



To: General Purposes Committee

Date: September 1, 2015

From: John Irving, P.Eng. MPA
Director, Engineering

File: 10-6060-01/2015-Vol
01

Re: Vancouver Airport Fuel Delivery Project Update

Staff Recommendation

That the comments regarding the Vancouver Airport Fuel Facility Corporation's application to Port Metro Vancouver for the proposed Fuel Receiving Facility identified in the "Vancouver Airport Fuel Delivery Project Update" report dated September 1, 2015, from the Director, Engineering, be endorsed for submission to Port Metro Vancouver.

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

Att. 8

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Parks Services	<input checked="" type="checkbox"/>	
Fire Rescue	<input checked="" type="checkbox"/>	
Development Applications	<input checked="" type="checkbox"/>	
Transportation	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO FOR

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. The certificate is contingent on the proponent meeting 64 conditions that came out of the environmental assessment process that are included in the certificate. The project proponent is Vancouver Airport Fuel Facilities Corporation (VAFFC).

The City of Richmond received a letter dated August 14, 2015, from Port Metro Vancouver (PMV) indicating they had received a project permit application from the VAFFC for the aviation Fuel Receiving Facility (Facility) (Attachment 1). The letter invited the City's comments on the project and indicated that a public open house was to be held on August 29, 2015.

This report identifies staff's comments regarding the VAFFC project permit application for the Facility for Council's consideration for submission to PMV. It also updates the status of the pipeline and Marine Terminal elements of the Vancouver Airport Fuel Delivery (VAFD) project.

Findings of Fact

The VAFD project on Lulu Island is divided into three components:

1. Marine Terminal – The marine terminal is proposed at 15040 Williams Road. This is a 9.45 acre site where aviation fuel will be delivered by maritime transport tanker vessels. Aviation fuel will be pumped via a pipeline eastward across Williams Road to the proposed FRF.
2. Fuel Receiving Facility – The Facility is proposed to be located on PMV land east of the intersection of Williams Road and Dyke Road. It will receive aviation fuel from the Marine Terminal and transfer it to Sea Island via the proposed pipeline.
3. Pipeline – A new 13 km long underground pipeline is proposed to transfer aviation fuel from the Facility across Lulu Island to the existing YVR fuel holding facility located at 7511 Grauer Road on Sea Island.

Attachment 2 identifies the general layout of the three components.

Fuel Receiving Facility

The proposed Facility is located adjacent to the Marine Terminal at the intersection of Williams Road and Dyke Road in south east Richmond (Attachment 3). This is located on PMV property and is not subject to the City's approval processes. However, the Facility will be connected to municipal roadways and utilities and will require City approval to make these connections.

The VAFFC has submitted a project permit application dated May 13, 2015, to develop the Facility on PMV land. The application was made available to City staff at a meeting on August

21, 2015. The proposal document is available on both the PMV and VAFFC web sites. The project permit application is limited to the boundaries of PMV land and as such does not consider connectivity or impact to City utilities or roadways.

Staff Comments

There is currently no detailed information available regarding the connectivity of the Facility to the Marine Terminal or YVR. As such, it is difficult to assess the proposal in a comprehensive manner. While staff are continuing to review information and may develop further comments as warranted, it is recommended that the following comments be submitted to PMV at this stage:

1. The submission requires detail on the interaction of the Fuel Receiving Facility, the Marine Terminal, and the pipeline, particularly during emergency or post disaster scenarios.
2. Public process should be extended and enhanced.
3. A Traffic Impact Study is required and transportation improvements identified in the study need to be addressed.
4. The Fuel Receiving Facility must conform to the American Petroleum Institute (API) 2021 Management of Atmospheric Storage Tank Fires standard.
5. The City recommends that automated fire suppression equipment be included in the Fuel Receiving Facility.
6. Fire flow for fire hydrants on the Fuel Receiving Facility site must be identified and addressed.
7. Post seismic event operation of fire suppression equipment at the Fuel Receiving Facility must be addressed.
8. Impacts of the Fuel Receiving Facility on the adjacent dike must be identified and addressed. Approvals must be obtained from the Provincial Inspectors of Dikes.
9. Site servicing for utilities must be addressed.
10. The development of the Fuel Receiving Facility site must be harmonized with the approved CN Ewen extension.
11. The development and operation of the Fuel Receiving Facility must be in accordance with the conditions set out in the EA conditional certificate and the City's comments that were submitted through the BC EAO.

