Technical Report **TR-20**

Vancouver Fraser Port Authority Development Permit Application

Consultation Summary – Westridge Marine Terminal

Appendix I

TRANSMOUNTAIN

TR-20

Appendix I

Alternate Marine Terminal Location - Information Materials

Trans Mountain Pipeline ULC
Trans Mountain Expansion Project
NEB Hearing Order OH-001-2014
Responses to Information Request from
National Energy Board

Environment

2.044 Alternative means of carrying out the Project – alternative marine terminal locations

Reference:

i) A3W9H8, Trans Mountain Response to Board IR No. 1, IR 1.39, PDF pages 234 and 235 of 421
ii) NEB Filing Manual, Section 4.2.2, Guidance – Alternatives, PDF page 48 of 258

Preamble:

In Reference i), Trans Mountain states that, early in its Project planning, it tested the basic premise that expanding existing facilities is the most responsible approach to the development. Trans Mountain states that it considered potential alternative marine terminal locations based on the feasibility of coincident marine and pipeline access, and screened them based on technical, economic, and environmental considerations. It states that these alternative locations in British Columbia included Kitimat, and Roberts Bank in Delta. It also indicates that it ultimately concluded that constructing and operating a new marine terminal and supporting infrastructure would result in significantly greater cost, a larger footprint, and additional environmental effects, as compared to expanding existing facilities. Trans Mountain states that it, therefore, did not continue with a further assessment of alterative termini for the Project.

The NEB Filing Manual (Reference ii)) describes Board guidance related to filing requirements on alternatives, and states that different project, routing, and design alternatives must be summarized and compared using criteria that justify and demonstrate how the proposed option was selected and why it is the preferred option. It requires that the criteria to be elaborated upon include engineering design, economic feasibility or life span costs, effects on reliability and security of the existing system, demonstrated public concern, and environmental and socio-economic constraints or potential effects. The Filing Manual also notes that the level of detail provided may reflect the more conceptual nature of the options.

Request:

a) For each alternative marine terminal location and associated pipeline concept considered, including the Kitimat and Roberts Bank locations noted in Reference i), please elaborate on each of the criteria listed in Reference ii) for comparing Project routing, design, or construction options, as well as the marine terminal's location in relation to the open sea. This must include the potential differences in marine tanker passage through certain waters and consequences for risk assessments.

Response:

a) **Northern *vs.* Southern Route Alternatives**

Concepts for the expansion of the existing Trans Mountain Pipeline System (TMPL) have evolved since its inception with the first 160m km looping expansion occurring in 1957 four years after the pipeline came into service. More recently the configuration proposed for the Trans Mountain Expansion Project (TMEP) has evolved from a concept developed ten years ago that envisioned a phased expansion of the existing system in four parts. In addition to requisite pumping power and terminal expansion the main elements were the pipeline additions which could be constructed in the following order:

- TMX-1 – partial looping between Edson AB and Valemount BC and the addition of pumping power along the pipeline.
- TMX-2 – further looping in AB between Edmonton and Edson AB and between Valemount and Kamloops BC along with additional pumping capacity.
- TMX-3 – completion of the looping between Kamloops and Sumas and Burnaby to provide a fully twinned pipeline system.
- TMX-Northern Leg – construction of a new lateral north and west from Valemount BC to a new marine terminal at either Prince Rupert or Kitimat BC.

In 2005 Trans Mountain received approval for construction of the TMX-1 Anchor Loop project which subsequently came into service in 2008. In 2006 Trans Mountain held an open-season for TMX-2 but did not receive sufficient market support to justify further development of the program. It was through the work leading up to the 2006 open season that Trans Mountain most recently considered expansion to Northern versus Southern terminals.

While each alternative has advantages and disadvantages, the results of Trans Mountain's assessment favoured expansion of the existing system south over a new northern lateral and terminal. Relative to the southern expansion the TMX-Northern Leg concept involved:

- A 250 kilometre longer pipeline and 10% to 20% higher project capital cost
- Greater technical challenges including routing through high alpine areas of the Coast Mountains or extensive tunneling to avoid these areas. While no issues were determined to be insurmountable these technical challenges resulted in greater uncertainty for cost and schedule.
- Fewer opportunities to benefit from existing operations, infrastructure, and relationships. These efficiencies involve both the use of existing Trans Mountain right-of-way, facilities, programs, and personnel as well as synergies with other existing infrastructure such as, road access, power, and marine infrastructure all which would increase the footprint and potential impact.

- Early in its assessment of the Northern Leg Trans Mountain considered marine terminal locations at Kitimat and Prince Rupert and based on a high level review determined that Kitimat was the most viable alternative. While Prince Rupert was expected to provide superior access for deep draft tankers and to have the most developed port and maritime infrastructure these advantages were negated by technical challenges and uncertainties related to pipeline access. While no insurmountable issues were identified on balance Kitimat was determined to offer the most feasible location for oil pipeline service to a northern marine loading facility.

Due to higher costs and greater uncertainty of cost and schedule Trans Mountain determined expansion along the existing TMPL route to be more favourable and the Project was developed on that basis.

Southern Terminal Alternatives Considered

Although good planning and best practices favour utilizing existing facilities Trans Mountain nonetheless considered, at a high level, potential alternative marine terminal alternatives to Westridge for TMEP. Considerations included feasibility of requisite pipeline access and the location of storage facilities as well as marine access by tanker. The following six general areas were considered and all but Roberts Bank were eliminated from further assessment for the reasons listed below:

- **Howe Sound** – no feasible pipeline access west of Hope, requires a new lateral from Kamloops area, extreme terrain and limited land available in close proximity for storage.
- **Vancouver Harbour** – no locations with coincident feasible pipeline access and land for storage
- **Sturgeon Bank** – no feasible land available in close proximity for the storage facilities
- **Washington State** – longer pipeline depending on terminus, complex regulatory issues including additional permits required by Washington State and the USA federal government
- **Boundary Bay** – insufficient water depth
- **Roberts Bank**

Roberts Bank Assessment

To further understand the Roberts Bank alternative a screening level assessment was conducted based on desktop studies of technical, economic and environmental considerations for marine access, storage facilities, and pipeline routing for a terminal at that location.

One of the many challenges in assessing options for a marine loading facility for oil is the large number of competing environmental, social, technical, economic and Aboriginal issues and concerns. The potential sites, in the Lower Mainland and estuary of the Fraser River delta, represent complex environmental values, multiple stakeholders, regulatory regimes, and Aboriginal interests. Notwithstanding these complex interests, the approach to the assessment was one of a high-level review of current conditions. Since it was intended to be a screening level assessment to identify potential issues, no consultation was undertaken with regulatory authorities, Aboriginal groups, or stakeholders, other than preliminary discussions with PMV staff.

As stated in Reference i), and based on the findings of the assessment which are provided below, Trans Mountain concluded that a new marine terminal and pipeline to Roberts Bank would result in significantly greater cost, larger footprint and additional environmental effects, as compared to expanding existing facilities. Accordingly, Trans Mountain did not continue with further development of alternatives to Westridge.

The following information describes the setting, conditions and assumptions for the Roberts Bank alternative used in comparison with expansion of the existing system to the Westridge Marine Terminal. Details of the later are provided in the application albeit in a more comprehensive form than was available at the time of the assessment. The level of detail for the Roberts Bank alternative reflects the preliminary nature of the assessment relative to the Project Application and the decision not to pursue it further given the advantages of Westridge.

A summary of the findings of the assessment for each alternative marine terminal location and associated pipeline concept considered, including the Kitimat and Roberts Bank locations in terms of the criteria listed in Reference ii) is provided in Table 2.044a-1 (NEB IR No. 2.044a – Attachment 1).

Assumed Roberts Bank Configuration

The assessment was conducted based on the following hypothetical technical configuration for the Roberts Bank dock, storage, and pipeline, in relation to the existing system:

- Given the greater draft available for vessels calling in the Robert's Bank area a conventional dock with two berth faces capable of loading Aframax, Suezmax or VLCC sized vessels was considered. Given that redevelopment of PMV's existing Roberts Bank terminal is underway, the design and outcome of which is uncertain, the assessment assumed a dedicated standalone dock structure. The assumed dock location would be just north of the PMV's Robert's Bank facility and to achieve sufficient draft it would be served by a 7 km long trestle supporting pipelines and a single lane roadway. Despite the higher cost this conventional configuration was chosen for the assessment over constructing an island terminal or mooring-buoy options which were eliminated due to their larger environmental footprint and the complexity of constructing an underwater pipeline in the deltaic foreshore soils. As well, to ensure sufficient depth and maneuvering room the mooring-buoy options

were found to need to be located so far from shore as to encroach on the established shipping lane adjacent to Roberts Bank.

- Storage facilities were assumed to comprise of a land area of approximately 100 acres for 20 storage tanks as well as ancillary equipment and buildings. While no specific location for the storage terminal was identified it was assumed to be located within a few kilometres of the trestle at the shore line.

- A mapping study was conducted to identify potential routes from the existing Trans Mountain right-of-way to the Robert's Bank area based on distance and potential to follow existing linear infrastructure. For the assessment a 47 km route departing the existing system near Fort Langley and following adjacent to existing rail and road infrastructure was assumed to be viable.

- The assessment also assumed that the existing pipeline to Burnaby and Westridge Terminals would continue to operate serving the refinery, and refined products terminal, crude barges, small tankers, and the jet fuel system through the existing Burnaby and Westridge terminals.

Roberts Bank Engineering and Geotechnical Considerations

Roberts Bank is part of the Fraser River delta and is comprised mainly of alluvial sand and silts to depths well in excess of 100 m. The sand and silt deposits comprising parts of the delta are known to be relatively loose and subject to liquefaction during an earthquake. The delta front itself is thought to be unstable in some places, as are many such delta fronts in river systems worldwide.

Based on past experience with berth structures at Roberts Bank Terminals and the nearby Tsawwassen Ferry Terminal, the soils in the area are known to be generally suitable for marine terminal construction. However due to the relatively soft nature of the in-situ soils extensive ground improvement programs have been required in some cases to support the overlying structures and provide seismic stability.

It was assumed that a conventional loading dock would be constructed using driven piles supporting a concrete deck. Given the construction methods used at the existing terminals in the area it was assumed that the soils would have adequate capacity to develop practical piling configurations for both the breasting and mooring dolphin structures as well as the access trestle.

Soil conditions in foreshore represent a significant source of uncertainty for the assessment. The extent and of ground improvements necessary to address potential ground instability due to seismic-induced liquefaction is unknown and contributes to uncertainty of the cost, potential environmental impact, and mitigation. As such, the potential for seismically-induced soil liquefaction is an important issue that would have to be considered. If the soil proves to be susceptible to liquefaction under design conditions, it may be necessary to carry out a program of ground improvement (e.g., vibro densification) under the footprint of the terminal and pipeline prior to construction. This process is technically feasible but would add cost not

accounted for in the assessment. It would also likely increase the affected area, possibly requiring additional offsetting habitat compensation.

