, there is little discussion of the actual proposed changes for the Steveston Highway Interchange or of the potential changes to the Highway 99 corridor. The Application notes that "*a review of the existing information and the state of knowledge pertaining to visual quality assessment was undertaken to identify the appropriate analysis methods for the Project.*" For guidance in conducting the VQA, the Application cites one application method (*Protocol for Visual Quality Effectiveness Evaluation,* B.C. MOF 2008) and four precedent projects in which "visual quality evaluations" were conducted. However, it is unclear how the VQA methodologies cited in the report have been applied.

Furthermore, there are additional visual landscape assessment criteria[2] that address a broader range of considerations (e.g., coherence, complexity, imageability, visual scale, historicity,

[2] Landscape Institute, *Guidelines for the Landscape and Visual Impact Assessment* 2013; Bell, Simon. *Landscape: Pattern, Perception and Process,* Routledge Press 2012; Ode, S A and M. S. Tveit, *Capturing Landscape Visual Character Using Indicators: Touching Base with Landscape Aesthetic Theory,* Landscape Research 2008.

ephemera, etc as noted in Ode et al) that are appropriate for a project of this scope and that are neither cited nor applied. These VQA approaches should be included in the Application.

In addition, the Application should provide a VQA for the entire corridor including viewpoint analysis, as well as for the City's Gardens Agricultural Park and the Steveston Highway Interchange, considering that the proposal is to replace the current two-lane overpass with a multi-level, multi-lane structure, the scale and extent of which is not currently present along the Highway 99 corridor.

Finally, the Application should clearly describe how the visual impacts will be mitigated either through the design of the bridge and its overpasses, and/or through adjacent landscape development.

Air Quality

The Air Quality assessment concludes that the project will result in reduction of some emissions (volatile organic compounds, vehicle-caused particulates, sulphur dioxide, some hydrocarbons) and increases in some other parameters (carbon monoxide, nitrous oxides, dust-related particulates, and some hydrocarbons). However, several aspects of the supporting study are incongruous with the rest of the Application, including traffic estimates and projections within the Highway 99 corridor that vary from those used in other parts of the Application. The Proponent should fully address these issues.

The fleet profile used for the Air Quality study is a regional average fleet study, and is not representative of the fleet profile for the current tunnel or for the projected bridge use as indicated in the supporting traffic study. This difference in fleet profile appears to significantly underestimate the number of both light and heavy trucks, especially diesel vehicles. The potential for a substantial shift in fleet profile towards electric and other low- or zero-emission vehicles is also underestimated in the regional fleet profile (e.g., the fleet profile used projects that electric vehicles will constitute 0.01 percent of the passenger vehicle fleet in 2031).

Most significantly, the Air Quality study only addresses traffic within the Highway 99 corridor, and measures the emissions related to that traffic. As discussed above, this project is anticipated to cause significant traffic changes away from the study corridor – including the Alex Fraser Bridge, the Knight and Oak Street bridges, and gateway intersections in Richmond, including Steveston Highway and No. 5 Road, Bridgeport Road, Sea Island Way, and Westminster Highway. The emissions impacts of increased traffic and congestion in these locations were not evaluated in the study. In this sense, overall emissions are not likely to have been reduced, but are likely to have been displaced, largely into developed commercial and residential areas of Richmond, where the applied dispersion models may not be applicable.

Atmospheric Noise

As previously noted, the Application does not currently fully acknowledge the impact of the Project on the City's Gardens Agricultural Park, and the extent of parkland that will be required by the Project to accommodate the Project. Consequently, the Application provides no discussion of the impacts that the Project will have on noise within the park or the private Gardens development. This noise analysis should be added to the Application as well as

proposed mitigation strategies including sound walls along the park's east boundary and sound deflectors integrated into the proposed multi-level, multi-lane Steveston Highway Interchange.

Human Health

The Application does not consider the safety impacts of increased exposure to higher traffic volumes and speeds, especially for pedestrians and cyclists at interchanges and local intersections upstream/downstream of Highway 99. The Application also states "*Emergency responders report that isolated areas, such as the bases of bridges, can attract high-risk populations to create temporary shelters that may be associated with elevated rates of petty crime*" but does not identify any mitigating measures to address this concern. The Proponent should fully address these concerns.

Economic Impact

The Application does not feature an "Economic Impact" section; however, regional economic drivers and a (separate) business case are referenced as part of the project justification. An evaluation of the potential positive and/or negative economic impacts on businesses in the City of Richmond is required to understand how the Proponent will address business community concerns. As an example, the potential for increased traffic congestion resulting from the project at key intersections on No. 5 Road, Steveston Highway, Sea Island Way, and Bridgeport Road (as described above) must be evaluated in context of protecting or improving reliable accessibility to key commercial and industrial areas of Richmond.

Financial Impact

None.

Conclusion

The 180-day Application Review stage for the George Massey Tunnel Replacement Project has commenced. As part of the initial 30-day Working Group comment period, staff have identified a number of omissions and gaps in the analysis of the impacts of the Project, both locally and regionally, and recommend that the comments be conveyed to the BC Environmental Assessment Office to ensure that the Proponent fully addresses the impacts and that Project does not impose any permanent negative impacts on the community and the region.

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JC:jc

Att. 1: Staff Comments on Environmental Assessment Application for the George Massey Tunnel Replacement Project

Environmental Assessment for the proposed George Massey Tunnel Replacement Project
WORKING GROUP ISSUES TRACKING TABLE
*Please refer to "**Instructions**" tab for directions

	For Working Group Use				
ID #	**Comment Date** (e.g., 5-Aug-16)	**Commenter Name/ Agency** (e.g., John Smith, EAO)	**Section of EA** (e.g., 6.1.2)	**Subject** (e.g., Air Quality)	**Comment** (include Memo ID as applicable)
1	19-Aug-16	City of Richmond	1.1.1	Overview - Land use plans	Document states: "The Project has been developed in consideration of national, provincial, regional and local economic, transportation and land use plans" including Metro Vancouver's Regional Growth Strategy (2011) and City of Richmond's Official Community Plan (2012). Project is contrary to the sustainability goals of these plans and objectives of these plans to reduce reliance on vehicles by encouraging alternate modes such as transit, ie the bridge would provide a significant increase in capacity for single occupant vehicles.
2	19-Aug-16	City of Richmond	1.1.11.1	Overview - Project Benefits	Travel time savings are measured for the project corridor only. Are there still travel time savings if adjacents access/exit points are included (e.g., Oak St-70th Ave, No. 5 Road-Steveston Hwy)?
3	26-Aug-16	City of Richmond	1.1.11.1	Overview - Project Benefits	An evaluation of the potential positive and/or negative economic impacts on businesses in the City of Richmond is essential to understanding how the proponent will address concerns for the City's business community. As an example, the potential for increased traffic congestion resulting from the project at key intersections on No. 5 Road, Steveston Highway, Sea Island Way, and Bridgeport Road (as described above) must be evaluated in context of protecting or improving reliable accessibility to key commercial and industrial areas of Richmond.
4	24-Aug-16	City of Richmond	1.1.11.2	Overview - Social and community benefits	Impacts on businesses in commercial and industrial areas adjacent to major construction locations Stevestons highway, No 5 Road, Rice Mill Road, Bridgeport, Cambie, during the construction phase must be evaluated and appropriate mitigation strategy developed.

