



**KINDER MORGAN
CANADA LIMITED**

**TRANS MOUNTAIN EXPANSION PROJECT
Consideration Report
VFPA Project Application Review Phase**

**Westridge Marine Terminal Upgrade and
Expansion Project**

August 15, 2017

TABLE OF CONCORDANCE

As part of the Westridge Marine Terminal (WMT) Upgrade and Expansion Project Permit review process Trans Mountain is required to submit a Public Consultation Consideration Report to the Vancouver Fraser Port Authority (VFPA) as per the VFPA External Guidelines for Public Consultation for a Category D Review. The report outlines comments received from the public between June 13 and July 10, 2017. Table I describes how this report addresses the VFPA permit guidelines applicable to consultation activities for the WMT Upgrade and Expansion Project.

Table I: Table of Concordance with VFPA External Guidelines for Public Consultation

VFPA PER External Guidelines Public Consultation 4.4.9 Consideration Report	Project Permit Approval
<i>Following the Consultation Summary Report, the applicant will prepare a Consideration Report demonstrating to participants and the Vancouver Fraser Port Authority how public feedback was considered</i>	
<ul style="list-style-type: none"> The report should be in an easy to read table format and explain how feedback has resulted in refinements to the project or in proposed mitigation measures for potential project impacts 	Section 3.0
<ul style="list-style-type: none"> If feedback was considered but did not result in changes, the report should explain the reasons. 	Section 3.0
<ul style="list-style-type: none"> Where applicable, any commitments made by the applicant should be identified. 	Section 3.0 Commitments identified as Actions.

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1.0 INTRODUCTION

On November 29, 2016, the Government of Canada approved the Trans Mountain Expansion Project (TMEP), subject to 157 Conditions from the National Energy Board (NEB). The NEB issued the Certificate of Public Convenience and Necessity (CPCN) to Trans Mountain Pipeline ULC (Trans Mountain) on December 1, 2016. On January 11, 2017, the British Columbia Environmental Assessment Office (BCEAO) issued an environmental certificate subject to 37 Conditions. These approvals allow Trans Mountain to construct and operate the expanded pipeline system subject to meeting the conditions.

Trans Mountain continues to seek all necessary permits from various levels of government and regulatory authorities in the development of the TMEP. In June 2017, Trans Mountain, operated by Kinder Morgan Canada Ltd. (KML) filed for a project permit with the Vancouver Fraser Port Authority (VFPA) for the Westridge Marine Terminal Upgrade and Expansion Project. Westridge Marine Terminal (WMT) is partially located on federal lands and waters managed by VFPA at the foot of Bayview Drive in Burnaby, British Columbia (BC) and therefore a project permit from the port authority is required.

The VFPA accepted the project permit application as complete on June 12, 2017. As per *VFPA guidance*, Trans Mountain initiated notification of a 20-business day public comment period beginning June 13, 2017 with a comment deadline of July 10, 2017.

1.1 Project Overview

Trans Mountain proposes to upgrade and expand Westridge Marine Terminal as part of the Trans Mountain Expansion Project (TMEP). Tanker traffic calling at WMT is expected to increase from approximately five tankers per month to up to 34 Aframax-size tankers per month (no increase in tanker size). In order to meet the volumes of the expansion, Westridge will be expanded from one berth to three berths, as well as one utility dock for tugs, boom boats and emergency response vessels.

The original Trans Mountain Pipeline (TMPL) began operating in 1953 and continues to operate safely today. The expansion of the existing 1,150-kilometre pipeline between Strathcona County (near Edmonton), Alberta and Burnaby, BC, will create a twinned pipeline system increasing the capacity up to 890,000 barrels per day (bpd) of which 630,000 bpd may be directed to Westridge Marine Terminal for export.

Since the Trans Mountain Expansion Project was first announced in May 2012, extensive engagement, engineering, environmental and regulatory work has been undertaken.

On May 30, 2017 Kinder Morgan Canada Ltd. (KML) announced the final investment decision to proceed with the Trans Mountain Expansion Project. Construction is set to begin in September 2017 and the Project is expected to be placed in-service by the end of 2019.