The storage facility was assumed to be located on flat delta lands characterized by high water tables and weak sub-soils with the expectation that some form of ground improvement would be required to provide necessary bearing capacity for the tanks. Design of the facility is assumed to address expected seismic effects such as soil liquefaction or tsunamis although these issues were not studied in detail and also remain a source of uncertainty.

Relative to Westridge the pipeline route would avoid the Fraser River crossing and have fewer sections of difficult construction through congested areas, however it would be longer by 14 km and due to the low lying nature of the land pipeline construction would require extensive well pointing and buoyancy control for the pipeline. The construction procedures required for the pipeline would closely resemble those used in other parts of the pipeline and no special or unique measures required. However, poor ground conditions and high water tables will cause progress to be slow relative to the more benign parts of the route.

Overall no unsurmountable engineering or geotechnical issues were identified however, the assessment showed that relative to Westridge the Roberts Bank alternative required a significantly larger dock structure, a large new footprint for the storage terminal, a longer right of way, and a greater diversion from the existing corridor. The extent and cost of ground improvement necessary for the dock and storage terminal also presented a significant source of uncertainty.

Environmental Considerations

Roberts Bank supports numerous fish species (including salmon) and ecologically important eelgrass beds (important fish habitat); contain mudflats that sustain communities of birds on the Pacific Flyway; and are within an internationally recognized flight-path for migrating birds. The area also has important social, economic, and recreation ecosystem service value, including fishing, agriculture, First Nation use, direct employment to local and regional residents and the transportation of goods and people.

Fisheries and Oceans Canada (DFO) has identified 14 important areas in proximity to Roberts Bank including areas for Alaska Skate, big skate, Dungeness crab, eulachon, harbour seal, herring, longnose skate, marine birds, ocean features, pollock, resident killer whale, salmon, sandpaper skate and shrimp.

Although Roberts Bank area has a limited amount of ideal estuarine habitat required to support juvenile salmonids, it has been identified as having ideal habitat conditions for Dungeness crab and herring. Furthermore, the Fraser River estuary, in close proximity to Roberts Bank, is considered the most important salmon spawning river in the world and more than five million migratory birds use the Fraser River estuary and delta. As a result of existing development in the area, previous environmental studies have identified key environmental impact areas which include marsh areas along the shoreline, crab habitat north of the causeway (mating and migration habitat) and the eelgrass beds between the causeways. Many of these habitats are limited within the estuary and as a result, past

developments have been restricted or declined to ensure minimal disturbance within the area.

The Roberts Bank Terminal is in proximity to a number of protected areas including:

- 4,400 m south of Alaksen National Wildlife Area;
- 5,500 m south George C. Reifel Migratory Bird Sanctuary;
- 3,800 m south of South Arm Marshes Wildlife Management Area; and
- 5,980 m west of Boundary Bay - Centennial Beach Regional Park (Metro Vancouver).

With the exception of the existing Roberts Bank terminal and the Tsawwassen Ferry terminal most of the foreshore in the area falls within the Provincially designated Roberts Bank Wildlife Management Area. Trans Mountain understands that the planned used for the area does not contemplate activities associated with the construction and operation of a marine terminal.

A conventional terminal on a piled structure with a trestle-supported pipe from shore would likely depend entirely on steel piles for support. This option was assumed for the assessment as it appeared to have the least impact to fish habitat as the trestle would be elevated over the intertidal and subtidal seabed resulting in a comparatively small footprint. Shading by the structure would be considered an issue but this could be mitigated to some extent by height off the seabed and minimizing solid decking. Depending on the number and size of the piles, the pile footprint may require some measure of compensation.

Piling for structures will require contractors to mitigate for sound impacts. Usually these types of projects require large piles and while they are usually vibrated in they do require seating at the end of the driving. Seating requires a hammer to drop on the pile, which generates significant sound waves that can harm fish and impact mammals. This would generally be mitigated by monitoring for mammals, monitoring the noise levels with hydrophones and using air or bubble curtains to dampen the noise generation as required.

Water quality concerns in Boundary Bay relate to pollution from urban and industrial developments along the Fraser River, and the potential for ballast water pollution arising from shipping in the Georgia Strait, Roberts Bank and the Fraser River.

While both Westridge and Roberts Bank have unique and important environmental values, based on the setting the environmental considerations at Roberts Bank appeared to be more substantial and uncertain than at Westridge Terminal, particularly given the larger footprint required for the dock and storage terminal. Without effective mitigation accidents or malfunctions at Roberts Bank could result in greater and more immediate consequences for the natural environmental.

First Nations Considerations

The marine terminal location considered in the assessment is in the territory of the Tsawwassen First Nation (TFN) where they have treaty rights. The TFN primary community

is located in close proximity to Roberts Bank. Based on the location of their community, the Roberts Bank Terminal is in the heart of the TFN territory.

Other First Nations also have mapped territorial interests at Roberts Bank area including:

- Semiahmoo First Nation;
- Musqueam Indian Band;
- Hul'quimin'um Treaty Group (HTG) (Cowichan Tribes, Stzuminus, Penelakut, Lyackson, Halalt, Lake Cowichan and Hwlitsum First Nations); and
- Sto:lo

For the purpose of the screening assessment First Nation concerns and interests were assumed to be similar to those for Westridge and likely to include concerns for impacts on traditional rights, environmental protection, and potential interest in economic opportunities.

Land Use Considerations

The assumed construction has the potential to impact surrounding communities and farmlands, including environmental concerns related to the marine ecology, potential noise and air emissions, disruption of farming operations and potential losses of economic and community benefits through declines in long-term employment of local community. Local communities in proximity to the area would be expected to voice concern regarding the storage and transport of bulk liquids at Roberts Bank.

Roberts Bank is situated within the Corporation of Delta on the south side of the Fraser River estuary and is approximately 35 km from downtown Vancouver. Delta has a population of approximately 97,200 residents. In 2006, there were approximately 180 farms located within Delta under administration of the BC Agricultural Land Commission. Available industrial lands in the Delta area are scarce and with no parcels greater than 5 acres are available at the time of the assessment. Most lands in the Delta area are within the ALR and a large number of acreages are classified as “Heritage Lands”.

The location of the dock structure was assumed to be just north of PMV’s existing Roberts Bank facility and outside their proprietary jurisdiction. Seabed areas are assumed to be owned by the BC crown, for which a crown foreshore lease must be obtained pursuant to the BC Provincial Crown Land Tenure application process. The crown foreshore would include all submerged areas and intertidal areas up to the normal high tide line.

Land acquisition for portions of the project above the high tide line were assumed to be subject to the usual uplands acquisition processes.

Trans Mountain notes that the storage and transhipment of oil has been an issue of concern at PMV’s Roberts Bank terminal dating back to the initial proposal to expand the Roberts Bank Superport facilities in the 1970’s. In 1975 the National Harbours Board proposed an expansion of original coal terminal and the Province of BC subsequently passed Order in Council 908 requiring a comprehensive environmental assessment be conducted for any developments in the Roberts Bank management area with potential to impact the environment. The subsequent regulatory review of the coal expansion resulted in a

condition that storage, transfer or handling of bulk liquid not be allowed for protection of the environment on the basis that these activities presented undue risk. While the degree to which this premise was tested or potential mitigation measures were considered is unclear, this condition has been adopted in regulatory reviews and permitting for subsequent developments of the terminal dating back to the 1970s and 1980s. As such, Port Metro Vancouver does not allow the transfer, loading or storage of "bulk liquids", including the bunkering of ships at berth at its Roberts Bank facility.

Trans Mountain understands that PMV's current land use planning considers the area east of Second Narrows as the most appropriate for petroleum handling facilities.

Relative to Westridge the Roberts Bank alternative would result in a greater change in land use both for the storage terminal and the dock structure. As surrounding development is less than that for Westridge accidents or malfunctions at this location would be expected to effect fewer people.

Estimated Cost Difference

As part of the assessment the capital cost difference of the Roberts Bank alternative was estimated relative to that for Westridge. The estimate showed the capital cost of the Roberts Bank alternative to be $1.2 billion dollars higher.

Operating costs were not quantified for comparison in the assessment, however given the additional dock and storage terminal required these costs would be higher for the Roberts Bank alternative.

Marine Access Considerations

Roberts Bank is an extensive alluvial fan formed by sediments deposited from the Fraser River. Most of the bank is relatively shallow, with extensive drying banks extending more than 6 km offshore. The location is not constrained by the depth or width of the navigational approaches, and can therefore accommodate larger vessels, up to VLCC, and comparable in size to the largest vessels calling at the existing terminal.

Located on the southern portion of Georgia Straight the area is subject to migratory low and high pressure systems that move through the area, producing day-to-day changes in weather and wind patterns. Low pressure systems can develop off-shore, more frequently during the winter, either originating from the Gulf of Alaska or as rapidly forming coastal low pressure systems, with relatively brief but high intensity winds. Ahead of these systems, strong south-easterly winds and rain are produced. Often, as the cold front passes, a second band of winds occur, originating from the west or northwest. These northwesterly winds can be particularly strong in spring and occasionally in summer as high pressure systems predominate and winds are funnelled down the Strait of Georgia. Often, there are few indicators of the onset of these winds.

Tidal currents in the section near Roberts Bank typically attain a speed of 0.5 to 1.0 m/s.

Approximately 38% of significant wave heights and 62% of maximum possible wave heights are above 0.33 m, and 4% of significant wave heights and 10% of maximum wave heights are above 1 m.

Overall Roberts Bank is exposed to higher wind and wave conditions than what is prevalent at Westridge where these conditions are relatively benign. Such conditions should not pose hazards to a well-founded modern vessel at berth as has been proven by the proximity of large dry bulk carriers berthed at the Westshore Terminal. However, given the potential for more severe environmental conditions at Roberts Bank tanker loading might be expected to require more frequent loading stoppages and potentially the need to vacate the berth than at Westridge.

It was assumed that the berth face for the new berths would be placed in a water depth of approximately 30m at low tide. The berth alignment would be placed generally parallel to the existing seabed contours, which coincidently is also generally parallel to prevailing winds and currents. Having the vessel berth aligned with the prevailing winds and currents is good practice as it simplifies navigation approaches and reduces the load on the mooring lines. Due to the greater exposure to winds and waves, it was not considered always suitable for barges, which would therefore continue to be accommodated at Westridge.