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5	19-Aug-16	City of Richmond	1.1.11.2	Overview - Social and community benefits	"… new access to/from Rice Mill Road will improve access for commercial and industrial areas in South Richmond" - project needs to ensure connection extends to area of activity. Currently, Rice Mill Rd is a 2 lane local road that comes to a T-intersection at No. 5 Road; traffic would need to access industrial area south to Machrina. Project needs to analyze impact to local roads and ensure tie-in is appropriate to handle the traffic in order to realize benefits at no cost to the City of Richmond.
6	19-Aug-16	City of Richmond	1.1.11.4	Overview - Health	"The Project will result in significant traffic safety benefits, reducing collision rates by more than 35 per cent." Analysis needed to determine if benefits realized from reducing number of collisions at the Tunnel are offset by an increase in number of collisions at south end of Oak Street Bridge as well as at east leg of Steveston Hwy/No 5 Road intersection and other access/egress points.
7	24-Aug-16	City of Richmond	1.1.3.3	Overview - Project Rationale	Specify what are the points being used to measure delay. Use this same measurement of queue length for a before/after analysis to assess impacts to the local road network.
8	23-Aug-16	City of Richmond	1.1.3.6	Overview - Public Support	"Strong levels of public support" - Application should state whether or not the public consultation results are statistically significant or fully representative of the Metro Vancouver population.
9	19-Aug-16	City of Richmond	1.1.6	Overview - Effects of the Environment on the Project	The City supports the project's proposed construction of a median barrier along Highway 99 for mid-island flood protection. The City requests more detail regarding this mid-island dike.

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10	19-Aug-16	City of Richmond	1.1.6	Overview - Key project components	"Construct a dedicated transit road under the Oak Street Bridge between Van Horne Way and Bridgeport Road." This connection will cut across the Bridgeport Trail and the off-street multi-use pathway on Van Horne Way with the latter being the key pedestrian-cycling connection to the Canada Line Bridge. Both facilities also provide links between the Bridgeport Canada Line Station and Transit Exchange and the Tait neighbourhood to the east. Despite anticipated frequencies of one bus every three minutes using the transit only lanes during peak periods, the Application provides no discussion, analysis or measures to mitigate this significant impact to trail and path users.
11	19-Aug-16	City of Richmond	1.1.6	Overview - Key project components	"Replace the Westminster Highway interchange to accommodate all existing connections and improve cyclist/pedestrian connectivity across Highway 99." Cycling/pedestrian connectivity should be on both sides of any new structures in order to accommodate any existing and future facilities.
12	19-Aug-16	City of Richmond	1.1.6	Overview - Key project components	"…and provide a new direct connection between Rice Mill Road and Highway 99 to help alleviate congestion at the Steveston Highway/No. 5 Road intersection" - Provide traffic analysis for Steveston Hwy/No 5 Rd intersection that justifies the connection to Rice Mill Road.
13	19-Aug-16	City of Richmond	1.1.7	Overview - Project Design Considerations	"relevant highway design standards" should be replaced with TAC, municipal and Ministry design standards
14	19-Aug-16	City of Richmond	1.1.8.3	Overiew - Tolling	A regional road pricing strategy should be developed to address whether tolling is the most appropriate methodology as this could have an impact on the type of infrastructure needed to accommodate it.
15	19-Aug-16	City of Richmond	1.1.8.3	Overiew - Tolling	With tolling of the new bridge, forecast traffic volumes using the new bridge may be affected significantly, ie may not need 10 lane bridge.
16	19-Aug-16	City of Richmond	1.4.1	Overview - Lane Requirements	"10-lane bridge provides a higher benefit-cost ratio". How does the benefit-cost ratio of an 8-lane bridge compare to the 10-lane bridge and what is the cost difference?

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17	24-Aug-16	City of Richmond	4.2	Sediment - Water Quality	Construction phase: Groundwater being intercepted and/or pumped during excavations or other works must not be discharged ot the City's storm drainage system, including the City's open watercourses, closed storm drainage netowrk, or pump station infrastructure without authorization from the City in accorance with City Bylaw #8475. Discharged groundwater quantity and quality must be closely monitored, and repoting available to the City such that appropriate protection of the receivning infrastructure and envrionment can be assured. The City's drainage system is connected directly to the Fraser River and fisheries habitat, and all waters discharged to the City's drainage system must meet quality standards protective of freshwater and marine aquatic life.
18	24-Aug-16	City of Richmond	4.4	Sediment - Water Quality	Distrubance of fill used for tunnel construction present specific sediment quality hazards not otherwise considered. Construction practice in 1959 did not consider the quality of fill materials and potential impact of fille containing industrial waste products or other pollutants. Fill quality sampling prior to disturbance must be carried out to prevent the entrainment of unknown and potentially deleterious substances to fish-bearing water column.
19	24-Aug-16	City of Richmond	4.10.3	Atmospheric Noise - Potential Effects	The Application does not currently acknowledge the impact of the Project on The Gardens Agricultural Park, and the extent of parkland that will be required by the Project to accommodate the widened Highway 99 and the Steveston Highway Interchange. Consequently, the Application provides no discussion of the impacts that the Project will have on noise within the park. This noise analysis should be added to the Application as well as proposed mitigation strategies including sound walls along the park's east boundary and sound deflectors integrated into the proposed multi-level, multi-lane Steveston Highway Interchange.

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20	19-Aug-16	City of Richmond	4.9.2	Air Quality - Existing Conditions	Document refers to "the travel demand modelling system EMME/2 used to estimate the volume of traffic expected along the Project corridor in the future (2031)." Why is the horizon year of 2031 used for the air quality assessment whereas the traffic section has a horizon year of 2045?
21	18-Aug-16	City of Richmond	4.9.3.2	Air Quality - Potential Effects	"Even with an increase in traffic, the 2031 scenario with the Project is predicted to result in an overall improvement in air quality compared to existing and future conditions without the Project." Does this take into account the impact to air quality of additional traffic queuing at Oak St Bridge, Knight St Bridge, Alex Fraser Bridge due to the project? Moving 40% of the traffic using the new bridge to get to Vancouver faster across the new bridge does not reduce the traffic queuing to get into Vancouver. This queuing problem would be expected to grow for the 2045 horizon year. Tolling this bridge would also cause longer queues at the Alex Fraser Bridge.
22	18-Aug-16	City of Richmond	5.1	Traffic - Appendix B - Traffic Data Overview	Congestion analysis does not include impact at Oak St Bridge, specifically queue lengths, etc.
23	18-Aug-16	City of Richmond	5.1	Traffic - Appendix B - Traffic Data Overview	Document states: "a 10-lane bridge (eight lanes for general traffic and two for transit/HOV) would best meet Project requirements for 2045." Where is the justification. What is the cost-benefit ratios for a 10-lane bridge and for an 8-lane bridge? Is the cost-benefit ratio for an 8-lane bridge better than for a 10-lane bridge?
24	18-Aug-16	City of Richmond	5.1	Traffic - Appendix B - Traffic Data Overview	Document states: "On opening day during the AM rush hour an eight-lane bridge would be in a congested state similar to today." What is the analysis to support this statement? What about queue lengths? Are the queue lengths better with an 8-lane bridge than it is today or are they similar?
25	23-Aug-16	City of Richmond	5.1	Traffic - Appendix C - Traffic Forecasts	The laning requirements appear to be based on 2045 forecast volumes for a non-tolled facility. Laning requirements should be based on a tolled facility.