1.2 About This Document

The Consideration Report, has been prepared to demonstrate to participants and the VFPA how public feedback is being considered including any new commitments made by Trans Mountain in response to public feedback.

The Consideration Report will be circulated to the VFPA and any participants in the comment period process, as well as posted to the Trans Mountain Expansion Project website: www.transmountain.com/community-engagement

This document does not include any of the public and stakeholder feedback that has been collected and responded to by Trans Mountain since May of 2012. A detailed account of consultation has been filed with VFPA as per the Project Permit Application requirements and can be found at <https://www.portvancouver.com/development-and-permits/status-of-applications/kinder-morgan-westridge-marine-terminal-upgrade-and-expansion-project/>.

Despite the defined comment period for the VFPA Project Environmental Review (PER) process, engagement and communications with stakeholders and the public will continue throughout the development and execution of the WMT Expansion and Upgrade Project. Methods for ongoing public engagement and communication include regular newsletters, community liaison representatives, public information sessions, workshops and a variety of communication channels:

- Trans Mountain Expansion Project website and blog (www.transmountain.com)
- Trans Mountain social media channels (Twitter, YouTube, SoundCloud, Facebook)
- Toll free info@ phone line and email (1.866.514.6700 and info@transmountain.com)
- Media inquiry phone line and email (1.855.908.9734 and media@transmountain.com)

2.0 PUBLIC CONSULTATION ACTIVITIES

2.1 Notification of Opportunity to Comment

Consultation methods were in keeping with Trans Mountain's extensive engagement with public and stakeholder audiences for TMEP since May of 2012. Consultation during the Project Review comment period was initiated through:

- A community newsletter delivered to over 2,800 residences in North Vancouver and Burnaby: "*Westridge Marine Terminal Expansion and Upgrade Project Update*"
- Online postings to the Project website (www.transmountain.com/wmt-port-permit)
- Online engagement platform (Talk Trans Mountain www.transmountain.com/talk)
- The weekly e-newsletter (Trans Mountain Today) which directed approximately 7,000 subscribers to the Project blog (People behind the Pipeline blog.transmountain.com)
- Social media promotion was through Twitter (@TransMtn)

In addition to public notification, Trans Mountain notified local government officials by email in: the City of Burnaby, the Village of Belcarra, the District of North Vancouver, as well as some provincial Members of Legislative Assembly (MLAs) and federal Members of Parliament (MPs). In response, the Village of Belcarra shared the information with Village Council and posted the community newsletter to the Village website.

3.0 INPUT CONSIDERATION

Trans Mountain received eight comments in total during the 20-business day comment period which ran from June 13, 2017 to July 10, 2017. Feedback was received in person, over the phone and in writing (via email). Four were written comments, one comment was made in person and three comments were made by phone.

More information on the engagement process during the Application Review Phase can be found in the Public Consultation Summary Report, available on the VFPA website (www.portvancouver.com/development-and-permits/status-of-applications) at on Trans Mountain's Project website: www.transmountain.com/wmt-port-permit.

3.1 Summary of Feedback Received

Key themes that emerged from public feedback are identified below. Most comments related to the potential impacts of construction and future terminal operations on surrounding communities.

- Socio-Economic Impacts
 - Visual impact of expanded terminal
 - Noise and vibration from construction activity
 - Project schedule and hours of work

- Future operations at WMT
- Environmental Impacts – Burrard Inlet
 - Impacts to Burrard Inlet from construction
 - Impacts to marine life from oil tanker traffic
- Emergency Response
 - Fire risk
 - Oil spills
 - Evacuation

3.2 How Input Will be Considered and Communicated

Input received during the public comment period pertaining to the WMT project permit review that were received between June 13, 2017 and July 10, 2017 was compiled in a Public Consultation Summary Report, which is available online at <https://www.portvancouver.com/development-and-permits/status-of-applications/kinder-morgan-westridge-marine-terminal-upgrade-and-expansion-project/>.