The following expands on the comments listed above.

Public Process

While the Provincial Environmental Assessment Office (EAO) does not require further public consultation, PMV required the VAFFC to conduct a public open house to present the proposed Facility. The notification period for the public information meeting on August 29, 2015 was very short, and public meetings held during the summer often don't reach the target audience due to summer vacations. Similarly, the comment closure date identified in the PMV letter of September 19, 2015 does not provide adequate time for comments.

On August 29, 2015, the day of the open house, a significant storm occurred that knocked out electric power to a significant portion of the Lower Mainland, including the facility that was being used for the open house. Additionally, residents were advised not to travel on that day given the severity of the storm. These factors led PMV to require an additional open house, and VAFFC has scheduled it for:

September 17th 2015
4:00 pm – 7:00 pm
East Richmond Community Hall
12360 Cambie Road, Richmond, BC

Accordingly, PMV has verbally indicated they will extend the period for public comment by one week, making the deadline for public comment September 26, 2015. Staff have secured an extension for City comments until October 15, 2015, and has requested that the period for public comment be extended to this date as well.

Transportation

The Facility has proposed connections to the City's road network at Williams Road and at Dyke Road. VAFFC has not submitted a traffic impact study and the Transportation Department has not had adequate time or information to review the proposed access. Transportation has a number of preliminary concerns that should be addressed by the traffic study, including but not limited to:

- The proposed primary access from Dyke Road is not supported by Transportation due to impacts on dike users, but could be considered if this access was limited to emergency vehicles;
- The site traffic respecting the existing 5-tonne load limit posted on No. 6 Road north of Triangle Road;
- Municipal roadway improvements to accommodate vehicle turning templates for the various design vehicles accessing the site via Williams Road, Triangle Road, No. 6 Road and Steveston Highway;
- Consultation with MOTI on traffic impacts on the planned upgrade of the Steveston Highway Interchange before, during and after the upgrade; and

- The interaction of proposed site grades with the proposed CN Ewen Branch Extension has not been explored.

Fire and Rescue

The scope of the Vancouver Airport Fuel Delivery Project Risk and Hazard Analysis Design Brief for Fuel Receiving Facility (Design Brief) is limited to the Facility. Given that the Facility is integrally connected to the Marine Terminal and the 13 km pipeline to YVR, each of these components can impact each other from a risk management perspective. As such, the Design Brief does not meet its stated objective:

“The purpose of this analysis is to address safety related issues with the various agencies involved to demonstrate that the design, construction and operation of the facility will afford the appropriate level of fire safety to the community and responding fire service.”

The Design Brief should address how the pipeline and Marine Terminal components are designed to interact with each other and the Facility in an emergency situation. The Design Brief also omits the American Petroleum Institute (API) 2021 Management of Atmospheric Storage Tank Fires standard. The Facility will be required to adhere to this standard and as such this omission should be remedied. In addition, the locations of the existing City fire assets are outside of the industry standard, and neither the project permit application nor the Design Brief address this issue.

The project permit application includes automated fire detection equipment in the Facility, but does not include automated fire suppression equipment. It is critical to control fuel tank fires in their early stages and staff recommend that automated fire suppression equipment be included in the Facility. It also needs to include a water system fire flow demand that will be required outside of the fire suppression system. The City standard for industrial sites is 200 l/s, however, additional flow may be required due to the nature of the site. Lastly, regular inspection of the fire detection and suppression equipment is not addressed in the Design Brief.

Seismic

The impact of a seismic event on the Facility has not been adequately explored. Seismic issues that require additional work include:

- Probability of tank failure due to seismic activity;
- Probability of secondary containment failure due to seismic activity;
- Probability of fire post seismic activity;
- Post seismic event operation of the Facility;
- Interaction between Facility structures and the City’s dike during a seismic event; and
- Post seismic water supply for Facility fire suppression systems.

Staff have noted that the proposed fire suppression systems are reliant on the City's water distribution system and will be vulnerable to water outages in a post seismic scenario. The Facility should include provisions for providing emergency power and water to the fire suppression equipment in a timely manner after a significant seismic event.