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26	18-Aug-16	City of Richmond	5.1	Traffic - Appendix C - Traffic Forecasts	Document states: "annual traffic growth shows a reduction of -0.7% between 2005 and 2014" for the Tunnel; this contradicts other statements indicating a "need for added capacity at Tunnel" (Overview page 1.1-7)
27	18-Aug-16	City of Richmond	5.1	Traffic - Appendix C - Traffic Forecasts	Document states: "a slight reduction in Massey Tunnel traffic during the peak hours (from 6,300 vehicles/hr in 2005 to 5,800 vehicles/hr in 2014)"; this contradicts other statements indicating a "need for added capacity at Tunnel" (Overview page 1.1-7)
28	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes	The Application includes existing (2014) and forecast (2045) traffic volume information for Highway 99 interchanges and one municipal intersection (Steveston Highway-No. 5 Road) in Richmond but there is no analysis of the impacts of this increased traffic on local roads and intersections upstream and/or downstream of the Project, and thus no identification of measures to mitigate any impacts. Increases in forecast traffic volumes range from 33 to 164 percent during the peak periods.
29	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes	Forecast traffic volume data for at locations in Richmond as well as detailed analysis assumptions (e.g., lane capacity, number of lanes, traffic signal phasing, geometric characteristics) and outputs (e.g., level of service, volume/capacity ratios, queuing analysis, other capacity performance indicators) are required so that the traffic impacts on municipal roads can be assessed and improvements identified. The Project should be responsible for the funding and implementation of any necessary local road improvements to facilitate the impact of the increased traffic and thus achieve the benefits of increased safety, reliability and travel time savings claimed by the Project. The stated benefits should not rely on the actions of a third party, such as the host municipality.

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30	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes	Local intersections where traffic volume data and detailed analysis is required include: Proposed Transit Only Lanes (intersection of lanes at Van Horne Way and Great Canadian Way-Van Horne Way), Bridgeport Road-Sea Island Way Interchanges (Garden City Road-Sea Island Way, Garden City Road-Bridgeport Road, and Bridgeport Road-Highway 99 northbound off-ramp), Shell Road Interchange (Cambie Road-Shell Road and Shell Road-Highway 99 ramps), Highway 91 Interchange (Alderbridge Way-Shell Road), Westminster Highway Interchange (Westminster Highway-No. 5 Road and Westminster Highway-Sidaway Road), Steveston Highway Interchange (Steveston Highway-No. 5 Road and Steveston Highway-Sidaway Road), Proposed Rice Mill Road Ramps (intersection of ramps at Rice Mill Road and No. 5 Road-Rice Mill Road).
31	18-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes	Document shows an increase in traffic (+700 vehicles per hour or 24%) northbound to Oak Street Bridge from year 2014 to DHV (ie 2045). This is a substantial increase in the traffic volumes at Oak St Bridge, which will create longer queues than exist today. How will the project address or mitigate this?
32	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes	Document shows a significant increase in traffic that will impact the local road system: eastbound to southbound traffic (increase of ~500 vph or 124% in AM peak and ~520 vph or 48% in PM peak); northbound highway traffic exiting onto Bridgeport Road (increase of ~570 vph or ~51% in AM peak and ~480 vph or ~78% in PM peak). How will the project address these significant impacts? These volumes could also impact pedestrians and cyclists (eg shorter crossing times, etc). Costs of any improvements or measures to mitigate this traffic should be borne by the project.

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33	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes	The new interchanges and same forecast traffic volume increases identified for local roads will also impact local pedestrian and cycling networks. Of particular concern are the proposed transit only lanes underneath the Oak Street Bridge that will cut across the Bridgeport Trail and the off-street multi-use pathway on Van Horne Way with the latter being the key pedestrian-cycling connection to the Canada Line Bridge. Both facilities also provide links between the Bridgeport Canada Line Station and Transit Exchange and the Tait neighbourhood to the east. Despite anticipated frequencies of one bus every three minutes using the transit only lanes during peak periods, the Application provides no discussion, analysis or measures to mitigate this significant impact to trail and path users.
34	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes	The new interchanges and same forecast traffic volume increases identified for local roads will also impact local pedestrian and cycling networks. Also of particular concern is the new connection to Rice Mill Road. This road currently has a narrow rural 2-lane cross-section but is well-used by cyclists due to its low traffic volumes. The new ramp connections will introduce high volumes of vehicle traffic but the Application provides no discussion, analysis or measures to mitigate this significant impact to cyclists.
35	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes	The new interchanges at Westminster Highway and Steveston Highway, which both feature free flow on- and/or off-ramps, and the forecast increased traffic volumes at local intersections in the vicinity of the interchanges (e.g., Steveston Highway-No. 5 Road) will also impact pedestrians and cyclists crossing the intersections and/or Highway 99.

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36	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes	The proposed cycling and pedestrian infrastructure would be implemented primarily within the Highway 99 right-of-way only and any new overpasses would have a sidewalk on one side only. As noted above, municipalities appear to be responsible for any tie-ins to local networks with no additional cost-share funding to be made available. Instead, Richmond would have to compete for provincial BikeBC funding, which is currently limited to $6 million annually for the entire province.
37	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes	The Ministry's Cycling Policy states that "*Our goal to integrate bicycling on the province's highways by providing safe, accessible and convenient bicycle facilities and by supporting and encouraging cycling* " and "*Provisions for cyclists are made on all new and upgraded provincial highways* ." Given that the Project scope extends from Bridgeport Road in Richmond to Highway 91 in Delta and the current reference concept does not include continuous cycling facilities along this section of the Highway 99 corridor, the Project should be responsible for the funding and implementation of alternative cycling facilities within the host municipalities to enable a continuous, safe and convenient route that will help achieve the Project's stated goals to encourage a higher mode share for cycling, walking and transit in line with local and regional targets
38	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes - Shell Road Interchange	Document shows a significant increase in traffic that will impact the local road system: Northbound on-ramp traffic from Shell Road (increase of ~490 vph 64% in PM peak). How will the project address these significant impacts? These volumes could also impact pedestrians and cyclists (eg shorter crossing times, etc). Costs of any improvements or measures to mitigate this traffic should be borne by the project.

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39	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes - Steveston Hwy Interchange	Document shows a significant increase in traffic that will impact the local road system: Northbound to westbound traffic (increase of ~ 250 vph or ~33% in AM peak and ~ 590 vph or ~164% in PM peak); Eastbound to southbound traffic (increase of ~ 750 vph or ~88% in PM peak); Southbound to westbound traffic (increase of ~ 170 vph or ~142% in PM peak). How will the project address these significant impacts? These volumes could also impact pedestrians and cyclists (eg shorter crossing times, etc). Costs of any improvements or measures to mitigate this traffic should be borne by the project.
40	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes - Steveston Hwy-No. 5 Road	There is a substantial downstream impact on the Steveston Highway-No. 5 Road intersection, particularly for westbound traffic approaching No. 5 Road where traffic volumes are forecast to increase by 890 vehicles per hour (117 percent). The concern of increased westbound traffic volumes is exacerbated by the potential increase in conflicts arising from southbound traffic exiting Highway 99 at Steveston Highway and seeking to weave across the lanes to make a westbound-to-southbound left-turn at the intersection. How will the project address these significant impacts? These volumes could also impact pedestrians and cyclists (eg shorter crossing times, etc). Costs of any improvements or measures to mitigate this traffic should be borne by the project.
41	23-Aug-16	City of Richmond	5.1	Traffic - Appendix D - Design Hourly Volumes - Westminster Hwy Interchange	Document shows a significant increase in traffic that will impact the local road system: Eastbound to southbound traffic (increase of ~ 930 vph or ~107% in PM peak); Northbound to westbound traffic (increase of ~ 440 vph or ~58% in AM peak); Westbound to southbound traffic (increase of ~ 380 vph or ~89% in PM peak). How will the project address these significant impacts? These volumes could also impact pedestrians and cyclists (eg shorter crossing times, etc). Costs of any improvements or measures to mitigate this traffic should be borne by the project.