An extensive consultation summary of previous phases engagement (pre-application engagement) is also available online in four volumes at the addresses noted above.

As described in Section 1.2, this Consideration Report provides a summary of comments received to demonstrate to participants and the VFPA how public feedback was considered including any new commitments made by Trans Mountain in response to public feedback.

3.3 Consideration of Public Feedback

Table 3-1: Summary of Public Feedback and Project Team Responses

COMMENT THEME	PUBLIC FEEDBACK	TRANS MOUNTAIN RESPONSES
Socio-Economic Impacts		
Visual Impact of Terminal	<p>Viewscape</p> <ul style="list-style-type: none"> Concern about degree of encroachment on view from Cates Park; the protrusion of 3 berth into Burrard Inlet Request for a layout showing the Park foreshore <p>Berth size and layout: interest and concerns for what the expansion will look like and why.</p>	<p>Viewscape</p> <p>Depending upon the berths being occupied by a vessel, or not, the new berthing and mooring facilities will be closer to Cates Park by between 200 and 250 metres. This means that the distance between Cates Park and the expanded Westridge Terminal will be between 800 and 850 metres.</p> <p>ACTION: Trans Mountain will update terminal renderings and provide updated viewscape for the public in summer of 2017. A process is underway (as of July 2017) to initiate the updated renderings. Upon completion, they will be posted to TMEP’s website, shared with interested members of the public and provided to the Vancouver Fraser Port Authority (VFPA).</p> <p>Berth size and layout</p> <p>The new dock complex will allow for an increased loading capacity from up to one Aframax-size tanker to the ability to load up to three Aframax-size tankers if required. The third berth provides flexibility in accommodating tankers whose voyage may be delayed due to weather and other factors. Expanding from one berth to three berths avoids putting undue strain on anchorages in the Port of Vancouver by enabling arriving or completed vessels to wait for cargo or the right departure tide while at the berth.</p> <p>The Trans Mountain Expansion Project team has worked extensively with VFPA, the Pacific Pilotage Authority (PPA) and the BC Coast Pilots (BCCP) to determine a preferred dock layout that is compact and least intrusive but allowing for the necessary operating ability. Trans Mountain also incorporated feedback from the City of Burnaby and community discussions in the planning phase.</p> <p>The team considered approximately 20 layouts during the evaluation and study process before selecting the final design. The selection is most optimal based on the team’s technical goal, which was to develop a layout</p>

COMMENT THEME	PUBLIC FEEDBACK	TRANS MOUNTAIN RESPONSES
		<p>that would provide:</p> <ul style="list-style-type: none"> • Three Aframax-capable berths, reducing the percentage of time that tankers visiting Westridge use anchorages east of the Second Narrows • The highest level of navigational safety (for berthing and unberthing, for other vessel traffic in the inlet and considering the use of existing anchorages), which has been verified using computer simulations • The ability to keep the existing dock in service during construction of the new dock • Ways to minimize the overall footprint to provide the least impact to community views • Opportunities to minimize or eliminate dredging in order to provide the least impact to the marine environment • Ways to minimize disturbances, such as noise, to the residents of the neighbourhood
<p>Noise and Vibration from Construction Activity</p>	<p>Construction Noise from Pile Driving</p> <ul style="list-style-type: none"> • Question about the type of pile driving to be used (“will it be the loudest kind?”) • Interest in how far the vibration will travel from the pile driving • Concerns about sound travel over the water (affecting north shore) 	<p>Construction Noise from Pile Driving</p> <ul style="list-style-type: none"> • Input received from all consultation to date since 2012 regarding Westridge Marine Terminal (WMT) led Trans Mountain to focus on mitigating noise from pile driving activity required to construct WMT. • As a result, Trans Mountain has committed to the following noise mitigation measures for the construction of Westridge Marine Terminal, as per NEB Condition 80 which was also filed with the VFPA project permit application as the Noise Technical Report¹. This approach will address noise generated above and below the water and is expected to reduce the overall potential for nuisance effects of the piling activity <ul style="list-style-type: none"> ○ Contractors for the expansion of Westridge will be using ‘noise shrouds’ that cover the hammers which drive piles into the ocean floor for the foundations of the new marine terminal in Burrard Inlet. <ul style="list-style-type: none"> • The shrouds, which are about two stories tall and wide enough to hold a medium-sized SUV, dampen the sound