Navigating from Roberts Bank to sea would entail a passage of approximately 115 nautical miles through the Strait of Georgia, Boundary Pass, Haro Straits, past Discovery Island, Victoria and Race Rocks and thereafter through the Juan de Fuca Strait to Buoy J and beyond to enter the Pacific Ocean. Situating the terminal at Roberts Bank would reduce the overall distance travelled by tankers within the marine network and avoid the Burrard Inlet, about 30 nautical miles each way. Except for that, the passage is comparable to the passage from Westridge to Buoy J, as described in Volume 8C, Termpol 3.5/3.12 (see section 2.0 of Filing ID A3S4T9) including the route hazards described in that document for route segments 4 to 7. Locating the terminal at Roberts Bank reduces the overall complexity of navigating a tanker between the terminal and sea,

The Roberts Bank area is already exposed to ship movements. In addition to vessel traffic calling at the existing PMV terminal (Westshore Terminal and Delta Port), there is regularly scheduled ferry traffic between Tsawwassen and Duke Point and Tsawwassen and Swartz Bay. Adding tanker traffic at Roberts Bank might add up-to two vessel movements per day on average. Vessels arriving and leaving the oil terminal would have to cross the paths of other vessels transiting within the traffic separation scheme in a perpendicular. There would also be a commensurate increase in the number of other vessels, such as tugs required to escort or berth/unberth the tanker. The overall effect on the marine traffic pattern was not determined.

A reduction in the overall number of vessels would generally be expected to lead to an overall reduction to the underwater noise generated by project tankers. However it has to be considered that larger vessels are fitted with larger engines and bigger propellers; as well, it is possible that a VLCC would require additional tugs to escort it through the shipping lanes. Add to it any underwater noise generated from vessels at berth or waiting for berth, and it is possible that the impact of underwater noise could remain similar to that possible under the

project as proposed in the application. The overall effect on underwater noise has not been determined.

The ability to service larger tankers is a key benefit of locating a tanker terminal at Roberts Bank. For Example a VLCC could in theory take almost three times the load of a partially laden Aframax tanker which in turn would result in the number of tankers within the marine network. Such a reduction would reduce the probability of tanker related accidents during transit and increase the expected return period for oil spills resulting from tanker operations. Larger tankers would however lead to a commensurate increase in the potential size of a oil spill in the region. Work to establish the credible worst case size spill and suitable oil spill response capacity has not been undertaken. The overall effect on risk has not been determined.

While Roberts Bank offers a shorter and relatively less complex marine transit there is an existing well established marine safety system for vessels calling at Westridge. Although Roberts Bank would allow service to larger vessels which would result in potentially lower transport costs for shippers and lower probability of oil spill accidents larger cargos result in potentially larger spill volumes. While the overall effect on marine spill risk was not determined it is expected that larger cargos would require a greater investment in spill response.

Conclusions from the Assessment

The assessment involved consideration of many environmental, social, technical, economic concerns. Both the Westridge and Roberts Bank terminal alternatives have positive and negative attributes especially when viewed from any one perspective. Overall Trans Mountain's rationale for the Westridge Marine Terminal as the preferred alternative was based on the expectation that Roberts Bank would result in:

- significantly greater cost – the estimated $1.2b higher capital cost and assumed higher operating costs for the Roberts Bank alternative
- a larger footprint and additional environmental effects – Roberts Bank would result in an additional storage terminal with an estimated 100 acres of land required, a larger dock structure with a 7 km trestle, and a 14km longer pipeline that diverges further from the existing pipeline corridor.

Table 2.044a-1 Trans Mountain Expansion Project, Summary of Alternative Marine Terminal Locations

	Factors for Comparison					
Terminus Options	**Engineering Design**	**Economic Feasibility**	**Life Span Costs**	**Stakeholder, Landowner and Aboriginal Concerns**	**Environmental & Socio-economic Constraints or Effects**	**Marine Issues**
A) Northern terminus at Kitimat	• compared to existing TMPL, pipeline route to either northern termini = +250 kilometres of new pipeline and all new ROW • pipeline construction through difficult terrain including high alpine areas of Coast Mountains with potential for extensive tunneling. • less developed marine infrastructure than Prince Rupert and PMV • longer confined channel transit than for Prince Rupert	• 10% to 20% higher capital cost than for southern route expansion due to longer pipeline, utilities, access, and marine terminal infrastructure • greater cost uncertainty due to technical challenges	• operations and maintenance costs may be higher than southern route	• stakeholder, landowner and Aboriginal concerns anticipated. • consultation not undertaken during review.	• a detailed analysis of potential environmental and socio-economic effects was not undertaken during the desktop analysis • potential effect on Aboriginal traditional land and marine use.	• longer confined channel transit than Prince Rupert • greater requirement for escorts and marine infrastructure upgrades than Prince Rupert and PMV • less developed port facilities relative to Prince Rupert and PMV
B) Northern terminus at Prince Rupert	• same pipeline route as for Kitimat east of Terrace BC. • this option was eliminated due to technical challenges and associated uncertainty related to routing west of Terrace.	• not considered in favour of Kitimat	• not considered in favour of Kitimat	• not considered in favour of Kitimat.	• not considered in favour of Kitimat.	• better access to open water than Kitimat. • less developed marine infrastructure than PMV
C) Southern terminus at Roberts Bank	• compared to existing Westridge Marine Terminal expansion pipeline access to Roberts Bank would require >14 km of new pipeline and right-of-way, greater diversion from existing corridor than for Westridge.. • pipeline route would avoid Fraser crossing, involve less urban density, but greater low lying areas with high water table. • requires new storage facility (~ 100 acres) in addition to existing Burnaby and Westridge facilities. • larger more complex dock structure (7km pile supported trestle). • uncertainty regarding the extent of remediation required to address soils potentially susceptible so seismic failure • potential to serve larger vessels	• project cost for Roberts Bank alternative estimated at $1.2 billion greater than for Westridge expansion • greater cost uncertainty for potential engineering design and construction costs to address seismically susceptible soils.	• operating costs would increase due to second terminal operation. The existing Westridge and Burnaby Terminals would continue to operate to serve existing terminals, crude barges, small tankers and the existing jet fuel system	• stakeholder, landowner and Aboriginal concerns anticipated. • consultation not undertaken during review.	• effects on agricultural land resulting from new pipeline right-of-way and new tank terminal (~ 100 acres). • potential environmental effects on Fraser River estuary and in the Boundary Bay area, both of which have very high environmental values. • rural and low density of surrounding development • land use changes for storage terminal and foreshore • prohibition of handling bulk liquids in effect for existing terminal • potential effect on Aboriginal traditional land and marine use	• marine transit is the same as for Westridge up to Tsawwassen in the southern portion of Georgia Straight • shorter overall transit which avoids draft restrictions and confined channel in Burrard Inlet • greater draft allows larger vessels than Westridge – potentially fewer tankers • more exposed to weather, not suitable for barges • currently no holding anchorages for waiting vessels
D) Southern terminus at existing Westridge Marine Terminal	• expansion of existing pipeline and delivery lines; however some new corridor required to avoid disruption to residential areas. • expansion of existing Burnaby and Westridge Marine Terminals.	• Lower project cost relative to Roberts Bank	• expansion of existing infrastructure could result in cost efficiencies during operations and maintenance by leveraging existing staff, facilities and infrastructure.	• extensive stakeholder, landowner and Aboriginal consultation undertaken once Project was proposed. • consultation methods and outcomes documented in Application, Consultation Update #1, and in responses to various Information Requests.	• potential disruption in urban area during construction of the pipeline, and expansion of the terminals. • potential environmental and socio-economic effects mitigated in part by expansion of existing facilities as opposed to development of new facilities. • existing land use with urban surrounding development • conforms with PMV planning for petroleum handling east of second narrows. • potential effect on Aboriginal traditional land and marine use.	• established marine transit and safety protocols • vessel size limited by draft restrictions • sheltered terminal location with established anchorages

Dear Editor:

I am writing in response to a September 30 article that appeared in your paper about the proposed Trans Mountain Expansion Project. The article suggests that Delta is an alternative option for an expanded marine terminal. From our perspective, it is not.

We have answered questions about alternative terminal locations both inside and outside of the National Energy Board (NEB) regulatory process currently underway.

In December 2013, we submitted our 15,000 Application to the NEB to expand our pipeline and facilities, including our marine terminal in Burnaby. We outlined why we are proposing to expand the existing dock facilities, and why it is the best option.

As part of the project Trans Mountain evaluated a number of potential marine locations on the West Coast including Roberts Bank and concluded that expansion of the existing terminal at Westridge is the best alternative.

Our evaluation found the alternative locations were less favourable for a number of reasons including environmental, technical and economic considerations. There is also an existing, well-established marine safety system in place for vessels going to and from Westridge Marine Terminal, which safeguards multiple oil-handling facilities operating in Burrard Inlet, including ours.

Activated in 1953, the Trans Mountain pipeline has been safely and responsibly transporting petroleum products from Alberta to British Columbia and beyond for 60 years. We have safely loaded vessels in Burrard Inlet since 1956 without a single spill from marine operations.

Trans Mountain remains committed to seeking input and answering questions about our proposal. However, we firmly believe that expanding our existing dock facilities in Burnaby is the best, safest, and most environmentally benign option. That's the plan we have proposed, and that plan is currently almost 2 years into the most extensive regulatory review in the history of National Energy Board.

We encourage Delta residents and all those interested to take the time to learn more about our proposal. We encourage them to provide feedback and ask us questions at www.transmountain.com.

Michael Davies,
Senior Director of Marine Development,
Trans Mountain Expansion Project

From: Mayor & Council [mailto:Mayor-Council@delta.ca]
Sent: Monday, October 05, 2015 12:43 PM
To: Hobenshield, Lexa
Subject: RE: Trans Mountain Terminal Location

OFFICE OF THE MUNICIPAL CLERK

October 5, 2015

File No.: 06000-20/TMP
AT No.: 126578

Lexa Hobenshield
Manager, External Relations
Kinder Morgan Canada Stakeholder Engagement & Communications
Trans Mountain Expansion Project
2844 Bainbridge Avenue, PO Box 84028 Bainbridge
Burnaby BC V5A 4T9

Dear Ms. Hobenshield:

Trans Mountain Terminal Location

I would like to confirm receipt of your correspondence dated October 2, 2015 regarding the above noted subject.

Your communication has been circulated to the Mayor, Council, the Chief Administrative Officer and the Manager of Climate Action & Environment for information; as well as the Director of Human Resources & Corporate Planning for consideration and response as appropriate..

Council will receive your correspondence as part of its Regular Meeting Agenda on October 19, 2015. The agenda, including your correspondence and relevant comments and/or response, will be available for viewing on Delta's website at: www.delta.ca.

Thank you for your time and consideration regarding this matter.