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42	23-Aug-16	City of Richmond	5.1.1.1	Traffic - Assessment Context	Need to expand pedestrian and cycling networks beyond the Hwy 99 corridor (i.e., to include local networks) as part of the project in order to achieve stated project benefits re modal shift.
43	18-Aug-16	City of Richmond	5.1.1.1	Traffic - Assessment Context	Document states that "Project-related changes to the road network have been designed to facilitate travel time savings and reduced idling, while providing greater travel time reliability and substantial safety improvements, which will result in health benefits". However, the scope of the project does not include the Oak Street Bridge where 40% of the traffic to/from the new bridge will be crossing, therefore, travel time savings, reduced idling and greater travel time reliability will not be realized for 40% of the traffic. How are "substantial safety benefits" quantified? Although the number of more minor accidents (eg fender-benders) may be reduced, the severity of accidents (eg due to free flowing traffic coming to an abrupt stop at congested adjacent traffic signals) may increase.
44	18-Aug-16	City of Richmond	5.1.1.3	Traffic - Assessment Boundaries	LAA should be expanded to include the Oak Street Bridge as well as Knight Street Bridge and Arthur Laing Bridge, particularly for analysis purposes. Reasons as noted above (40% of traffic to/from the new bridge will be crossing into/out of Vancouver. How will congestion at these crossings be mitigated? Should severe queues form based on current proposal, there should be a contingency plan on how to address/mitigate this congestion.

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45	26-Aug-16	City of Richmond	5.1.1.3	Traffic - Assessment Boundaries	There is no information regarding the potential risk associated with the increased motor vehicle traffic adjacent to the LAA. There is a potential for an increase in first responders based on projected traffic increase: No 5 Road: Westminster Highway to Rice Mill Road, Bridgeport Road-Sea Island Way Interchanges, Shell Road Interchange, Westminster Highway Interchange, Steveston Highway Interchange, Steveston Highway-No. 5 Road. Given these intersections or interchanges are high traffic collision locations, has ICBC provided collision data for these locations due to the increase of cars per hour projections?
46	18-Aug-16	City of Richmond	5.1.1.3	Traffic - Assessment Boundaries	Document states that "Port Mann Bridge tolling framework has been applied to the new bridge, with the adjacent Alex Fraser Bridge (AFB) and Highway 91 corridor considered as the free alternative." With AFB as the free alternative, congestion problems currently at the Tunnel will be exacerbated at the AFB. Has the impact of the new bridge been assessed at the AFB? How will this added congestion be mitigated?
47	26-Aug-16	City of Richmond	5.1.2.3	Traffic - Existing Conditions	To enable faster response times to crashes on Highway 99 or elsewhere in Richmond using Highway 99 as a response route and thus help the Project achieve the stated benefits of increased safety, suggest new additional on-ramps accessible by first responders only at the following two locations: (1) Northbound on-ramp to Highway 99 from westbound Westminster Highway; and (2) Southbound on-ramp to Highway 99 from eastbound Cambie Road.

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48	18-Aug-16	City of Richmond	5.1.2.3	Traffic - Existing Conditions	There are repeated qualitative comments in the Application regarding the putative positive effects of the Project on modal split but there is no technical evidence to substantiate these statements such as traffic model forecasts showing the modal split. Even with these potential positive impacts the Application states that *"Analysis indicates that improvements in HOV and transit alone will not substantially address the current Highway 99 traffic challenges"* but again does not offer any supporting analysis for this claim. The Project includes improved transit infrastructure but there is no complementary funding to support enhanced transit service to help achieve a modal shift. The Application cites the success of the Canada Line as the rationale for declining vehicle volumes across the Oak Street Bridge but, conversely, does not consider this same scenario of improved transit service to the south of Fraser region as a viable Project alternative.
49	18-Aug-16	City of Richmond	5.1.2.3	Traffic - Existing Conditions	Document states that "traffic to Vancouver accounts for only 40 per cent of the total traffic through the Tunnel"; however, projections show a substantial increase in the traffic volumes at Oak St Bridge. For example, data in Appendix D indicates that traffic in the northbound direction in the morning peak hour increases from 2958 to 3680 vehicles per hour (vph) equating to 700 vph or 24% increase, creating longer queues than exist today.

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50	26-Aug-16	City of Richmond	5.1.2.3	Traffic - Existing Conditions	Traffic safety is assessed by comparing collision rates for a segment of a roadway to provincial averages for the same roadway type and classification. The average collision rate is measured in units of collisions per million vehicle kilometers (c/mvk), and provides a measure of the frequency of collisions in the study segment. An assessment of collision rates for the LAA is presented in the report titled *George Massey Tunnel Replacement Project Collision Data Analysis* (Delcan 2015). Results show that the segment of Highway 99 which includes the Steveston Highway interchange, the Tunnel, and the Highway 17A interchange, has an average collision rate of 0.44 c/mvk, which is much higher than the 0.30 c/mvk provincial average (Delcan 2015). These high traffic collision rates present an ongoing risk to safety and human health. The Steveston Highway interchange has the highest number of collisions along the assessment corridor, including relevant nearby intersections and roadways. There were 625 collisions at this interchange between 2008 and 2012. Additionally, the Steveston Highway/No. 5 Road intersection, immediately west of Highway 99, had the second highest number of collisions (545) during this period. There were 491 collisions at the Highway 99/Highway 17A interchange between 2008 and 2012, which is the third highest number of collisions along the study corridor (Delcan 2015). The Application lacks information and recommendations as to how the above collision rates will be reduced.

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51	23-Aug-16	City of Richmond	5.1.2.3	Traffic - Existing Conditions and Traffic - Appendix B	The Application states that the Tunnel currently carries an average of 80,000 vehicles per day and traffic would grow to 100,000 vehicles per day by 2045 without a new bridge. Based on traffic forecasts with a new tolled bridge, traffic volumes would drop to 71,000 vehicles per day in the first year and grow to 84,000 vehicles per day by 2045. Separate information in Appendix B (Traffic Data Overview) to the Traffic chapter states that "Modelling results…predict that by 2045 traffic through the existing Tunnel will grow to approximately 100,000 vehicles per day and that traffic over a new 10-lane bridge will be approximately 115,000 vehicles per day." Presumably, these forecast traffic volumes are based on a non-tolled crossing. These higher traffic volumes appear to be used to support the design of Project elements including the determination of the number of lanes required for the bridge. However, the Application clearly states that the new bridge will be tolled. Thus, given that the forecast daily traffic volumes in 2045 are not substantially different from current daily traffic volumes for a tolled crossing, it is unclear why such an expansion of vehicle capacity (more than doubling from four to 10 lanes) is necessary. Moreover, per the Ministry's traffic data program, average annual daily traffic volumes for the Tunnel have declined over the 2003 to 2014 period from 82,297 to 79,105 vehicles (-0.36 percent annual growth).
52	23-Aug-16	City of Richmond	5.1.2.4	Traffic - Traffic Forecasting	Application states that traffic demand is forecast to be 84,000 vehicles per day by 2045. Presumably, this is based on a tolled facility. These volumes are essentially the same as today so how is a 10-lane facility justified?