¹ Trans Mountain Noise Technical Report for WMT: http://www.portvancouver.com/wp-content/uploads/2017/06/TR.07_TMEP_VFPA_Noise_Final_May2017_V3.pdf

COMMENT THEME	PUBLIC FEEDBACK	TRANS MOUNTAIN RESPONSES
		<p>of hammer impact by 65 to 95 per cent.</p> <ul style="list-style-type: none"> • This technique has been used in other ports around the world however to our knowledge, it is the first time this equipment has been deployed for a piling project in the Port of Vancouver. ○ Activities will also be sequenced to minimize the use of the hammer, which will only be used once the piles reach till <ul style="list-style-type: none"> • Piles initially sink into the mudline by virtue of their own weight • A vibratory hammer further sinks the piles, without hammering, down to the level of harder ground, or till • An impact hammer drives the piles through the till to the desired depth ○ Other methods will include scheduling pile driving during peak ambient noise periods, such as 11am to 1pm, and 3pm to 6pm, Monday to Saturday, where practical. <ul style="list-style-type: none"> • The approach taken to mitigate noise is expected to reduce the overall potential for nuisance effects of the piling activity. <ul style="list-style-type: none"> • Vibration: Based on past experience and industry best practices to be employed, vibration from pile driving was not determined to be an issue of significant impact to neighbours; • Noise Travel: As explained in the Noise Management Plans for WMT terminal construction (also NEB Condition 80 filing): Pile driving activities will be sequenced to minimize the use of the hammer, which will only be used once the piles reach till. Pile driving activities will not happen at night and impact pile driving will be scheduled during peak ambient noise periods, such as 11am to 1pm, and 3pm to 6pm Monday to Saturday, where practical.
Project Schedule and Hours of Work	<p>Schedule (for pile driving, pile driving methods)</p> <ul style="list-style-type: none"> • Construction schedule details and clarity sought on how much of the 2.5 years of construction would involve pile driving. 	<p>Schedule:</p> <ul style="list-style-type: none"> • The pile driving activity to support the dock infrastructure will occur approximately mid August to March of each the 2.5 years of construction. • Phase 1 will involve the completion of the foreshore work, near

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		<p>shore works, and Berth 1 and 2. Phase 1 will occur from fall 2017 to fall 2019. After Phase 1 Berth 1 and 2 are commissioned and put into service, Phase 2 involves completion of Berth 3 in spring of 2020.</p>
<p>Future operations at WMT</p>	<p>Berth Design and Utilization</p> <ul style="list-style-type: none"> Berth size and layout, activities of tankers at berth Degree of all three berths in operation at once; why do all renderings show three vessels at berth <p>Future Expansion: Potential for more expansion after the current project</p> <p>Limiting Terminal Operations to Weekdays: Suggestion that operations be limited to weekdays as a means of mitigating increased vessel traffic impacts to the local community, particularly during boating season</p> <p>Product moved at WMT: Is WMT the only one moving heavy oil?</p>	<p>Berth Design and Utilization</p> <ul style="list-style-type: none"> Feedback on dock layout from community discussions was considered in the planning and design stage. Trans Mountain has worked extensively with the VFPA, the PPA and the BCCP to determine a preferred dock layout. The team considered approximately 20 layouts during the evaluation and study process. The current design is considered the most optimal based on the team’s technical goal, which was to develop a layout that would provide: <ul style="list-style-type: none"> Three Aframax-capable berths; The highest level of navigational safety (for berthing and unberthing, for other vessel traffic in the inlet and considering the use of existing anchorages), which has been verified using computer simulations; The ability to keep the existing dock in service during construction of the new dock; Ways to minimize the overall footprint to provide the least impact to community views; Opportunities to minimize or eliminate dredging to provide the least impact to the marine environment; and Ways to minimize disturbances, such as light and noise, to local residents. The third berth provides flexibility in accommodating tankers whose voyage may be delayed due to weather and other factors. Expanding from one berth to three berths avoids putting undue strain on anchorages in the Port of Vancouver by enabling arriving or completed vessels to wait for cargo or the right departure tide while at the berth. <p>Future Expansion</p> <ul style="list-style-type: none"> At this time there are no plans to further expand operations of the Trans Mountain pipeline system. Any such proposal would need to be submitted, reviewed and evaluated by the National Energy Board.

