

FACT SHEET

Evaluation of Fuel Delivery Options

Vancouver Airport Fuel Facilities Corporation (VAFFC) contracted Golder Associates and Ausenco-Sandwell, both well respected firms with marine and environmental engineering experience, to undertake an independent and transparent comparative analysis of four main options to deliver jet fuel to Vancouver International Airport (YVR). The analysis was undertaken to address concerns raised by the City of Richmond and public regarding the original analysis conducted by VAFFC. The options selected for further evaluation were based on the majority of specific inquiries received throughout the BC Environmental Assessment Office's review of the project. The purpose of this study is to further the understanding and rationale behind VAFFC's proposal. The study is not part of the review process; it is a voluntary and standalone study.

Options Evaluated

The four options evaluated by Golder Associates and Ausenco-Sandwell included:

Option 1: Modify an existing deep-water terminal on the South Arm of the Fraser River into a jet fuel offloading terminal, develop a new fuel storage facility (tank farm) and build a 15-km pipeline connecting the facility to YVR.

***Note:** This option is VAFFC's proposed project currently undergoing a regulatory review in a 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. VAFFC requested that the proposed project be included in this comparative analysis notwithstanding the vast amount of research and analysis already completed by VAFFC for the purpose of the environmental assessment.*

Option 2: Develop a new marine terminal in the ocean off Sea Island, build a pipeline connecting it to YVR, and expand the existing tank farm at the airport to increase storage capacity. Three offshore alternatives are evaluated within this option – a single point mooring system, a spread mooring system and a fixed marine terminal.

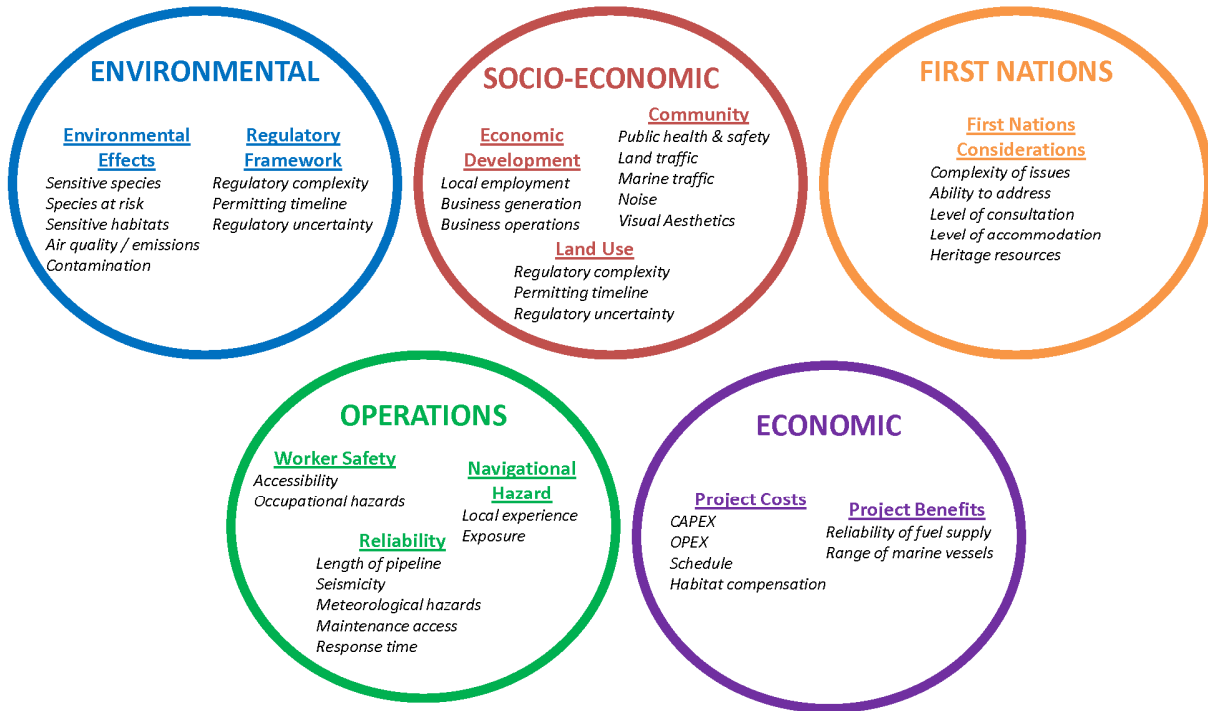
Option 3: Upgrade and replace the existing 40-km Trans Mountain Jet Fuel pipeline delivery system and expand the jet fuel storage capacity at the existing Westridge Marine Terminal on Burrard Inlet.