Yours truly,

Office of the Municipal Clerk

From: Hobenshield, Lexa [mailto:Lexa_Hobenshield@kindermorgan.com]
Sent: Friday, October 02, 2015 7:37 AM
To: Mayor Lois Jackson; Sylvia Bishop; Robert Campbell; Jeannie Kanakos; Heather King; Bruce McDonald; Ian Paton
Cc: Mayor Lois Jackson
Subject: Trans Mountain Terminal Location

Mayor and Council,

I wanted to reach out with a quick clarification in light of recent media discussion of alternative options for an expanded Westridge Marine Terminal as part of the Trans Mountain Expansion Project.

As you may be aware, we have answered questions about alternative terminal locations both inside and outside of the National Energy Board (NEB) regulatory process currently underway. As part of our Facilities Application submitted to the NEB in December 2013, we evaluated a number of potential marine terminal locations on the West Coast, including Boundary Bay and Roberts Bank.

Our evaluation found the alternative locations were less favourable than expanding our existing marine terminal for a number of reasons including environmental, technical and economic considerations. There is also an existing, well-established marine safety system in place for vessels going to and from Westridge Marine Terminal, which safeguards multiple oil-handling facilities operating in Burrard Inlet, including ours.

An article on our website provides an overview of our rationale:
http://www.transmountain.com/updates/why-expand-westridge-marine-terminal

A regulatory response from July of 2014 provides further detail:
http://www.transmountain.com/uploads/pages/1443642844-B239-13_-_Trans_Mountain_Response_to_NEB_IR_No._2_-_A3Z4T9.pdf

Please do not hesitate to be in touch with any questions.

Sincerely,
Lexa Hobenshield
Manager, External Relations Kinder Morgan Canada Stakeholder Engagement & Communications Trans Mountain Expansion Project
P: 604.809.9869 | E: lexa_hobenshield@kindermorgan.com
Twitter: @TransMtn | @LexaHobenshield

Trans Mountain Expansion Project Office
Kinder Morgan Canada Inc.
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DELTA OPTIMIST

Proponent says Roberts Bank is not an alternative for Trans Mountain pipeline

Delta Optimist

October 9, 2015 12:00 AM

Editor:

Re: Roberts Bank eyed for pipeline, Oct. 2

I am writing in response to an article about the proposed Trans Mountain Expansion Project. The article suggests Delta is an alternative option for an expanded marine terminal. From our perspective, it is not.

We have answered questions about alternative terminal locations both inside and outside of the National Energy Board (NEB) regulatory process currently underway.

In December 2013, we submitted our 15,000 Application to the NEB to expand our pipeline and facilities, including our marine terminal in Burnaby.

We outlined why we are proposing to expand the existing dock facilities, and why it is the best option.

As part of the project Trans Mountain evaluated a number of potential marine locations on the West Coast, including Roberts Bank, and concluded that expansion of the existing terminal at Westridge is the best alternative.

Our evaluation found the alternative locations were less favourable for a number of reasons, including environmental, technical and economic considerations.

There is also an existing, well-established marine safety system in place for vessels going to and from Westridge Marine Terminal, which safeguards multiple oil-handling facilities operating in Burrard Inlet, including ours.

Activated in 1953, the Trans Mountain pipeline has been safely and responsibly transporting petroleum products from Alberta to B.C. and beyond for 60 years.

We have safely loaded vessels in Burrard Inlet since 1956 without a single spill from marine operations.

Trans Mountain remains committed to seeking input and answering questions about our proposal. However, we firmly believe that expanding our existing dock facilities in Burnaby is the best, safest and most environmentally benign option.

That's the plan we have proposed, and that plan is currently almost two years into the most extensive regulatory review in the history of National Energy Board.

We encourage Delta residents and all those interested to take the time to learn more about our proposal. We encourage them to provide feedback and ask us questions at **www.transmountain.com (http://www.transmountain.com)**.

Michael Davies

Senior Director of Marine Development Trans Mountain Expansion Project

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Trans Mountain Expansion Project
Email: info@transmountain.com | **Phone:** 1.866.514.6700 | **Website:** www.transmountain.com

December 14, 2015

Dear Mayor Jackson,

Re: Trans Mountain Expansion Project – December 2015 Update

We would like to provide you with an update on key events, recent changes in the schedule and next steps for the proposed Trans Mountain Expansion Project (TMEP).

NEB UPDATED REGULATORY SCHEDULE

On December 16, 2013 Trans Mountain applied to the National Energy Board (NEB) to expand the existing Trans Mountain Pipeline system. The Application, if approved, would increase the pipeline's capacity from 300,000 barrels a day to 890,000 barrels per day. As part of the regulatory review, Trans Mountain and participants in the review process have provided information to the NEB and exchanged information through several rounds of Information Requests (some 18,000 questions), Motions, Evidence and Responses, Technical Reports and Consultation updates. On December 17, 2015 we will present our Final Argument marking two years almost to the day from our initial Application submission.

On September 24, 2015, the NEB issued a revised procedural schedule for reviewing the TMEP Application. Previously, the NEB had scheduled dates to hear Oral Summary Arguments from Intervenors in September 2015. Those hearing dates have now been delayed until January and February, 2016. In addition, the NEB has revised the date for issuing its recommendation to the Governor in Council (i.e., the Federal Cabinet) on the proposed Project, moving it from January 25, 2016 to May 20, 2016.

Following the receipt of the NEB recommendation, the Federal Cabinet has up to three months to consider the NEB's report and decide whether or not to direct the NEB to issue a Certificate of Public Convenience and Necessity (CPCN). A CPCN is the principal approval required by Trans Mountain to proceed with the proposed Project, though other ancillary approvals (including detailed routing and confirmation of condition compliance) are also required before construction could begin.

Key dates in the current regulatory schedule as set out by NEB include:

- January 19 to 29, 2016 – Intervenors to present Oral Summary Arguments in Burnaby
- February 2 to 5, 2016 – Intervenors to present Oral Summary Arguments in Calgary
- May 20, 2016 (or before) – NEB will deliver its recommendation to the Governor in Council
- August 2016 (or before) – Decision due from Governor in Council (CPCN)

Details of the revised hearing schedule can be found in Procedural Direction NO. 18 located on the NEB website at: transmountain.com/NEB-hearing-schedule.

Should TMEP be approved, Trans Mountain proposes to commence construction in Q2/Q3 2017, with an in-service date between late 2018 and October 2019. As part of the TMEP, Trans Mountain has also sought approval under NEB Section 58 for early works (e.g. site preparation). If approved by the NEB, these early works (pre-construction) activities could commence as early as fall 2016.

YOUR INPUT REFLECTED IN TMEP

Open, extensive and thorough engagement along the proposed pipeline and marine corridors has been, and will continue to be, an important part of the proposed TMEP. Since our team began our discussions with Aboriginal groups, Landowners, communities and those interested in the proposed Project, we have held over 159 open houses and workshops along the proposed pipeline and marine corridor; and more than 24,000 points of engagement. Based on information gathered through our engagement activities, we have improved and optimized its planning and mitigation measures for the proposed project to address concerns, where ever feasible.

The input and feedback we have gathered has created a stronger, safer and more responsive Project. The following are some of the examples of how we have optimized the proposed Project as a result of stakeholder feedback and in response to concerns:

- A proposed increase in isolation valves on the pipeline, from 94 to 126; resulting in a significant reduction of potential spill volumes
- An increase in pipeline wall thickness in high consequence areas, such as urban locations and at river crossings
- Routing of the pipeline to avoid 22 river crossings at significant fish bearing rivers such as the Fraser River, upper North Thompson, Albreda, Coldwater and Coquihalla River
- Confirmed Trans Mountain's plans to use the Transportation Utility Corridor instead of routing through established neighbourhoods in Edmonton
- Routing around the community of Hinton rather than through the town
- Change in Project scope included upsizing of pipe from 36" to 42" between Hargreaves and Darfield eliminating two pipeline crossings of the Fraser River as well as significantly reducing the Project power requirements in the North Thompson region
- Routing to avoid environmentally sensitive areas such as Cheam Wetlands
- Burnaby Mountain tunnel route option to avoid adjacent neighbourhoods and minimize community impact
- As a result of the Trans Mountain Expansion Project there will be $100 million invested in WCMRC to enhance spill response capabilities along the tanker route, double the response capacity, Federal response time planning standards cut in half for the southern shipping route, five new response bases and up to 100 new jobs created.

Trans Mountain Expansion Project
Email: info@transmountain.com | **Phone:** 1.866.514.6700 | **Website:** www.transmountain.com

NEXT STEPS

Discussions with neighbours are part of our planning process and they assist in gaining an understanding of and addressing specific questions and concerns regarding pipeline and associated facilities construction and operations; should the Project be approved. The information gathered through these discussions also continues to inform the detailed design of the proposed Project and the specific instructions to the Contractor who will ultimately be involved in planning and implementing the construction.

We know that as neighbours, you continue to have questions and are seeking specific information about how the proposed Project will affect you. We want to ensure you continue to have the opportunity to obtain information directly from us. We will continue to engage with communities and stakeholders. We anticipate that in Q2 2016 we will have additional information to share and will provide it through a variety of methods; i.e.: online, in person, digital etc. There will be more information to follow in the coming weeks.

Engagement topics could include:

- Updated facilities and pipeline detailed design, construction plans and schedule
- Updated detailed routing plans
- Updated plans to manage air quality, noise, light and dust during construction and operations

In addition, conversations will be ongoing with local experts on other topics including emergency management and marine navigation safety.

We greatly value the relationships we have developed in communities over the past 60 years of Trans Mountain Pipeline operations and have endeavoured in our work on the proposed Project to further strengthen those relationships. If you have questions regarding this letter or the Project, we welcome you to contact Lexa Hobenshield at lexa_hobenshield@kindermorgan.com or 604.809.9869. Additional information is also available on our website at www.transmountain.com.

Sincerely,

Lizette Parsons Bell
Project Lead, Stakeholder Engagement and Communications

.cc George Harvie, CAO

DELTA OPTIMIST

Roberts Bank not fallback option for pipeline

Delta Optimist

March 2, 2016 12:00 AM

Kinder Morgan says expanding the Trans Mountain pipeline to Burnaby is the best and safest option.
Photograph By file

Editor:

Re: Delta voices concerns over pipeline impacts, Feb. 2

Trans Mountain is not considering Deltaport as a "fallback option" for our proposed expansion project, as your recent article suggested. We firmly believe that expanding our existing dock facilities in Burnaby is the best and safest option.

The Trans Mountain Expansion Project recently completed the most comprehensive regulatory review process in the history of the National Energy Board. The hearing has concluded and the board will issue its recommendation on May 20.

Our application clearly outlines our plan to expand the Westridge Marine Terminal. We believe that is the optimal location and we are not considering alternative options.