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53	18-Aug-16	City of Richmond	5.1.2.4	Traffic - Traffic Forecasting	Document indicates that the modelled results at the Oak Street Bridge "show little change at the Oak Street during peak hours with or without a new bridge to replace the Tunnel"; this would be expected because the limited capacity of the 4 lanes at the Oak Street Bridge is the same with or without the new bridge (ie at capacity in the peak direction during peak hours), however, a comparison of the queue lengths at the Oak Street Bridge with and without the new bridge would provide more meaningful information. This information is missing from the document. Similarly, queue lengths based on forecast volumes are missing.
54	23-Aug-16	City of Richmond	5.1.2.4.2	Traffic - Regional Traffic Forecasts	Table 5.1-2: how can 2045 VKT without the project increase if the tunnel is already congested and traffic volumes have been declining?
55	23-Aug-16	City of Richmond	5.1.2.4.2	Traffic - Regional Traffic Forecasts	Table 5.1-3: why is there no change in 2045 VHT with or without the project?
56	23-Aug-16	City of Richmond	5.1.2.4.2	Traffic - Regional Traffic Forecasts	Table 5.1-4: One of the Provincial tolling guidelines is that tolls will be implemented only if a reasonable non-tolled alternative is available. The Application states that the Project will be tolled. As the non-tolled alternative crossing for the south arm of the Fraser River, the Alex Fraser Bridge is forecast to experience an increase of 20,000 vehicles per day (17 percent) with a tolled Project in place versus without the Project (from 120,000 to 140,000 vehicles per day). The Application states that the Alex Fraser Bridge already experiences greater congestion than the Tunnel during the peak periods; the forecast traffic diversion will only exacerbate this issue. However, the Application does not identify any measures to mitigate this impact. The forecast scenario also reinforces the need to move to a region-wide mobility pricing policy consistent with the Mayors' Council vision for regional transportation investments in Metro Vancouver.

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57	18-Aug-16	City of Richmond	5.1.2.4.2	Traffic - Regional Traffic Forecasts	Document states: "when comparing with and without the Project for the Fraser River North Arm crossings, Knight Street Bridge, Arthur Laing Bridge, and Oak Street Bridge, results show a small decrease in traffic with the Project." Comparison of the queue lengths at all crossings is missing.
58	18-Aug-16	City of Richmond	5.1.2.4.2	Traffic - Regional Traffic Forecasts	Document states: "transit improvements included in the Project, in conjunction with tolling, will support and enable a mode shift towards greater use of transit in the Highway 99 corridor, including the Canada Line, and away from single occupancy vehicle-based commuting trips across the Oak Street Bridge." Where is the evidence to substantiate this statement? Project does not include increase in transit service or buses; building infrastructure (transit lanes) does not equate to more buses without commitment to funding more transit service. Need to substantiate this statement on modal shift.
59	23-Aug-16	City of Richmond	5.1.2.4.2	Traffic - Regional Traffic Forecasts	The Application states that traffic volumes over the Oak Street Bridge have declined between 2010 and 2015 since the introduction of the Canada Line. The Application cites the success of the Canada Line as the rationale for declining vehicle volumes across the Oak Street Bridge but, conversely, does not consider this same scenario of improved transit service to the south of Fraser region as a viable Project alternative.
60	26-Aug-16	City of Richmond	5.1.2.4.2	Traffic - Regional Traffic Forecasts	Projected increases in traffic volumes at local road intersections, which include locations with relatively higher rates of traffic crashes (eg., Steveston Highway-No. 5 Road), may lead to an increase in calls for service, potential rescue calls and possible longer response times due to increased traffic congestion on local roads. The Application does not identify mitigating measures to address these impacts.
61	26-Aug-16	City of Richmond	5.1.3.2.1	Traffic - Construction	The Construction Traffic Management Plan should include a Construction Rescue Plan (i.e., working over water/working at height, technical high angle rope rescue) and Rescue Plan to be developed jointly with Delta Fire & Emergency Services and Richmond Fire-Rescue

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62	18-Aug-16	City of Richmond	5.1.4	Traffic - Mitigation Measures	This section talks about mitigation measures during construction. What is missing are mitigation measures beyond construction when the project is complete and operational. For example, should traffic queues at Oak Street Bridge be substantial, how will this be addressed, what is the contingency plan, can the other adjacent crossings at Arthur Laing Bridge and Knight Street Bridge handle the extra traffic?
63	24-Aug-16	City of Richmond	5.3.2.4	Land Use Planning	The Application references *A Long-Range Transportation Plan for Greater Vancouver: Transport 2021* , jointly produced in 1993 by the Ministry of Transportation and Highway (MoTH) and the Greater Vancouver Regional District and developed in support of the Livable Region Strategic Plan, and states that the report identified "the need" for additional capacity across the north and south arms of the Fraser River. However, the Transport 2021 report context is that the suggested additional capacity is one of several long-term corridor options for investigation, not an identified need. Moreover, the report states that "*The choke points of the bridges and tunnels across the Fraser River and across Burrard Inlet would be used to "draw the line'' and limit access to the single-occupant vehicle* " and that a single occupant vehicle restraint strategy should be followed with no increase in mixed traffic peak hour capacity (i.e., high and single occupant vehicles). A 10-lane bridge is not consistent with this Plan.
64	24-Aug-16	City of Richmond	5.3.2.4	Land Use Planning	The Mayors' Council *Regional Transportation Investments: a Vision for Metro Vancouver* has a headline target to "*make half of all trips by walking, cycling and transit* ." One of the five goals of *Metro Vancouver 2040: Shaping our Future* (Metro Vancouver's Regional Growth Strategy) is to "*Support sustainable transportation choices* ." While the Project includes dedicated transit-HOV lanes, the expanded vehicle capacity for single occupant vehicles is not consistent with the Vision, the Regional Growth Strategy or the City's *Official Community Plan* .