Option 4: Modify an existing marine terminal to serve as the trans-shipment terminal for large jet fuel tankers (including development of a new jet fuel tank farm and a new jet fuel barge loading facility on the north shore of Burrard Inlet), develop a jet fuel barge unloading terminal on the south bank of the North Arm of the Fraser River near YVR, with a short pipeline connecting to the existing tank farm at the airport.

Evaluation Criteria

Environmental, social, economic and technical criteria were developed by Golder Associates and Ausenco-Sandwell to evaluate the fuel delivery options. Broad-level considerations or “themes” were identified within each dimension, and then 39 specific “indicators” were identified for each theme.

The dimensions, themes and indicators are illustrated below.



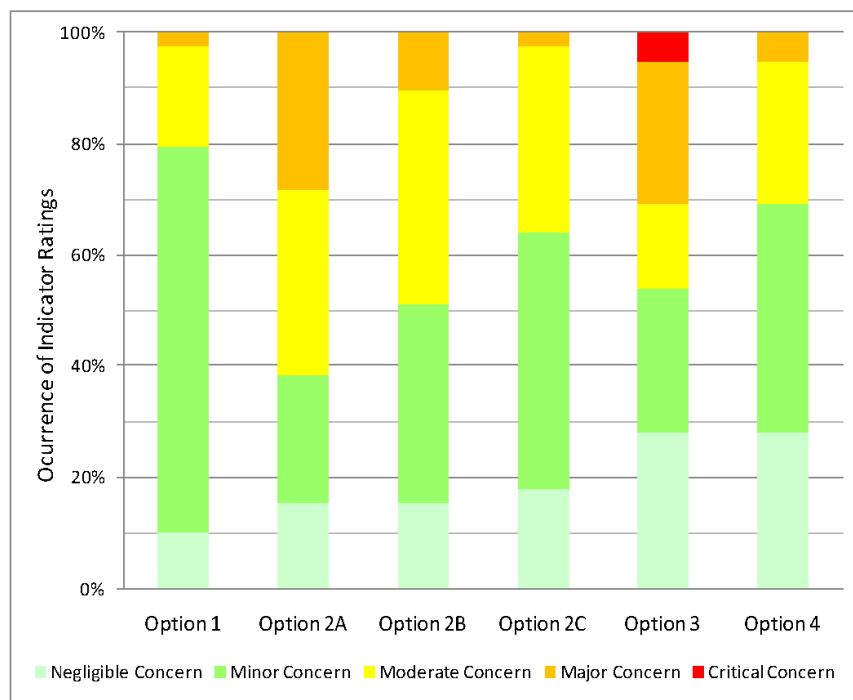
Each indicator was rated on a scale of “negligible concern” to “critical concern.” The term “concern” refers to the potential for impact, risk or lack of expected benefit to any interest group including the public, First Nations, regulators and VAFFC. This rating scale allows for both impact/risk and benefit to be rated on a single scale for each indicator.

Results

Based on the evaluation, Option 1 (the proposed project) had the greatest number of indicators (80%) rated as negligible or of minor concern. Option 4 was next with approximately 70%. Option 3 had the lowest number of negligible or minor indicators at about 50%, and was the only one with an identified “critical concern.” (See the bar chart on the next page for the relative scoring for all the options.)

Summary of Key Indicators:

- Options 1 and 4 are the most favourable from an environmental standpoint.
- Options 1 and 4 are also acceptable from a socio-economic standpoint, although Options 2B and 2C could be slightly better based on no “moderate concern” ratings.
- Option 3 is the least favourable in terms of socio-economic considerations based on multiple “major concern” ratings.
- Option 3 has fewer First Nations considerations than the other options.
- Option 1 is the most favourable from an operational standpoint.
- Options 2C and 4 are also favourable in terms of operations, but are affected by exposure to occupational hazards. Option 3 is similar; however, the long length of pipeline poses challenges for access and maintenance.
- Options 1 and 2B are favourable from an economic standpoint.
- Option 3 is least favourable from an economic standpoint in terms of capital and operating expenditures, as well as potential implications on schedule.

**Conclusion**

The independent comparative analysis by Golder Associates and Ausenco-Sandwell supports VAFFC’s assertion that the proposed project (represented as Option 1) is the best option when environmental, socio-economic, First Nations, operations and economic factors are considered together.