Before we submitted our application, we evaluated a number of potential marine locations on the West Coast, including Roberts Bank. Our evaluation determined these locations were less favourable due to a number of factors, including environmental, technical and economic considerations.

There is also an existing, well-established marine safety system in place for vessels going to and from Westridge.

Trans Mountain believes the safety of our coastline is paramount. We've been safely loading vessels with petroleum products for 60 years without a single spill from a tanker.

About 6,000 large commercial vessels transit through the Salish Sea each year, and of those 600 are tankers. Today our Westridge Marine Terminal in Burnaby serves about five tankers per month, and if our project is approved this could increase to up to 34 tankers per month. In reality, we're only part of the existing tanker traffic, and our expansion proposes the same sized vessels, shipping the same products as we do today. We share the value British Columbians place on the environment and safety, and we clearly understand the concerns raised about increases in tanker traffic. That's why we're proposing additional measures that will further improve safety for the entire marine shipping industry - because spill response is about all the vessels using our waterways.

This includes a $100 million investment in Western Canada Marine Response Corporation to fund new equipment, employ 100 new people and create five new response bases along the shipping route - one of which is planned for the Deltaport area. This will double the spill response capabilities along the tanker route and cut mandated response times in half.

The Trans Mountain team is committed to earning your trust and confidence. For more than four years, we've been consulting with communities along the proposed route and implementing programs to address the concerns we've heard. But, there is still more work to do. We'll continue to work with communities,

Aboriginal groups and our safety partners to support collaborative efforts to enhance safety and protect our environment.

I encourage you to learn more about our Project at **www.transmountain.com (http://www.transmountain.com)**.

Michael Davies
Senior Director of Marine Development Kinder Morgan

© 2016 Delta Optimist

February 29, 2016

Mayor Lois Jackson and Council
Corporation of Delta
4500 Clarence Taylor Way
Delta, BC
V4K 3E2

Mayor Jackson and Council,

I am writing to you regarding an article that appeared in the Delta Optimist on February 24, 2016 titled *"Delta voices concerns over pipeline impacts; But could Roberts Bank be a fallback option?"* I would like to take the opportunity to clarify a number of points made in this article.

Trans Mountain is not considering Deltaport as a "fallback option" for our proposed expansion project. We firmly believe that expanding our existing dock facilities in Burnaby is the best and safest option.

The Trans Mountain Expansion Project recently completed the most comprehensive regulatory review process in the history of the National Energy Board. The Hearing has concluded and the Board will issue its recommendation on May 20, 2016.

Our Application clearly outlines our plan to expand the Westridge Marine Terminal. We believe that is the optimal location and we are not considering alternative options.

Before we submitted our Application, we evaluated a number of potential marine locations on the West Coast, including Roberts Bank. Our evaluation determined these locations were less favourable due to a number of factors including environmental, technical and economic considerations. There is also an existing, well-established marine safety system in place for vessels going to and from Westridge.

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We share the value British Columbians place on the environment and safety, and we clearly understand the concerns raised about increases in tanker traffic. That's why we're proposing additional measures that will further improve safety for the entire marine shipping industry - because spill response is about all the vessels using our waterways.

This includes a $100 million investment in Western Canada Marine Response Corporation to fund new equipment, employ 100 new people and create five new response bases along the shipping route - one of which is planned for the Deltaport area. This will double the spill response capabilities along the tanker route and cut mandated response times in half.

The Trans Mountain team is committed to earning your trust and confidence. For more than four years, we've been consulting with communities along the proposed route and implementing programs to address the concerns we've heard. But, there is still more work to do. We'll continue to work with communities, Aboriginal groups and our safety partners to support collaborative efforts to enhance safety and protect our environment.

Should you have further questions or wish to meet with us, we would be pleased to hear from you. I invite you to contact Lexa Hobenshield at lexa_hobenshield@kindermorgan.com or 604.809.9869 for more information.

Sincerely,

Michael Davies
Senior Director of Marine Development

.cc Lexa Hobenshield, External Relations Manager

From: Hobenshield, Lexa
Sent: Friday, May 20, 2016 8:35 AM
To: 'scott.hamilton.mla@leg.bc.ca'
Subject: Trans Mountain pleased with regulator's positive recommendation

MLA Hamilton,

I wanted to reach out to you to offer a briefing on our proposed Trans Mountain Expansion Project. As you have likely heard, yesterday the project received a positive recommendation from the National Energy Board.

While we are pleased with this recommendation as the culmination of the regulatory review process, we are looking forward to our next steps. After an initial review of the report, Trans Mountain believes the 157 conditions, many in response to input from Intervenors, are rigorous and appear to be achievable.

The Government of Canada will make its decision on the Project in December 2016. Trans Mountain will continue to review the NEB's recommendation for any implications to community commitments and Project timeline, but is still expecting the in-service date for the expanded pipeline will be December 2019.

Trans Mountain has conducted a robust public and Aboriginal engagement program since the announcement of the proposed Project in 2012 that has included consultation with thousands of individuals to date. Engagement will continue throughout the review processes, construction and operation of the expansion.

Through some 159 open houses and workshops and hundreds of meetings along the pipeline and marine corridors and more than 24,000 points of engagement with Aboriginal communities, Trans Mountain improved and optimized its planning and mitigation measures to address concerns.

To date, close to 40 Aboriginal groups located along the Project and marine corridor in Alberta and British Columbia have provided written letters of support for the Project. The Trans Mountain Expansion Project team is building long-term relationships with Aboriginal communities along the proposed pipeline corridor to create new opportunities and shared prosperity. Trans Mountain is committed to providing tangible benefits to local communities impacted by the construction of the proposed pipeline. As of April 2016, we've signed Community Benefit Agreements totaling $6.44 million with communities along 91 per cent of the pipeline corridor. The input and feedback gathered has created a stronger, safer and more responsive Project.

Before we submitted our Application, we evaluated a number of potential marine locations on the West Coast, including Roberts Bank. Our evaluation determined these locations were less favourable due to a number of factors including environmental, technical and economic considerations. There is also an existing, well-established marine safety system in place for vessels going to and from Westridge. <u>Trans Mountain is not considering Deltaport for our proposed expansion project.</u> We firmly believe that expanding our existing dock facilities in Burnaby is the best and safest option.

Our Application clearly outlines our plan to expand the Westridge Marine Terminal. We believe that is the optimal location and we are not considering alternative options.

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We share the value British Columbians place on the environment and safety, and we clearly understand the concerns raised about increases in tanker traffic. That's why we're proposing additional measures that will further improve safety for the entire marine shipping industry - because spill response is about all the vessels using our waterways.

This includes a $100 million investment in Western Canada Marine Response Corporation to fund new equipment, employ 100 new people and create five new response bases along the shipping route - one of which is planned for the Deltaport area. This will double the spill response capabilities along the tanker route and cut mandated response times in half.

The Trans Mountain team is committed to earning your trust and confidence. For more than four years, we've been consulting with communities along the proposed route and implementing programs to address the concerns we've heard. But, there is still more work to do. We'll continue to work with communities, Aboriginal groups and our safety partners to support collaborative efforts to enhance safety and protect our environment.

We would welcome the opportunity to meet with you and provide a briefing on our work to date and our next steps. I will reach out in the near future to your Constituency Office. In the meantime, should you wish additional information I would be pleased to hear from you.

Sincerely,

Lexa Hobenshield
Manager, External Relations Kinder Morgan Canada
Stakeholder Engagement & Communications Trans Mountain Expansion Project
P: 604.809.9869 | **E:** lexa_hobenshield@kindermorgan.com
Twitter: @TransMtn | @LexaHobenshield

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Toll Free: 1-866-514-6700 | **E:** info@transmountain.com | **W:** transmountain.com

From: Hobenshield, Lexa
Sent: Friday, May 20, 2016 8:54 AM
To: 'Carla.Qualtrough@parl.gc.ca'
Subject: Trans Mountain pleased with regulator's positive recommendation

Minister Qualtrough,

I have recently reached out to your office to offer you a briefing on our proposed Trans Mountain Expansion Project. As you are aware, yesterday the project received a positive recommendation from the National Energy Board.

While we are pleased with this recommendation as the culmination of the regulatory review process, we are looking forward to our next steps. After an initial review of the report, Trans Mountain believes the 157 conditions, many in response to input from Intervenors, are rigorous and appear to be achievable.

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We would welcome the opportunity to meet with you and provide a briefing on our work to date and our next steps. I will follow up with your Constituency Office on our request. In the meantime, should you wish additional information I would be pleased to hear from you.

Sincerely,

Lexa Hobenshield
Manager, External Relations Kinder Morgan Canada
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Twitter: @TransMtn | @LexaHobenshield

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Trans Mountain Expansion Project

Ian Anderson

July 4, 2016

Carla Qualtrough, MP, Delta

TRANSMOUNTAIN

KINDER MORGAN CANADA

Agenda

- Project Overview
- Review Process
- Extensive Engagement
- Westridge Marine Terminal Location
- Project Attitudes

PROJECT OVERVIEW

Trans Mountain Pipeline

Current Operations

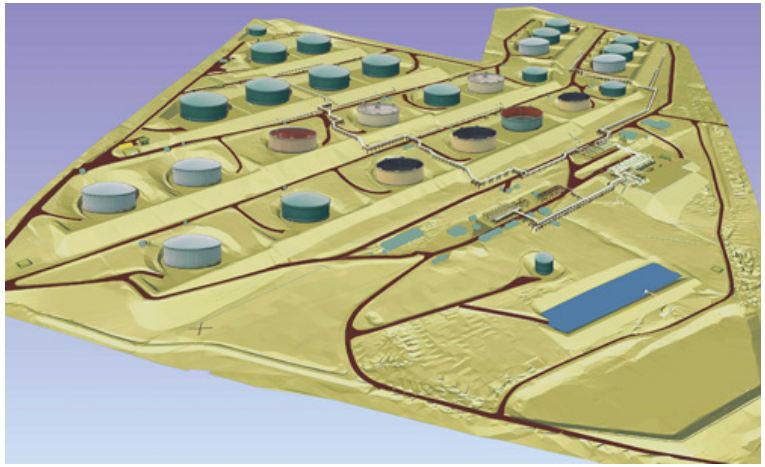
- Operating since 1953
- Capacity: 300,000 bpd
- 1,150 km between Edmonton and Burnaby
- Ferndale and Anacortes
- Transports refined products, heavy and light crude oils including dilbit
- Last expanded in 2008

Proposed Expansion

- Expand capacity to 890,000 bpd
- Twin remaining 994 km of pipeline
- Increase pumping capability
- Increase storage capacity
- Increase in tanker traffic – not tanker size
- NEB has recommended approval subject to 157 Conditions
- An additional 400 regulatory commitments have been filed by TMEP