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		<p>Limiting Operations to Weekdays</p> <ul style="list-style-type: none"> • Port operations within VFPA occur every day of the year. It is not practical to limit operations at WMT to weekdays only for the following reasons: <ul style="list-style-type: none"> ○ Pipeline operations take place 24/7. ○ The Project has been designed to accommodate up to 34 Aframax-class vessels post-Expansion (approximately five per month visit the terminal currently). The expansion will effectively take vessel traffic from one per week to approximately one per day and will only amount to less than 14 per cent of overall Port of Vancouver traffic. ○ Tankers can only move through the Port of Vancouver during specific times of the day depending on tidal conditions and daylight. ○ The nature of tanker arrival and departure times are typically based on “windows” of arrival. These windows can be influenced by weather, transit windows of the MRA at Second Narrows and other factors related to previous and future destinations. <p>Product Moved at WMT</p> <ul style="list-style-type: none"> • The Westridge Marine Terminal is not the only oil terminal in the Port of Vancouver. The terminal handles various crude oils, including heavier grades, semi-refined oil or light crude oils as well as jet fuel. Other oil terminals in the harbour handle heavy and light refined oil products. • On an overall basis oil handling at WMT likely accounts for the majority of oil trade in the Port of Vancouver. Approximately 60 vessels call at Westridge per year which will grow by approximately 350 tankers per year (accounting for an estimated 14 per cent of future Port of Vancouver large vessel traffic).
Marine Transportation	<p>Tanker Traffic Increase</p> <ul style="list-style-type: none"> • In context with VFPA port traffic; where else do tankers go in the inlet? • Seeking facts about tankers (safety, age, etc.) 	<p>Tanker traffic</p> <ul style="list-style-type: none"> • Within the Port of Vancouver jurisdiction in the Burrard Inlet terminals are located at various locations from the First Narrows to Port Moody. Besides WMT, there are several other terminals within the Port of Vancouver that handle oil. The TERMPOL review for the

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	<p>Boating Safety: The impact of tanker traffic increase to recreational boating traffic in the area “too many ships in a relatively small space”</p> <ol style="list-style-type: none"> 1. Tug Escort – interest in procedures, how many 2. Noise from ships at Anchor - concerns about noise from generators of ships at anchor 	<p>Project² indicates that the Port of Vancouver can safely accommodate the proposed increase in Project Related vessels. The dock system is sited with particular focus on reduced footprint, with suitable clearance from the normal shipping channel and will be well marked by appropriately fitted navigation lights thereby not posing any encumbrance on other vessels (including recreational vessels) operating in the area.</p> <ul style="list-style-type: none"> • More information is available in the marine traffic study which was filed with the VFPA as part of the Project Permit Application: http://www.portvancouver.com/wp-content/uploads/2017/06/TR.05_TMEP_VFPA_Marine-Traffic_Final_June2017_V3_External.pdf • More information about tankers is available on Trans Mountain website (www.transmountain.com/tanker-facts) as well as a new website published by Clear Seas Centre for Responsible Marine Shipping: https://clearseas.org/tankers/ <p>Boating Safety</p> <ul style="list-style-type: none"> • Trans Mountain continues to work with the Pacific Pilotage Authority, Transport Canada and other marine regulators to help raise awareness and promote safe boating practices online and through public outreach materials. More information is available at www.transmountain.com/marine-safety <p>Tug Escort</p> <ul style="list-style-type: none"> • Currently, when a vessel commences transit, two pilots are onboard and two large tugs are tethered to the stern, and one tug tethered at the bow. These remain with the vessel through the Second Narrows transit. The Port of Vancouver’s Port Information Guide defines the Second Narrows as a Movement Restriction Area