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65	17-Aug-16	City of Richmond	5.3.2.5	Land Use	The application presents an inventory of current uses within 500m on each side of the project. However, no comparisons were made between the impacts on the east and west sides. The proponent should provide these options and a feasibility analysis of realigning the highway further to the east
66	17-Aug-16	City of Richmond	5.3.2.5	Land Use	The proposal will result in the reduction in the overall size of the City land comprising the Gardens Agricultural Park by 17.8% but this is not mentioned in the application. A mitigation/compensation plan for the Park including redesign, public consultation, and other costs is required.
67	24-Aug-16	City of Richmond	5.3.2.5	Land Uses	The Application contains no information on the impacts of the Project to the City's Gardens Agricultural Park. The Project requires 0.875 hectares of land within the park and the loss of this land would result in the eastern park boundary shifting, on average, 35 metres to the west of its current location and equates to an overall 17.8 percent reduction in the size of the park. Such a shift in the park's eastern boundary would significantly impact the approved park plan. In particular, the parking lot, community gardens, agricultural demonstration gardens, and landscape buffer would all be reduced in size by approximately 50 percent and would no longer function in the manner envisioned in the approved park plan. Mitigating measures to address the impacts should include: (1) financial support to develop a new park plan based on a re-examination of the park's original program elements and an assessment of the extent to which the displaced elements can be integrated into the new plan including additional consulting services and a new public consultation process; and (2) attenuation of noise and visual quality effects arising from the closer proximity of a widened Highway 99 and the multi-level Steveston Highway Interchange.

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68	24-Aug-16	City of Richmond	5.3.2.5	Land Uses	The Richmond Nature Park is bisected by Highway 99. While the widening of Highway 99 in this area is understood to be contained within the existing right-of-way, the additional infrastructure to be constructed in this area (i.e., wider highway, new Westminster Highway Interchange, new ramp connection from Highway 91) could have the potential to impact water levels and quality in the area and, in turn, the health of the adjacent bog. The Application should include an assessment of this potential impact and, if required, identify any mitigating measures.
69	17-Aug-16	City of Richmond	5.3.3.3	Traffic/Land Use/Human Health	The proposal is not supported by the Richmond OCP objective to reduce the need for added road capacity (limit expansion of travel lane capacity of single-occupant private vehicles at all regional and provincial bridges/highways and give priority to transit, trucks and high-occupancy vehicles). Please justify that the proposal is consistent with this policy.
70	17-Aug-16	City of Richmond	5.3.3.4	Land Use	The Coriolis study indicates a small localized shift in regional population and employment growth as a result of the project based on modelling of an eight-lane highway. Further study and modelling is needed using the actual proposed 10-lane project to demonstrate that it is consistent with the Regional Growth Strategy (Metro Vancouver) and Regional Transportation Strategy (TransLink). Otherwise, provide justification of how the 10-lane option is preferred over the eight-lane proposal.

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71	24-Aug-16	City of Richmond	5.4.2.3.2	Agricultural Use - Existing Conditions	The Application does not reference the City's designated Riparian Management Areas (RMAs) or Environmentally Sensitive Areas (ESAs), which are located on both sides of Highway 99, or the Ecological Network Management Strategy. During biweekly meetings with the proponent for the past year or more, City staff have repeatedly articulated the need to replace, compensate and establish a net gain of RMA and ESA habitat. The current Application does not include any information regarding these details. The Application should demonstrate how the Project will maintain, protect and enhance the City's RMAs and ESAs within agricultural lands on both sides of Highway 99 through a net gain approach.
72	24-Aug-16	City of Richmond	5.4.3	Agricultural Use - Potential Effects	The Application does not contain any discussion or rationale as to why the widening of Highway 99 in Richmond will occur on the west side as opposed to the east side. Given that adjacent property is required for the Project, the City's preference is to widen Highway 99 on the east side as property on the west side is within the City's *Backlands Policy* area. The City of Richmond and the Agricultural Land Commission (ALC) entered into an agreement to increase farming within the Backlands; as such, the west side should not be affected.
73	24-Aug-16	City of Richmond	5.4.3	Agricultural Use - Potential Effects	The Application states that the total projected removal of land within the Agricultural Land Reserve (ALR) is a maximum of approximately 20 ha, of which approximately 17 ha is currently productive. The highway right-of-way identified for potential return to agricultural use is currently not farmed nor can the Ministry guarantee that it will be farmed. Given that there is no certainty that there will be new farming activity to off-set the loss of the actively cultivated parcels that are required for the Project, the Application should identify any mitigation measures to ensure that the Project will not negatively impact agricultural lands.

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*Please refer to "**Instructions**" tab for directions

	For Working Group Use				
ID #	**Comment Date** (e.g., 5-Aug-16)	**Commenter Name/ Agency** (e.g., John Smith, EAO)	**Section of EA** (e.g., 6.1.2)	**Subject** (e.g., Air Quality)	**Comment** (include Memo ID as applicable)
74	24-Aug-16	City of Richmond	5.4.3	Agricultural Use - Potential Effects	The Application provides information on the land capability rating for soils that are presently adjacent to the Highway 99 alignment and proposes the offset of land in the ALR that is anticipated to be of similar or better capability than land acquired for the Project. Further information is required to clarify how topsoil conservation will be undertaken and to validate that the highway right-of-way identified for potential return to agricultural use will be improved to a soil capability class equal to or better than that for the parcels required for the Project to ensure a net gain in soil quality, and a net zero or positive impact to agricultural land.
75	24-Aug-16	City of Richmond	5.4.3	Agricultural Use - Potential Effects	The Application does not reference the City's designated Riparian Management Areas (RMAs) or Environmentally Sensitive Areas (ESAs), which are located on both sides of Highway 99, or the Ecological Network Management Strategy. The Application should demonstrate how the Project will maintain, protect and enhance the City's RMAs and ESAs within agricultural lands on both sides of Highway 99 through a net gain approach.
76	24-Aug-16	City of Richmond	5.4.3	Agricultural Use - Potential Effects	The Application proposes to improve irrigation and drainage infrastructure. However, it does not include drainage plans that consider the impacts to and status of the RMAs. Detailed plans should show the future status of RMAs and also enhance drainage and irrigation water supply to agricultural lands east and west of the Project. Compensating irrigation and drainage infrastructure should be contemplated.
77	17-Aug-16	City of Richmond	5.4.3.2.1	Agricultural Use	As the proposal reduces the farmable area, please indicate how affected owners will be compensated for the loss of farmland as well as its long term productivity.
78	17-Aug-16	City of Richmond	5.4.3.2.1	Agriculture/Vegetation/Terrestrial Wildlife/ River Hydraulics and River Morphology	Demonstrate how the Project will maintain, protect and enhance the City's Riparian Management Areas and Environmentally Sensitive Areas within agricultural lands on both sides of Highway 99 through a net gain approach.

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79	17-Aug-16	City of Richmond	5.4.3.2.1	Agriculture/Vegetation/Terrestrial Wildlife/ River Hydraulics and River Morphology	The proposal is not supported by ***Metro Vancouver – Regional Growth Strategy (RGS)*** **Strategy 3.2** to protect and enhance natural features and their connectivity by identifying where appropriate measures to protect, enhance and restore ecologically important systems, features, corridors and establish buffers along watercourses, coastlines, agricultural lands, and other ecologically important features and considering watershed and ecosystem planning and/or Integrated Stormwater Management Plans in the development of municipal plans. Clarify how this will be avoided or mitigated at the proponent's expense.
80	17-Aug-16	City of Richmond	5.4.3.2.1	Agriculture/Vegetation/Terrestrial Wildlife/ River Hydraulics and River Morphology	The proposal is not supported by ***City of Richmond – Regional Context Statement (RCS)*** to protect and enhance natural features and their connectivity by implementing the 2012 Environmentally Sensitive Areas (ESA) Management Strategy which includes a best practices Ecological Network Concept, Riparian Area and enhanced 2012 ESA policies and guidelines. Clarify how this will be avoided or mitigated at the proponent's expense.
81	17-Aug-16	City of Richmond	5.4.3.2.2	Agriculture/Human Health	Increased salinity of the Fraser River at the up-river extent of the salt wedge following Tunnel removal is identified as a potential project-related effect. Clarify how the increased salinity will be mitigated at the proponent's expense.
82	17-Aug-16	City of Richmond	5.4.3.2.3	Agriculture/Land Use	The proposal is not supported by ***Metro Vancouver – Regional Growth Strategy (RGS)*** **Strategy 2.3** to support agricultural viability including discouraging subdivision of agricultural land leading to farm fragmentation. Clarify how this will be avoided or mitigated at the proponent's expense.
83	17-Aug-16	City of Richmond	5.4.3.2.3	Agriculture/Land Use	The proposal is not supported by ***City of Richmond – Regional Context Statement (RCS)*** *that discourages* subdivision into small farms which would create impractical farm sizes. Clarify how this will be avoided or mitigated at the proponent's expense.