Facilities in Metro Vancouver

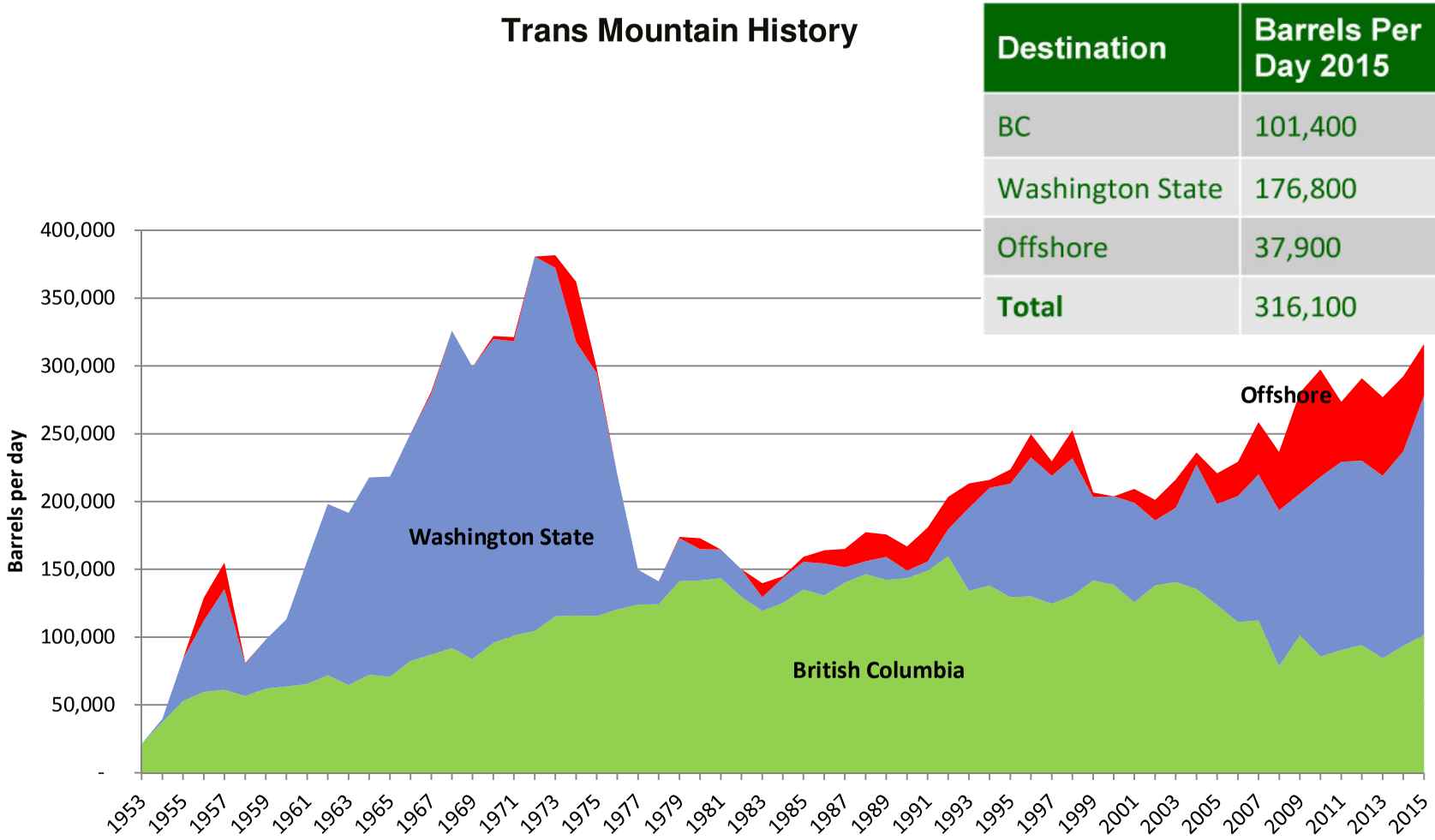
- Main pipeline from Edmonton ends at Burnaby Terminal
  - Short-term storage of crude oil and refined products
  - Propose to construct 14 new tanks, demolish one existing storage tank
  - Distribution point for refined products to Suncor and Imperial Oil, crude oil to Chevron Refinery and the dock at Westridge Marine Terminal
- Tunnel through Burnaby Mountain
  - Will accommodate two new 30” delivery pipelines between Burnaby Terminal and Westridge Marine Terminal
  - Proposed to avoid construction through residential neighbourhoods
- Westridge Marine Terminal
  - Burnaby is safest and most environmentally responsible location
  - New dock complex with three loading and one utility berth
  - A total of three delivery pipelines to marine dock
  - Each berth will have its own spill containment boom



Proposed Burnaby Storage Terminal

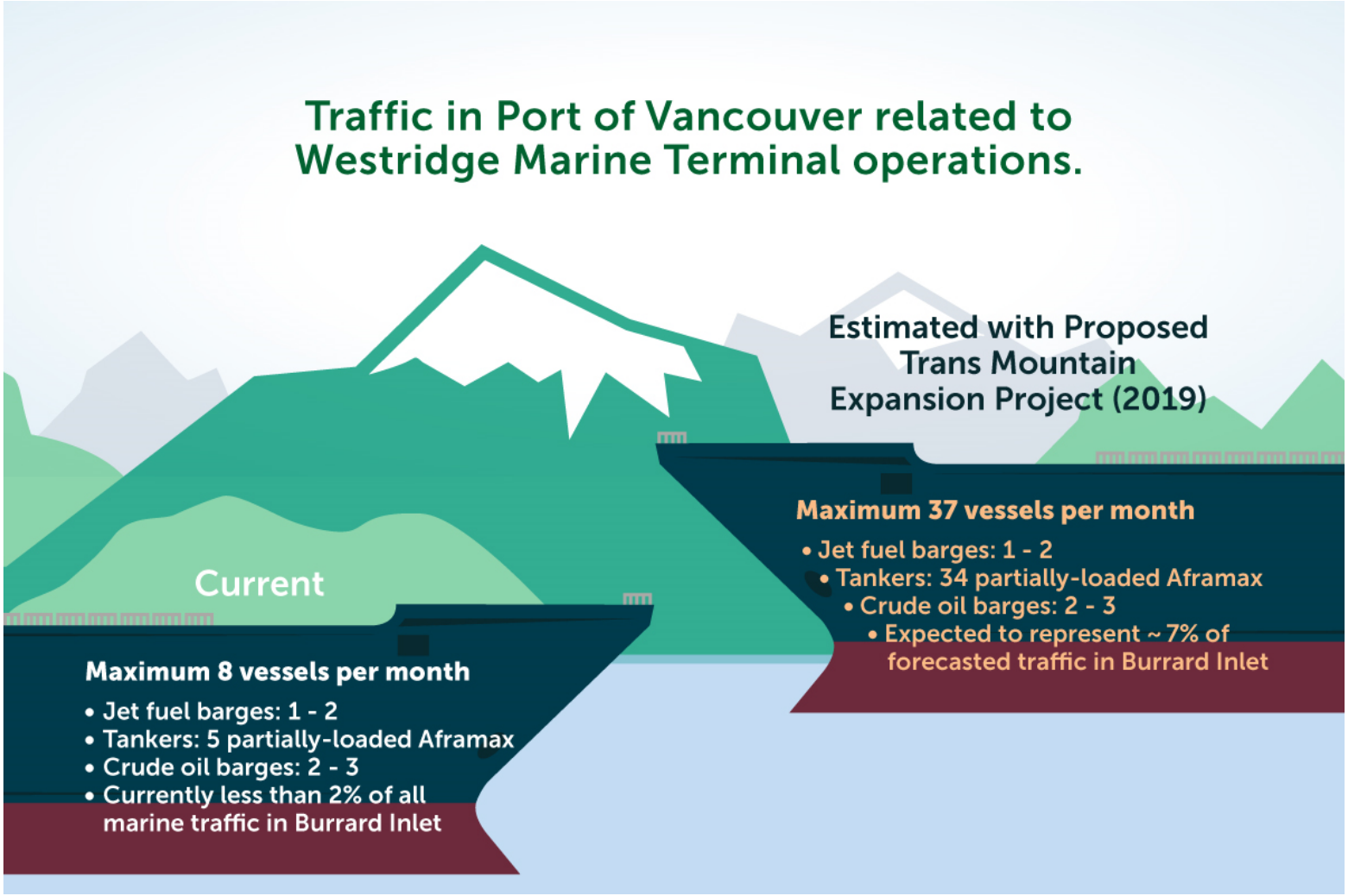
Proposed Westridge Marine Terminal

Trans Mountain Markets

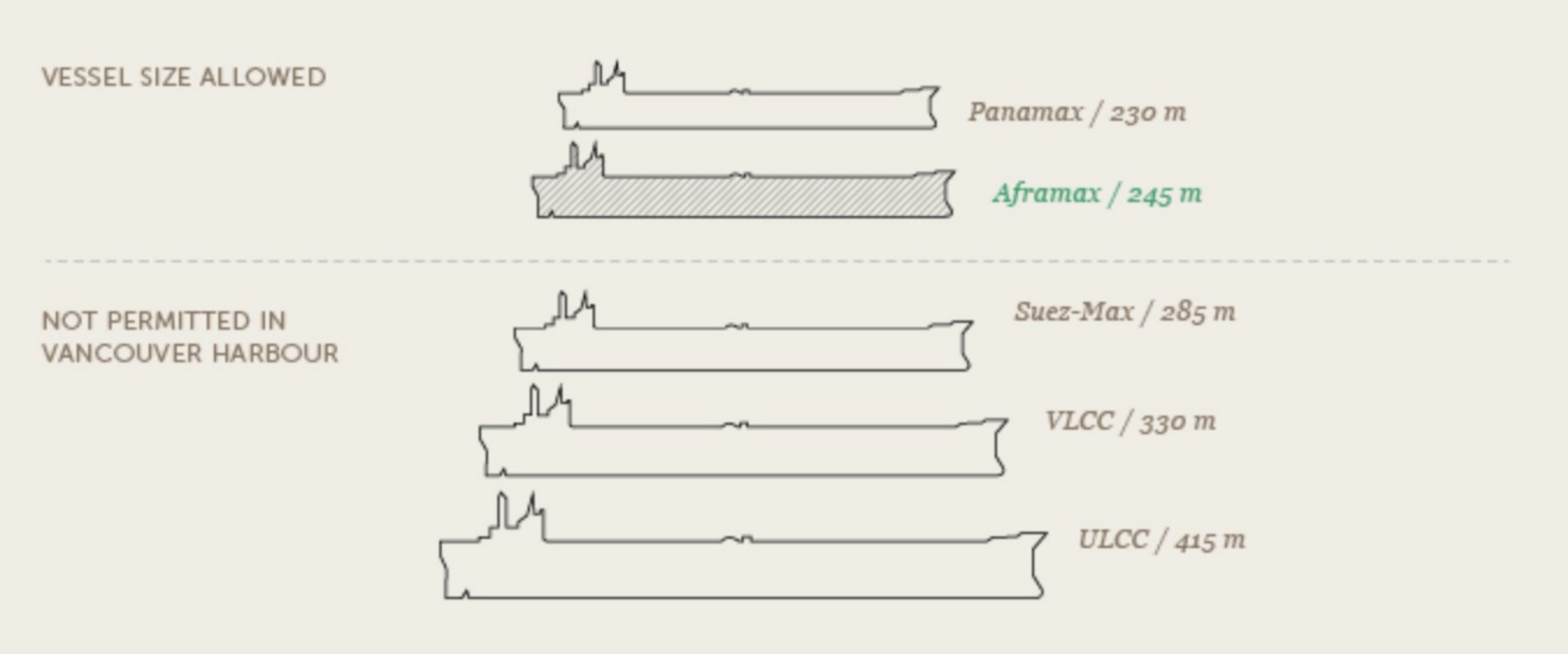


Destination	Barrels Per Day 2015
BC	101,400
Washington State	176,800
Offshore	37,900
Total	316,100