² TERMPOL Review Process Report on the Trans Mountain Expansion Project: https://docs2.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2449925/2451487/2584386/C353%2D4%2D3_%2D_TMEP_TERMPOL_Report_December_11_2014_%2D_A4F8Z4.pdf?nodeid=2584073&vernum=-2 (accessed July 24, 2017)

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		<p>(MRA). Rules for transits through this area include vessel size and draft restrictions, slack water transit windows, requirements for tug escorts, and are limited to one vessel at a time. Once past the First Narrows the vessel will travel through English Bay till Point Grey at the limit of the VFPA’s jurisdiction with one tug tethered to the stern.</p> <ul style="list-style-type: none"> • The Pacific Pilotage Authority has established separate laden tanker escort tug requirements for the Strait of Georgia and the Gulf Islands. Trans Mountain has proposed additional expanded tug escort for laden tankers through the Juan de Fuca Straits, which has been made a Condition on the Project by the NEB. <ul style="list-style-type: none"> ○ Trans Mountain is only a small portion of all the tug escort activities in the Port of Vancouver every year. More information is available on Trans Mountain’s blog https://blog.transmountain.com/tugs-have-flawless-record-supporting-tanker-movements-in-port-metro-vancouver/ ○ More information is available in the Enhanced Tug Escort Fact Sheet: https://www.transmountain.com/uploads/pages/1493855-575-17-05-03-Enhanced-Tug-Escort-Fact-Sheet-web.pdf. <p>Noise from Ships at Anchor:</p> <ul style="list-style-type: none"> • The VFPA has a Port Information Guide,³ applicable to all vessels calling within the port authority’s jurisdiction. All vessels are required to conduct operations respectful of the rights of residents in the surrounding neighbourhoods so they are not to be unnecessarily disturbed by noise, odours and other concerns from vessel operations. • Trans Mountain does not own or operate the vessels calling at WMT,

³ VFPA Information Guide <https://www.portvancouver.com/wp-content/uploads/2015/03/Port-Information-Guide-12-Port-of-Vancouver-August-2016-amended.pdf>

COMMENT THEME	PUBLIC FEEDBACK	TRANS MOUNTAIN RESPONSES
		<p>and cannot eliminate sound from vessels entirely; however, Trans Mountain has a Tanker Acceptance Standard⁴ that require vessels to follow local regulations and also encourages the application of best practices such as those that consider nuisance effects from their local operating activities.</p> <ul style="list-style-type: none"> The Port of Vancouver manages a community feedback line (604.665.9004) and maintains communications with ships.
Environmental Impacts – Burrard Inlet		
Impact to Burrard Inlet from Construction	<p>Impact to fish, habitat and conservation areas</p> <ul style="list-style-type: none"> Effects on fish spawning habitat and efforts to improve conservation in Burrard Inlet. Effects of noise and disruptions on wildlife 	<p>Impact to fish, habitat and conservation areas</p> <ul style="list-style-type: none"> Trans Mountain provided information related to the <u>Construction Environmental Management Plan</u> for WMT which outlines measures to take to mitigate noise and other potential environmental effects from construction: https://www.portvancouver.com/wp-content/uploads/2017/06/May-2017—Project-Permit-Application-Construction-Environmental-Management-Plan-TR-14.pdf
Impact to marine life from Tanker Traffic	<p>Concern for shipping impacts to the environment and marine life</p> <ul style="list-style-type: none"> In Indian Arm (Whales, seals, sea lions, fish, eagles...) that are not capable of handling an increase in oil tanker traffic and will be negatively affected <p>Whales – the impacts to killer whales from this project</p>	<p>Concern for shipping impacts to the environment and marine life</p> <ul style="list-style-type: none"> Based upon the 34 partially loaded Aframax tankers that will be handled at the expanded Westridge Marine Terminal, once the Project is in service post-expansion, vessels calling at the WMT on average will constitute about two vessel movements each day. As such, WMT related traffic will therefore continue to represent a comparatively small proportion of total marine transportation activity in the Salish Sea, travelling at speeds less than many other types of vessels in the region. Therefore, considering the large number of vessels that currently transit the shipping lanes and adjacent waters, the Project’s contribution to the cumulative effect of disturbance to intertidal habitats is predicted to be of low magnitude.⁵ <p>Whales</p>