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84	17-Aug-16	City of Richmond	5.4.4.2.1	Agriculture/Sediment and Water Quality	Conduct a soils analysis study to better document and assess the soil capability of the parcels required for the Project and the highway right-of-way identified for potential return to agricultural use. Clarify how topsoil conservation will be undertaken.
85	17-Aug-16	City of Richmond	5.4.4.2.2	Agricultural Use - Mitigation Measures	The applicant proposes to improve irrigation and drainage infrastructure. More detailed drainage plans that enable highway drainage and also enhance drainage and irrigation water supply to agricultural lands east and west of the project are required. The City of Richmond also requests that the proponent construct new compensating irrigation and drainage infrastructure at their expense with the City's guidance.
86	17-Aug-16	City of Richmond	5.4.4.4.1	Agriculture/Sediment and Water Quality	Validate that the highway right-of-way identified for potential return to agricultural use will be improved to a soil capability class equal to or better than that for the parcels required for the Project to ensure a net gain in soil quality, not just total area. Demonstrate how this will achieve a net zero or positive impact to agricultural land.
87	17-Aug-16	City of Richmond	5.4.4.4.1	Agricultural Use - Mitigation Measures	Ensure that the highway right-of-way identified for potential return to agricultural use will be farmed upon completion of the Project and state who and how it is to be farmed.

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88	24-Aug-16	City of Richmond	5.5.4	Visual Quality - Potential Effects	The Application includes a Visual Quality Assessment (VQA) for the project, with a primary focus on the impacts of the proposed bridge and little discussion of changes proposed for the Steveston Highway Interchange, nor of potential changes to the Highway 99 corridor. The Application notes that "*a review of the existing information and the state of knowledge pertaining to visual quality assessment was undertaken to identify the appropriate analysis methods for the Project.*" For guidance in conducting the VQA, the Application cites one application method (*Protocol for Visual Quality Effectiveness Evaluation,* B.C. MOF 2008) and four precedent projects in which "visual quality evaluations" were conducted. However, it is unclear how the VQA methodologies cited in the report have been applied.
89	24-Aug-16	City of Richmond	5.5.4	Visual Quality - Potential Effects	There are additional visual landscape assessment criteria that address a broader range of considerations (e.g., coherence, complexity, imageability, visual scale, historicity, ephemera, etc) that are appropriate for a project of this scope and that are neither cited nor applied. These VQA approaches should be included in the Application.
90	24-Aug-16	City of Richmond	5.5.4	Visual Quality - Potential Effects	The Application should provide a VQA for the entire corridor including viewpoint analysis, as well as for The Gardens Agricultural Park and the Steveston Highway Interchange, considering the proposal is to replace the current two-lane overpass with a multi-level, multi-lane structure, the scale and extent of which is not currently present along the Highway 99 corridor.
91	24-Aug-16	City of Richmond	5.5.4	Visual Quality - Potential Effects	The Application should clearly describe how the visual impacts will be mitigated either through the design of the bridge and its overpasses, and/or through adjacent landscape development.
92	24-Aug-16	City of Richmond	7.1.3	Human Health - Potential Effects	The Application does not consider the impacts of increased exposure to higher traffic volumes and speeds, especially for pedestrians and cyclists at interchanges and local intersections upstream/downstream of Highway 99.

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93	24-Aug-16	City of Richmond	7.2.5.10	Human Health - HIA - Safety and Security	The Application states "Emergency responders report that isolated areas, such as the bases of bridges, can attract high-risk populations to create temporary shelters that may be associated with elevated rates of petty crime" but does not identify any mitigating measures to address this concern.
94	26-Aug-16	City of Richmond	8.0	Accidents and Malfunctions	Emergency responder access to the highway will be improved due to the additional capacity, reduction in traffic congestion, and improved emergency vehicle access to incidents. Notwithstanding these considerations, the Application does not included analysis of traffic-related crashes and malfunctions during Project operations.
95	19-Aug-16	City of Richmond	9.5	Effects of the Environment on the Project	The City requests that the perimeter dike within close proximity of the GMTR bridge be upgraded to 4.7m GSC as part of this project, and that the bridge landing area accommodates future upgrade of the dike to a minimum of 5.5m GSC.
96	19-Aug-16	City of Richmond	11.1.2	Public Consultation - Stakeholder Profiles	The list of questions and interests are not complete with respect to the City of Richmond.
97	23-Aug-16	City of Richmond	11.1.2	Public Consultation - Stakeholder Profiles	Does not identify that the Board of Metro Vancouver is opposed to the project.
98	24-Aug-16	City of Richmond	12.5	Management Plans - CEMP & OEMP	Request opportunity to review the Construction Environmental Management Plan and Operation Environmental Management Plan for completeness as part of the current EA process.
99	24-Aug-16	City of Richmond	16.1	Reference Concept Drawings	Response #111 from the proponent during the dAIR process stated "The Application will include additional conceptual design details which will support the assessment on the local road network." The information available in the Application is insufficient to allow this assessment.

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100	24-Aug-16	City of Richmond	16.5	Air Quality Study - Potential Effects	The fleet profile used for the Air Quality study is a regional average fleet study, and is not representative of the fleet profile for the current tunnel or for the projected bridge use as indicated in the SDG traffic study. This difference in fleet profile appears to significantly underestimate the number of both light and heavy trucks, especially diesel vehicles. The potential for a substantial shift in fleet profile towards electric and other low- or zero-emission vehicles is also underestimated in the regional fleet profile (e.g: the fleet profile used projects that electric vehicles will constitute 0.01% of the passenger vehicle fleet in 2031).
101	24-Aug-16	City of Richmond	16.5	Air Quality Study - Potential Effects	Air Quality study only addresses traffic within the Highway 99 corridor, and measures the emissions related to that traffic.The project is anticipated to cause significant traffic changes away from the study corridor – including the Alex Fraser Bridge, the Knight and Oak Street bridges, and gateway intersections in Richmond, including Steveston and No 5 Road, Bridgeport Road, Sea Island Way, and Westminster Highway. The emissions impacts of increased traffic and congestion in these locations were not evaluated in the study. Overall emissions are not likely to have been reduced, but are likely to have been displaced, largely into developed commercial and residential areas of Richmond, where the applied dispersion models may not be applicable.
102	24-Aug-16	City of Richmond	16.5	Air Quality Study - Potential Effects	The Air Quality assessment uses current traffic estimates from 2011 and projected traffic estimates for 2031 that are not the same as those used in other parts fo the EA. Use of TransLink RTM (Table 11) is limiting.