Marine Traffic

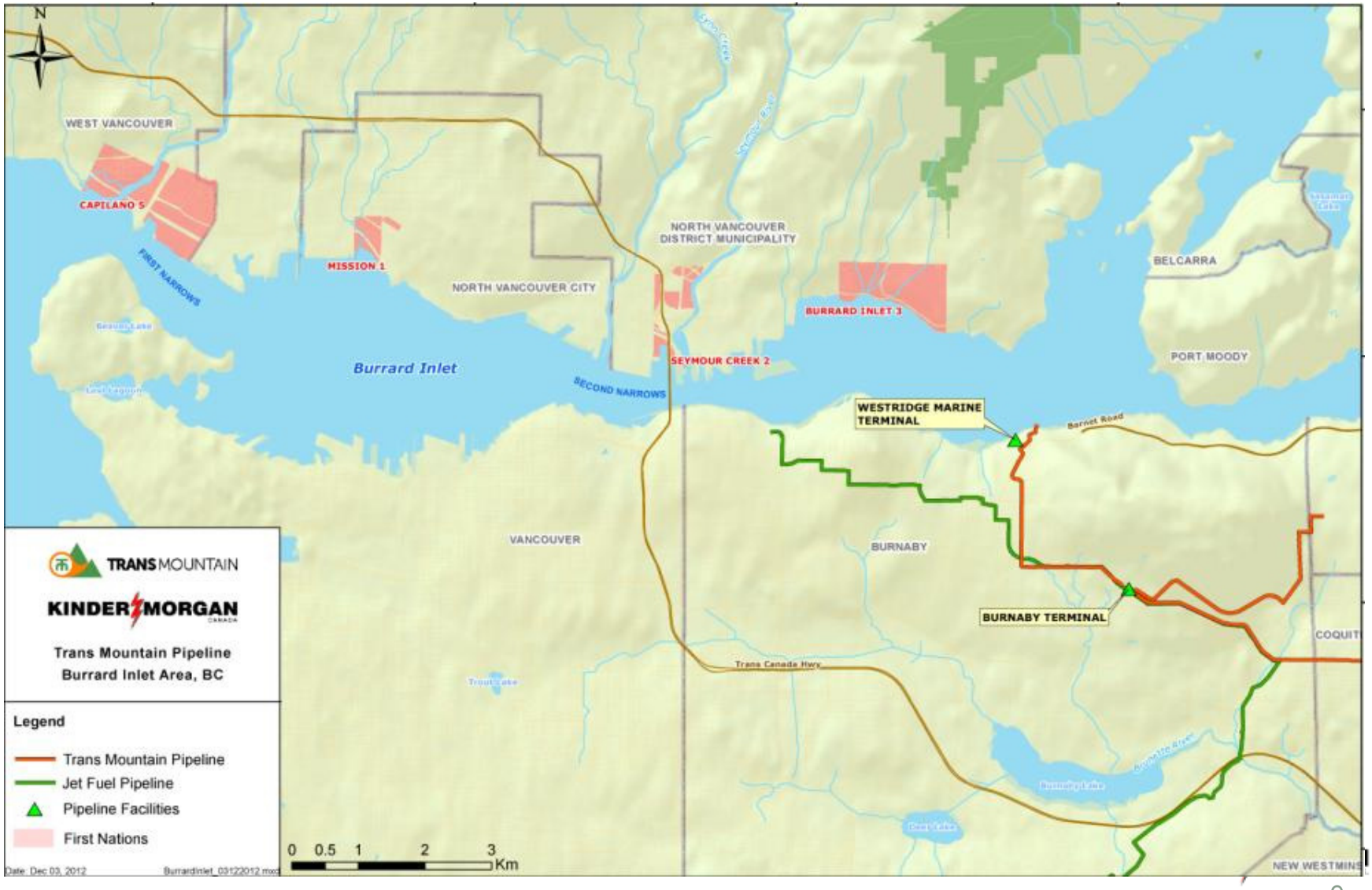


Vessels



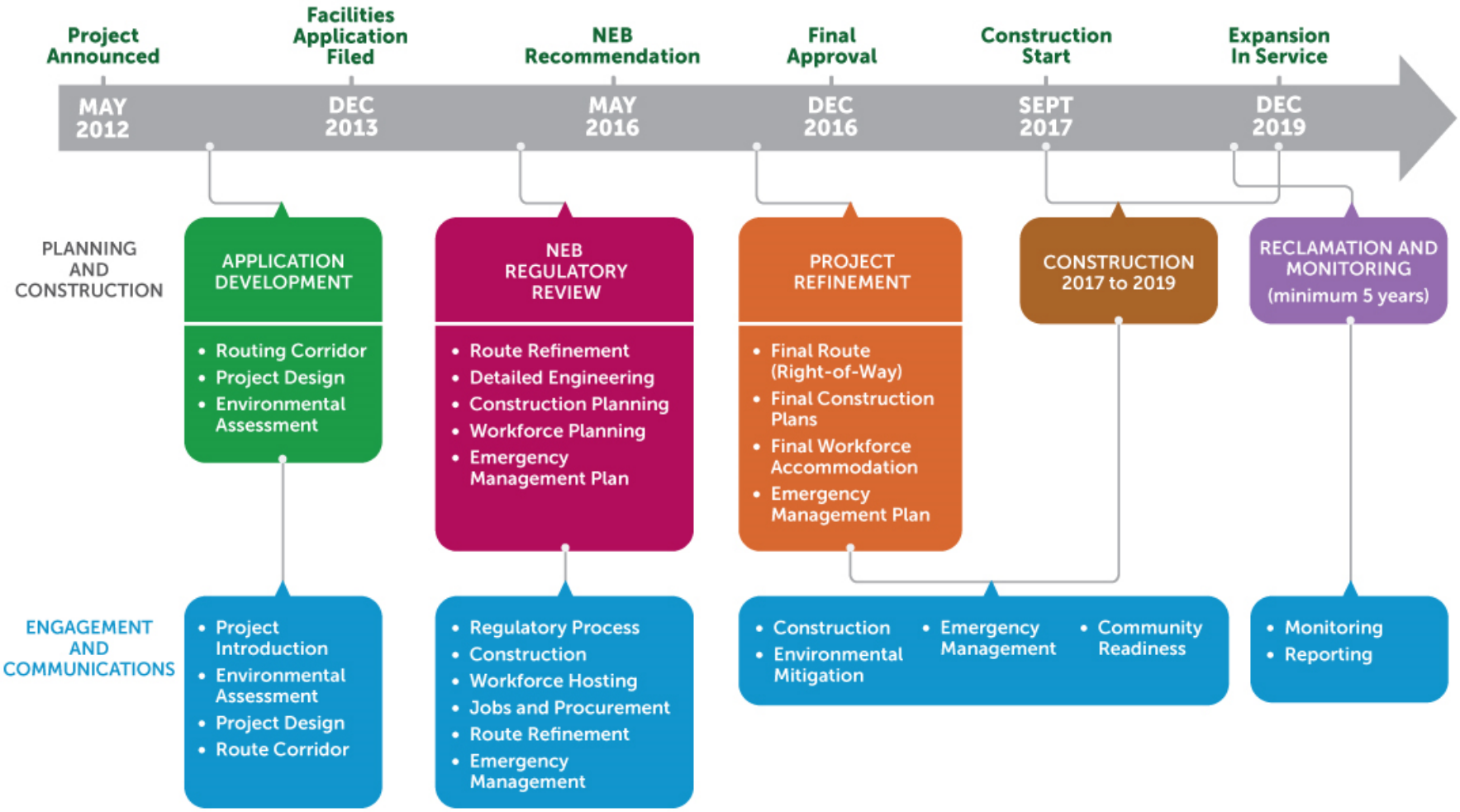
- There will be no change in the size of vessel that will call at Westridge (up to Aframax class)

Burrard Inlet



REVIEW PROCESS

Project Schedule



This schedule is subject to change based on detailed construction planning and regulatory timelines.