⁴ Trans Mountain Tanker Acceptance Standard was filed during the NEB review of TMEP in response to Village of Belcarra IR No. 1.19 (as attachment 1 – see page 20 of the pdf) http://www.belcarra.ca/reports/TMEP_Response_to_Belcarra_Information_Request_No.1.pdf

⁵ Section 4.4.4.3.1 of Volume 8A of the TMEP Facilities Application (Filing ID A3S4Y3): <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2393882>

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		<ul style="list-style-type: none"> Once the Project is in service post-expansion, vessels calling at the Westridge Marine Terminal will continue to represent a comparatively small proportion of total marine transportation activity in the Salish Sea, travelling at speeds less than many other types of vessels in the region. As such, Trans Mountain asserts that Project-related marine vessels will contribute a proportionately small component of the overall marine transportation sources of all underwater noise contributions. This is reflected also in a recent analysis of regional ocean noise contributors⁶ published by the Enhancing Cetacean Habitat and Observation (ECHO) Program, which is a Vancouver Fraser Port Authority-led initiative aimed at better understanding and managing the impact of shipping activities on at-risk whales throughout the southern coast of British Columbia. The analysis showed all tankers in the region contributed just over one per cent of the regional average contribution to underwater noise from all commercial vessels. Despite the level of impact, Trans Mountain has committed to work with industry and stakeholders to mitigate any Project effects on marine mammals to the extent possible. Trans Mountain is responsible for developing and implementing a Marine Mammal Protection Program (MMPP) which is a condition on the Project (Condition 132) which is to be in place before the Project goes into service. The MMPP is meant to be a living document, to be updated and adapted on a regular basis so as to manage, monitor and mitigate Project effects. The MMPP will focus on ways to increase the abundance of food, minimize ocean pollution and adaptively manage human disturbance to support recovery strategies defined by Fisheries and Oceans Canada. For more information, visit http://www.dfo-mpo.gc.ca/species-especes/whalereview-revuebaleine/index-eng.html
Emergency Response		
Fire Risk	Concern for fire and explosions from vessels calling at Westridge	Trans Mountain provided information related to the fire risk assessment for WMT construction and operations (http://www.portvancouver.com/wp-

⁶ An Analysis of Regional Ocean Noise Contributors, ECHO Program (January 2017): <https://www.portvancouver.com/wp-content/uploads/2017/01/Regional-Ocean-Noise-Contributors.pdf> (Accessed July 12, 2017).