Utilities

PMV have indicated that they expect VAFFC to enter servicing agreements with the City for connection to City utilities. The VAFFC have not approached the City for utilities servicing. A servicing plan will be required that details utility demands/flows and connectivity to the City system for review.

Diking

The proposed Facility is immediately adjacent to the City's dike and includes considerable soil preparation. No work exploring the interaction of the soil work and the dike has been presented to date. Additionally, the project permit application indicates that a screen including trees is proposed on the City's dike, outside of the PMV property. The proposed trees will reduce the integrity of the dike and staff recommend that they not be permitted on the dike. Further, staff recommend that the proposed screen be installed on PMV land.

Marine Terminal

The proposed Marine Terminal (Attachment 5) is located to the west of the Facility and is subject to the City's Development Permit process. To date, no development permit application has been submitted and it is unknown when the VAFFC is planning to submit. Key issues in the development permit will be:

- Public consultation;
- Foreshore and ESA impacts and compensation;
- Diking; and
- The City's objectives for a continuous trail along the dike.

Pipeline

The proposed 13 km pipeline route is predominantly on MOTI property on Highway 99 (Attachment 2). The proposed pipeline utilizes City road dedications at the north and south ends of the project.

On the north end, the proposed pipeline route identified in the EA conditional certificate utilizes a circuitous route from Highway 99 to the north end of No. 3 Road on the North Arm of the Fraser River (Attachment 6). This route has significant impacts to the future development of this area and the development of Duck Island. After negotiations with the City, VAFFC and the Jingon Group (the Duck Island developer), the VAFFC has proposed that the Fraser River crossing be moved to be adjacent to the Airport Connector Bridge at the west end of Bridgeport

Road. This alignment is more agreeable to Jingon and potentially leads to moving the entire north Richmond alignment off of City streets and onto MOTI's Bridgeport Road, adjacent to the existing Kinder Morgan jet fuel pipeline. The VAFFC has indicated they are currently in discussion with the EAO to make these changes to the EA conditional certificate.

On the south end, the proposed pipeline route identified in the EA conditional certificate utilizes City road dedications on Francis Road from the Fuel Receiving Facility (FRF) to Highway 99 (Attachment 7). This alignment is in conflict with the adjacent Ecowaste landfill site and proposed development. Staff understand that the VAFFC and Ecowaste have developed an alternate pipeline alignment identified in Attachment 8 that utilizes Williams Road, Savage Road and Francis Road. This proposal has not been formally presented to the City for comment and has not been submitted to the EAO for amendment to the EA conditional certificate.

Financial Impact

None

Conclusion

The VAFD project is moving forward and an application has been made to PMV for the Facility. PMV have a deadline of October 15, 2015 for City comments, and staff recommend submitting the comments listed in this report regarding traffic impacts, the interaction of the major components in an emergency, impact of a seismic event on the Facility, and utility servicing.

It is unknown when the VAFFC will apply to the Oil and Gas Commission for a permit to construct the proposed pipeline, or when the associated comment period will commence. It is also unknown when the VAFFC will apply for a development permit for the Marine Terminal. Staff will report to Council any significant change in status on both the pipeline and Marine Terminal, and provide further updates on the PMV process for permitting the Facility.



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

LB:lb

- Att. 1: PMV Referral
- 2: EA Conditional Certificate VAFD Project Layout
- 3: Fuel Receiving Facility
- 4: Isometric View of the Fuel Receiving Facility
- 5: Marine Terminal
- 6: EA Conditional Certificate Pipeline Route Through North Richmond
- 7: EA Conditional Certificate Pipeline Route in South Richmond
- 8: Proposed Pipeline Route Through South Richmond



August 14, 2015

VIA E-MAIL & MAIL

Mr. Wayne Craig
 Director of Planning
 City of Richmond
 6911 No. 3 Road
 Richmond, BC V6Y 2C1

Dear Mr. Craig:

**RE: Referral - PER No. 15-104
 Vancouver Airport Fuel Delivery project
 End of Williams Road, Richmond**

Port Metro Vancouver (PMV) has received a project permit application from FSM Management Group Inc. representing Vancouver Airport Fuel Facilities Corporation (the Applicant) for an aviation fuel receiving facility and sections of new fuel transfer and delivery pipelines on PMV land (the Project) at the end of Williams Road in Richmond.