City of Richmond

Report to Committee

To:	General Purposes Committee	**Date:**	August 12, 2016
From:	Grant Fengstad Director, Information Technology	**File:**	04-1300-01/2016-Vol 01
Re:	**Request for Approval PeopleSoft HCM 9.2 Upgrade Consulting Services**		

Staff Recommendation

1. That the PeopleSoft HCM 9.2 Upgrade consulting services contract, as detailed in the staff report titled "Request for Approval PeopleSoft HCM 9.2 Upgrade Consulting Services" from the Director of Information Technology dated August 12, 2016, be awarded to Blackstone Consulting Group Inc; and

2. That the Chief Administrative Officer and the General Manager, Finance and Corporate Services be authorized to negotiate and execute the consulting services contract with Blackstone Consulting Group Inc.

Grant Fengstad
Director, Information Technology
(604-276-4096)

REPORT CONCURRENCE		
ROUTED TO:	**CONCURRENCE**	**CONCURRENCE OF GENERAL MANAGER**
Finance Department Human Resources	☑ ☑	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	**INITIALS:**	**APPROVED BY CAO** (Acting)

Staff Report

Origin

The City entered into a Software End User License and Services Agreement with PeopleSoft Canada on May 29, 1998 to purchase a Human Resources Management system. This agreement encompasses the PeopleSoft Human Capital Management (HCM) system which includes modules such as Human Resources Management, Payroll, Base Benefits, Time & Labour and Enterprise Learning. The PeopleSoft HCM system is a critical system, and is used daily by City staff.

In December 2004, Oracle Canada announced that it had acquired PeopleSoft Canada. The agreement was updated to transfer the Software Update License & Support services from PeopleSoft Canada to Oracle Canada.

The last PeopleSoft HCM upgrade was completed in 2011 from version 8.9 to 9.1. The total cost for the upgrade was $560,429.

In 2015 Oracle's Software Technical Support Polices identified that the City's current version of PeopleSoft HCM system version 9.1 will no longer be supported after January 2018. The software upgrade from PeopleSoft HCM system version 9.1 to 9.2 was approved by Council in the 2016 Capital Budget.

The following are the primary functionalities and statistics with the current PeopleSoft HCM system:

- produces biweekly payroll – approximately $4.5 million;
- processes biweekly time sheets – 21,000 time entries, approximately 126,000 hours;
- manages and administer 2,077 employees;
- manages and administer 21 benefit plans;
- administers the organization's salary plans including 188 salary grades and 472 salary plans
- manages and administer 4 collective agreements and 2 management pay groups;

This report supports Council's 2014-2018 Term Goal #7 Strong Financial Stewardship:

> *Maintain the City's strong financial position through effective budget processes, the efficient and effective use of financial resources, and the prudent leveraging of economic and financial opportunities to increase current and long-term financial sustainability.*
>
> *7.1. Relevant and effective budget processes and policies.*
>
> *7.2. Well-informed and sustainable financial decision making.*
>
> *7.4. Strategic financial opportunities are optimized.*

Analysis

The purpose of this report is to request approval authority for the City to enter into a consulting services contract with Blackstone Consulting Group Inc. for the upgrade of the PeopleSoft Human Capital Management System from version 9.1 to 9.2. The proposed agreement will include project management, functional and technical consultant services to assist in the design, configuration and/or construction activities, testing and implementation of the application and infrastructure components of the upgrade from PeopleSoft HCM 9.1 to 9.2.

Scope of the Work

The Blackstone Consulting Group will aid the City in the full PeopleSoft Upgrade project lifecycle, from requirements analysis to go live and post implementation support. The PeopleSoft consultants will provide expertise, guidance, recommendations and estimates, as well as confirming impacts, identifying risks and mitigations.

The Blackstone Consulting Group will lead the design, configure and/or construction activities, test, integrate and implement the application and the infrastructure components as required. The Blackstone Consulting Group will also conduct knowledge transition to City staff such that they are equipped to support the post-implementation solution.

The City is also planning to leverage the upgrade process to enhance and improve the existing Human Resources and payroll business processes and to take advantage of new system functionalities. Some of the primary enhancements include:

- Implementation of an employee self-service web portal that will provide all employees with secure access over the internet to view pay advice, manage and view T4/T4A and self-update employee information from any location. This will result in the reduction and or elimination of printed pay advices and T4 slips.
- Implementation of a manager self-service web portal/dashboard to view job information, employee leave balances and training summaries. This will be a single view of staff information in an easy to view and user friendly format.
- Automation of online workflow functionalities such as employee licenses and certifications resulting in less paper flow and increased flexibility for the routing process.
- Review and streamline existing processes for benefits enrollment, license and certifications, designation and memberships tracking.

Public Bidding

A Request for Expression of Interest RFEOI 5687 was issued on March 21, 2016. The following responses were received on April 5, 2016:

Company	Total Amount
Propel Solutions Ltd. **only responded to project management, not the entire RFP*	$89,440
Blackstone Consulting Group Inc.	$616,800
EAInfoBiz Inc.	$633,482
Graviton Consulting Services	$673,384
Spyre Solutions Inc.	$1,127,828
Annex Consulting Group	Only provided hourly rate

An evaluation committee consisting of representatives from Payroll, Human Resources, Purchasing and Information Technology evaluated the responses based on predetermined criteria including, but not limited to, value for money, proponent qualifications, proposal quality, project methodology and references. Each section was scored independently using the City's standard evaluation matrix. The consolidated score determined that Blackstone Consulting Group Inc. was the highest and was deemed to be the lead respondent.

As determined by the evaluation, Blackstone Consulting Group Inc. provided the response that met the City's requirements and provides the best value. Blackstone Consulting Group Inc. submitted a solid project methodology and implementation plan, and reference checks were conducted to confirm their ability to meet the proposed scope of the project.

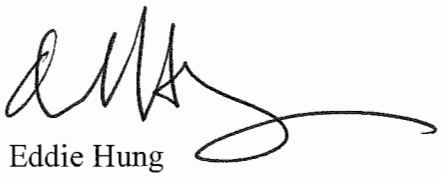
Financial Impact

The budget for PeopleSoft HR and Payroll System Upgrade and Workforce Management was approved by Council in the 2016 Capital Budget. The budget for the system upgrade portion of the project is $951,000. Funding is available to award this contract to Blackstone Consulting Group Inc. for $616,800, exclusive of taxes.

Conclusion

This request is in compliance with the City's Procurement Policy and Officer and General Manager Bylaw. The PeopleSoft Human Capital Management system is a critical system, used daily by City staff and the City has no plans to change the Human Resources and Payroll systems. In March 2016, the City signed a five year agreement with Oracle to continue using the PeopleSoft Financial and Human Capital Management systems, with the added benefit of no inflationary adjustment rate increase for the term of the agreement.

It is therefore recommended that 5687 RFEOI for PeopleSoft HCM 9.2 Upgrade Consulting Services be awarded to the bidder Blackstone Consulting Group Inc., who proposed best value to the City in the amount of $616,800, exclusive of taxes.



Eddie Hung
Manager, Business and Enterprise Systems
(604-276-4232)

GF:eh