Regulatory Process

- NEB has recommended approval of TMEP subject to 157 Conditions that must be met. The Process included:
  - 15,000+ page Facilities Application
  - More than 17,000 questions between Apr 2014 – Oct 2015
  - Participation in 35 Aboriginal Oral Hearings over 20 days in 5 locations
  - In-depth Evidence and final argument filed in addition to the Facilities Application (8 Volumes, 16,000 pages)
  - TMEP made an additional 400 commitments throughout the process that must also be met; tracked and filed with NEB
  - **Final cabinet decision is expected by December 20, 2016**

- TMEP will also be subject to BC Environmental Assessment and other federal, provincial, regional and municipal permits

EXTENSIVE ENGAGEMENT AND COMMUNICATIONS: EDMONTON, AB TO SOOKE, BC

Key Topics of Interest

- Marine
  - Safety, spill response, Westridge Terminal, environmental protection
- GHGs
  - Air quality, carbon pricing, clean technology
- Aboriginal Engagement
  - Support from local First Nations, opportunities for First Nations
- Community Benefits
  - Procurement, jobs and local sponsorships

Marine

Key Areas of Concern:

1. Navigation Safety around project vessels
2. Construction and Operations of Westridge Marine Terminal
3. Emergency Management & Marine Spill Response

Three Principles of Marine Development:

- Expand within the existing regime
- Geographically specific and risk based
- Benefit effected communities

Results:

- Extending tug escorts and developing new tug requirements for Strait of Juan de Fuca
- Extending marine pilotage areas
- Enhanced situational awareness:
  - Safety calls by laden tankers
  - Notices to Industry
  - Engagement and awareness strategy led by PPA
  - More use of AIS and radar reflector by smaller vessels
- Identified new information about risk and mitigation of oil behaviour
- $100 M Improvements to the oil spill response regime
  - 100 new jobs
  - 5 new bases on Vancouver Island/South Coast
  - "Increased Response Area" for Salish Sea and Juan de Fuca Strait
  - Will cut response time in half and double capacity

Air Emissions & Greenhouse Gases

Key Areas of Concern:

- Air quality, climate change and clean technology

Principles

- Develop and implement a Carbon Management Plan for operations to be achieved through improved efficiency, design innovation and working with construction contractors
- Commitment to meet all applicable ambient air quality objectives
- Monitor ambient air quality to ensure health and safety of our employees, our neighbours and our communities
- Procure offsets for all carbon emissions related to project construction as per NEB condition

Results

- Design changes will reduce emissions including GHGs, (e.g. Westridge Marine Terminal vapour recovery using primarily carbon vs. combustion will significantly reduce GHGs)
- Alternatives being pursued for the largest (one time) source of carbon; land clearing and operation of construction equipment, (e.g. mulching will be performed in place or slash will be transported to an approved disposal location in the Lower Fraser Valley to avoid burning)
- Expanded permanent air quality monitoring stations at Westridge and Burnaby Terminals
- Equipment selection for pump stations and terminals will reduce GHG emissions through the selection of high efficiency equipment
- Provision of seed funding for development of a clean tech venture fund for innovations in the oil and gas sector. EVOK Innovations is now a $100 M Clean Tech fund in Vancouver, BC, launched by TM shippers, Suncor and Cenovus.

Aboriginal Engagement

- Started formal engagement/consultation spring 2012 with outreach to over 100 Aboriginal groups
- Interests identified through:
  - Engagement ongoing (30,000 points of contact logged to date)
  - Chief-to-Chief meetings
  - 60 Funded Capacity Agreements
  - 45 Funded TLUs/TMUs Agreements
  - 49 Funded Communities for TEK/Archy work
  - NEB process (Aboriginal Oral Hearings, Information Requests and Submissions)
  - Crown Consultation Assessment and Consultation
- NEB Process:
  - 78 Aboriginal communities participating as Intervenors, 3 as Commenters – total 81 in NEB process
  - Jan/Feb 2016 Oral Summary Arguments – 22 groups registered
  - NEB Draft Conditions – 34 of 150 linked to Aboriginal interests

Aboriginal Engagement

TRANSMOUNTAIN

Key Areas of Concern:

- Protection of environment, spills, safety
- Protection of rights, cultural areas and traditional practices
- Training and jobs
- Economic development opportunities
- Fiscal Benefits

Principles:

- Build trust and respect
- Ensure meaningful engagement
- Address legal requirements
- Provide capacity funding
- Gather Aboriginal perspectives
- Assess Project impacts
- Reach understandings
- Provide benefits

Results:

- 37 groups have signed Mutual Benefit Agreements in support of the Project with more in negotiation. MBAs can include education and training related to pipeline construction, enhancement of community services or infrastructure, business opportunities and other benefits.
- Participation in Field Studies 2012-2013 to inform environmental socio-economic assessment.
- 60 Funded Capacity Agreements, 45 Funded TLUS/TMUS Agreements, 49 Funded Communities for TEK/Archy work

KINDER MORGAN CANADA INC.

Benefits

Key Areas of Concern:

1. Benefits vs. risks
2. Local vs. national benefits

Benefit Principles:

- Provide local benefits communities want and need
- Create opportunities that can be accessed by Aboriginal, local and regional groups
- Provide training for skill gaps to meet needs of the Project and the communities

Results:

- 15 Community Benefit Agreements for 20 communities worth $6.44M for community infrastructure, programs, education and training opportunities
- $52 M in annual property tax payments to pipeline corridor communities with the proposed expansion
- Jobs and procurement information on Project website, accepting registrations
  - transmountain.com/jobs
  - transmountain.com/procurement
- Education Legacy Fund for bursaries and scholarships to increase the capacity of students in the trades, technologies and environmental disciplines
- Funding for Industry-recognized certificate training for flagging, first aid, WHMIS, ground disturbance, pipeline safety, construction safety and a myriad of other certificates

TMEP Marine Terminal Location

- The latest assessment of marine terminal alternatives was conducted in 2012. Roberts Bank was evaluated as part of that process.
- Roberts Bank is a less favorable location compared with the Westridge expansion due to:
  - Engineering and Geotechnical: soil conditions, loading dock and terminal construction in light of sand and silt depths, urban congestion along the required new pipeline ROW will have to be examined in depth;
  - Environmental: multiple fish species, marine mammal use, eelgrass beds, migratory birds, proximity to protected areas;
  - Land use: requirement for a larger footprint than other options;
  - Cost: an additional $1.2 billion compared to expanding at Westridge
  - Marine Access: less conducive weather conditions compared to Westridge.
- The expansion of Westridge Marine Terminal at its current location, with the use of existing Aframax tankers, is the more optimal location for the proposed expansion project.

PUBLIC ATTITUDES

Polling

Polling Information from December 2015

- Project permission has steadily increased since the project was announced in 2012 while opposition has maintained
- In general there is slightly less awareness of the project than earlier in 2015
- Existing supporters are starting to build a stronger foundation of beliefs for their support
- Support for all oil and gas projects up marginally with exception of natural gas pipelines
- Pipelines still the top issue mentioned only in Burnaby, economy the top issue in every other region
- The majority of individuals polled felt that whether we like it or not, oil and oil products are essential to modern life

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From: Hobenshield, Lexa
Sent: Monday, November 21, 2016 6:42 PM
To: Ryan Budd (terry.beech.a2@parl.gc.ca)
Subject: Alternative location assessment for Westridge Marine Terminal

Hello Ryan,

MP Beech spoke with our president Ian Anderson on Friday. MP Beech was interested in the assessment we completed of alternate locations for Westridge Marine Terminal.

Alternative Location Assessment for Westridge Marine Terminal

Trans Mountain is not considering Deltaport as an option for our proposed expansion project as we believe that expanding our existing dock facilities in Burnaby is the best and safest option.

As part of the assessment, we evaluated a number of potential marine locations on the West Coast, including Roberts Bank. Our evaluation determined these locations were less favourable due to a number of factors including environmental, technical and economic considerations. There is also an existing, well-established marine safety system in place for vessels going to and from Westridge.

The marine assessment is detailed in Trans Mountain's response to NEB IR No. 2.044
https://www.transmountain.com/uploads/pages/1443642844-B239-13_-_Trans_Mountain_Response_to_NEB_IR_No._2_-_A3Z4T9.pdf

A story on our blog is at https://blog.transmountain.com/mike-davies-60-years-of-safe-operations-make-expanding-westridge-the-best-option/

Safety and Emergency Response

Trans Mountain believes the safety of our coastline is paramount. We've been safely loading vessels with petroleum products for 60 years without a single spill from a tanker.

About 6,000 large commercial vessels transit through the Salish Sea each year, and of those 600 are tankers. Today our Westridge Marine Terminal in Burnaby serves about five tankers per month, and if our project is approved this could increase to up to 34 tankers per month. In reality, we're only part of the existing tanker traffic, and our expansion proposes the same sized vessels, shipping the same products as we do today.

We share the value British Columbians place on the environment and safety, and we clearly understand the concerns raised about increases in tanker traffic. That's why we're proposing additional measures that will further improve safety for the entire marine shipping industry - because spill response is about all the vessels using our waterways.

If the Trans Mountain Expansion Project proceeds, there will be an investment of more than $150 million in marine spill response benefiting all waterway users and the entire South Coast of BC. This investment in Western Canada Marine Response Corporation will fund five new response bases, about 115 new employees and approximately 26 new vessels at strategic locations along BC's southern

shipping lane. The enhancements also call for 24/7 operations at three of the bases, including the new Vancouver Harbour base. These improvements were based on risk assessments, product testing and oil spill modelling improvements, and will double response capacity and cut response times to half the mandated times. More information about this investment can be found on our blog at https://blog.transmountain.com/major-spill-response-investment-includes-new-vancouver-harbour-base/

Should you have further questions or require additional information, please let me know.

Sincerely,

Lexa Hobenshield
Manager, External Relations Kinder Morgan Canada
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Letter to the Editor – Delta Optimist
Re: February 24 article: Delta voices concerns over pipeline impacts; But could Roberts Bank be a fallback option?

Deltaport Not an Option for Trans Mountain Expansion

Trans Mountain is not considering Deltaport as a "fallback option" for our proposed expansion project, as your recent article suggested. We firmly believe that expanding our existing dock facilities in Burnaby is the best and safest option.

The Trans Mountain Expansion Project recently completed the most comprehensive regulatory review process in the history of the National Energy Board. The Hearing has concluded and the Board will issue its recommendation on May 20.

Our Application clearly outlines our plan to expand the Westridge Marine Terminal. We believe that is the optimal location and we are not considering alternative options.

Before we submitted our Application, we evaluated a number of potential marine locations on the West Coast, including Roberts Bank. Our evaluation determined these locations were less favourable due to a number of factors including environmental, technical and economic considerations. There is also an existing, well-established marine safety system in place for vessels going to and from Westridge.

Trans Mountain believes the safety of our coastline is paramount. We've been safely loading vessels with petroleum products for 60 years without a single spill from a tanker.

About 6,000 large commercial vessels transit through the Salish Sea each year, and of those 600 are tankers. Today our Westridge Marine Terminal in Burnaby serves about five tankers per month, and if our project is approved this could increase to up to 34 tankers per month. In reality, we're only part of the existing tanker traffic, and our expansion proposes the same sized vessels, shipping the same products as we do today.

We share the value British Columbians place on the environment and safety, and we clearly understand the concerns raised about increases in tanker traffic. That's why we're proposing additional measures that will further improve safety for the entire marine shipping industry - because spill response is about all the vessels using our waterways.

This includes a $100 million investment in Western Canada Marine Response Corporation to fund new equipment, employ 100 new people and create five new response bases along the shipping route - one of which is planned for the Deltaport area. This will double the spill response capabilities along the tanker route and cut mandated response times in half.

The Trans Mountain team is committed to earning your trust and confidence. For more than four years, we've been consulting with communities along the proposed route and implementing programs to address the concerns we've heard. But, there is still more work to do. We'll continue to work with communities, Aboriginal groups and our safety partners to support collaborative efforts to enhance safety and protect our environment.

I encourage you to learn more about our Project at www.transmountain.com.

- Michael Davies, Senior Director of Marine Development, Kinder Morgan Canada