As part of the Project and Environmental Review of this application, we are writing to invite your comments on this proposed Project. Attached is a copy of the location map for your information. Please refer to PMV's website for all drawings, studies, and additional details submitted as part of the [project permit application](#).

Project Description

The proposal is for an aviation fuel receiving facility and sections of fuel transfer and delivery pipelines that will be located on PMV land. Construction of associated office, utilities and landscaping works are also to be undertaken as part of this proposal.

Proposed Works

Site Preparation Works:

- Over-excavation and removal of spoil material (up to approx. 150,000 m³).
- Filling of the site with dredged river sand as quality backfill material.
- Ground densification using stone columns to a seismic performance target of 1:2475 year event.

Storage Tanks:

- Installation of 6 above ground vertical carbon steel single wall tanks, each with approx. a diameter of 33.5 m (110 ft.), a height of 14.6 m (48 ft.) and

100 The Pointe, 999 Canada Place, Vancouver, B.C. Canada V6C 3T4

portmetrovancover.com

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a useable storage capacity of 13.3 million litres, and with a combined capacity of 80 million litres.

- The tanks will:
 - Be fitted with a primary and secondary level control system, which will include monitoring and overflow protection;
 - Incorporate a pressure/vacuum venting system to control emissions;
 - Incorporate foam dispensing system connected to the foam storage building;
 - Be fitted with automatic motorized emergency valves to control the receiving and dispensing lines to each tank; and
 - Be provided with a liner and leak detection.

Operations Facilities:

- Construction of a one-storey operations building approx. 64m² (689 sq. ft.) to house offices, a control room for the facilities, first aid facilities and washrooms.
- Construction of a one-storey water treatment building of approx. 64m² (689 sq. ft.)
- Construction of an electrical motor control centre building approx. 64m² (689 sq. ft.)
- Installation of a containment basin and lift station as part of oil/water separator system.
- Installation of a filtration system and three transfer pumps.
- Installation of fire pump system and perimeter fire hydrants around the facility, and a fire water pumphouse of approx. 40 m² (431 sq. ft.).
- Installation of a foam storage and incident command centre approx. 60 m² (646 sq. ft.).
- Installation of a backup generator capable of running core functions and firefighting systems.
- Installation of associated spill containment infrastructure.
- Installation of a stormwater detention basin.

Underground Utilities:

- Installation of a section of the 600mm jet fuel pipeline used to transfer fuel from the Applicant's marine terminal to the proposed fuel receiving facility.
- Installation of a section of the 350mm jet fuel pipeline used to transfer fuel from the proposed fuel receiving facility to Vancouver International Airport (YVR).
- Installation of associated services for stormwater, sewer, water, communications, and electricity.

Facility Access and Ancillary Features:

- Proposal for two driveway access points (from the end of Williams Road and from Dyke Road).

Mr. W. Craig
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- Proposal for internal driveways and fire access roads.
- Installation of 8 employee parking spaces.
- Installation of perimeter security fencing and landscaping.
- Installation of outdoor LED lighting fixtures.

As part of the Project and Environmental Review for this project, the Applicant is required to conduct a public **Open House/Information Session** to provide the public and community with an opportunity to review the proposal and provide comments. The Open House is scheduled for:

Saturday, August 29 2015 from 2:00 pm to 5:00pm
Holiday Inn Express & Suites Riverport
10688 No. 6 Road, Richmond, B.C.

All stakeholders interested in the Project are welcome to attend the Open House. PMV staff will be attending to observe and answer questions about the permitting process.

We would appreciate your comments on the proposed Project by **Monday, September 14, 2015**. Should you wish to meet to discuss this application or require an extension to the comment period, please let me know by Friday, August 28, 2015.

Should you have any questions, please contact me at (604)665-9627 or andrew.taylor@portmetrovanancouver.com.

Sincerely,

PORT METRO VANCOUVER



Andrew Taylor
Senior Planner

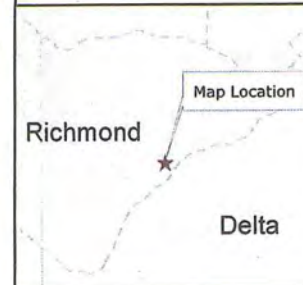
Encl: Location Map

Cc: Mark McCaskill, Senior Project Manager, FSM Management Group Inc.
Lilian Chau, Manager, Planning, Port Metro Vancouver
Lisa-Marie Martin, Communications Advisor, Port Metro Vancouver
Barry Konkin, Program Coordinator, Development, City of Richmond



**Vancouver Airport
Fuel Delivery
Project**
PP#2015-104

- VFPA Boundary
- - Project Location



PMV Spatial Data Group
August 2015
PLAN #G2015-066

Any areas marked "proposed" represent approximate locations.

Attachment 2 – EA Conditional Certificate VAFD Project Layout



Attachment 3 – Fuel Receiving Facility



Attachment 4 – Isometric View of the Fuel Receiving Facility



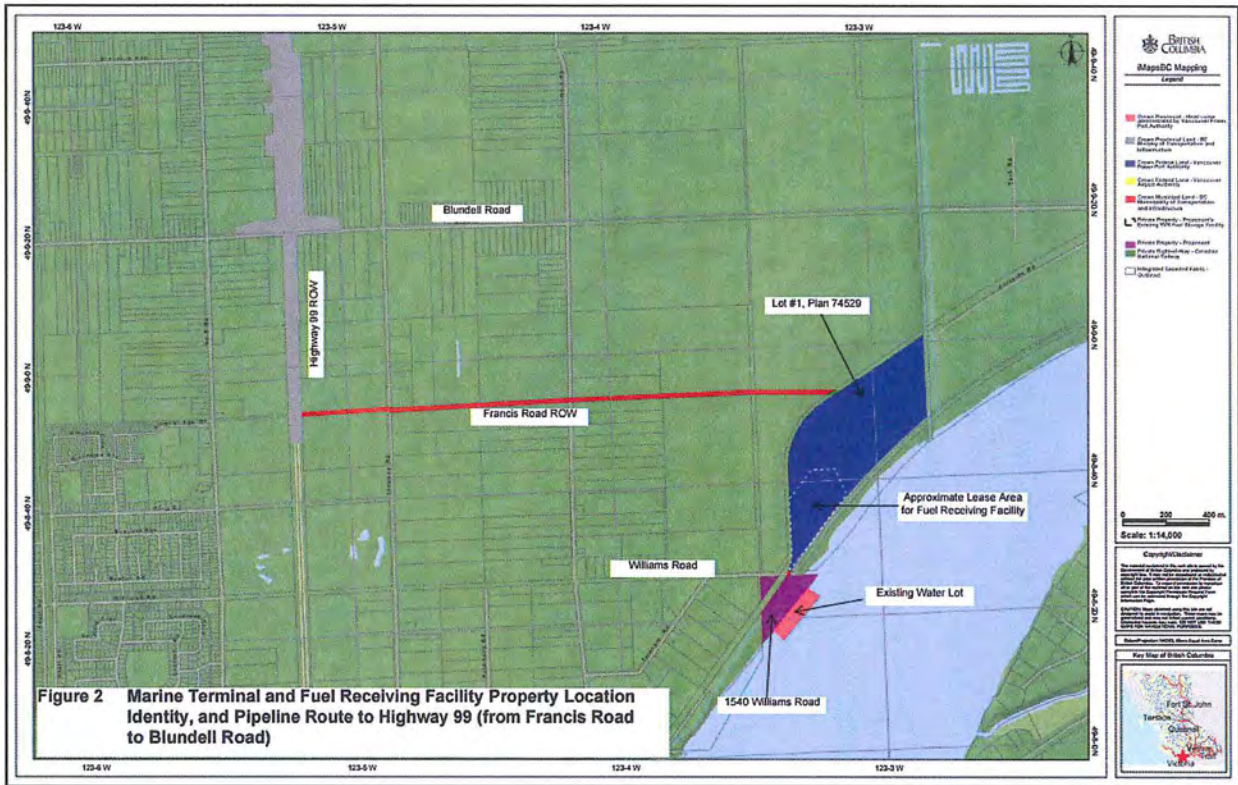
Attachment 5 – Marine Terminal



Attachment 6 – EA Conditional Certificate Pipeline Route Through North Richmond



Attachment 7 – EA Conditional Certificate Pipeline Route in South Richmond



Attachment 8 – Proposed Pipeline Route Through South Richmond