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Spill Response	<p>Spill response - regime now and in the future with the project</p> <p>Spill effects</p> <ul style="list-style-type: none"> • Interest in the degree to which diluted bitumen can be cleaned up if spilled into Burrard Inlet • Concern North Vancouver’s shoreline would be “ruined forever” with a spill in Burrard Inlet from the terminal or a ship 	<p>content/uploads/2017/06/TR.19_TMEP_VFPA_Fire.Hazard_Final_May2017.pdf</p> <p>Spill response Trans Mountain has loaded marine vessels with petroleum since 1956 without a single spill from tanker operations. The region’s already robust marine safety regime is well managed, with important risk controls for all traffic and for oil tankers in particular, and meets global standards. Regulations and practices are established, implemented and monitored by <u>Transport Canada</u>, the <u>Canadian Coast Guard</u>, <u>Pacific Pilotage Authority</u> and <u>Vancouver Fraser Port Authority</u>. Highly-trained and qualified pilots ensure tankers navigate our local waters safely. Tankers are held to strict internationally accepted build, manning, maintenance and operating quality standards mandated by the International Maritime Organization and Canada Shipping Act, 2001 and verified by Class Societies.</p> <p>As part of the Application to the National Energy Board Trans Mountain proposed additional risk controls and enhancements, which will build on the current marine safety regime. More information about these enhancements is available on Trans Mountain’s website:</p> <ul style="list-style-type: none"> • https://www.transmountain.com/tanker-safety • https://blog.transmountain.com/marine-safety-enhancements-already-underway-in-local-waters-2/ • https://blog.transmountain.com/the-shipping-route-ensuring-safety-on-the-salish-sea/ <p>In the unlikely event of a spill, <u>marine spill response plans</u> are in place to ensure quick action. If an oil spill occurs in the marine environment, multiple organizations quickly take a coordinated approach to mitigate public and environmental impacts. These response plans are also periodically exercised and you can learn more at https://blog.transmountain.com/a-co-ordinated-and-co-operative-response/.</p> <p>In accordance with the Canada Shipping Act, 2011, Trans Mountain has an arrangement with a certified response organization known as <u>Western Canada Marine Response Corporation (WCMRC)</u>. WCMRC is composed of a team of spill response professionals trained specifically in the response to and recovery of water-based oil spills. In the event of a spill, WCMRC personnel immediately respond with carefully designed</p>

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		<p>geographic response strategies and counter measures. WCMRC maintains various response-oriented warehouses and equipment caches that can be activated such as containment booms, skimmers and vessels.</p> <p>Additionally, as a result of the Expansion Project, Trans Mountain is facilitating an investment of \$150 million by WCMRC to establish six new response bases, about 135 new personnel and 43 new vessels including spill response craft and barges. You can learn more at https://blog.transmountain.com/response-capacity-enhanced-150-million-for-new-bases-jobs/</p> <p>Spill Effects: Trans Mountain has fielded many questions and comments about diluted bitumen. A summary of key misconceptions about the product is posted to the Trans Mountain website and blog at:</p> <ul style="list-style-type: none"> • About Petroleum Liquids https://www.transmountain.com/about-petroleum-liquids • Top 3 Misconceptions About Dilbit https://blog.transmountain.com/myth-busting-the-three-most-common-misconceptions-about-diluted-bitumen/ <p>In the case of any spill, response time is critical. A rapid response means that the spilled product has less time to disperse and to weather, ultimately making the cleanup process more efficient and more predictable.</p> <ul style="list-style-type: none"> • Visit http://www.itopf.com/marine-spills/ for more information about marine oil spills. <p>As part of its on-going efforts to further understanding of oil properties for the betterment of response, Trans Mountain has committed to participate in current research initiatives such as:</p> <ul style="list-style-type: none"> • The Canadian Association of Petroleum Producers (CAPP) along with the Canadian Energy Pipeline Association (CEPA) have commissioned an independent, science-based study under the advisement of a Science Advisory Committee to evaluate and compare the physical and chemical properties of various types of crude oil that move in North America and how they behave in

COMMENT THEME	PUBLIC FEEDBACK	TRANS MOUNTAIN RESPONSES
		<p>various marine, estuarine and freshwater settings under different environmental conditions.</p> <ul style="list-style-type: none"> A joint industry project including the governments of British Columbia and Alberta to independently evaluate and review current inland spill response technologies focusing on diluted bitumen. <p>Credible Worst Case Spill for Burrard Inlet:</p> <ul style="list-style-type: none"> The probability of the North Shore being impacted by a large oil spill from a tanker is low and will remain low in future once the Project is in operations. There are a number of strong mitigation steps put in place by the VFPA to ensure safety of all vessel traffic, including tanker traffic. Studies have shown that the probability of a tanker oil spill during transit within Burrard Inlet is 1 in 19,286 years,⁷ the probability of a large oil spill due to a tanker incident in Burrard Inlet has been determined as low. Trans Mountain has operated the WMT since 1956 without a single oil spill related to tankers. Analysis shows that the credible worst case oil spill volume for an operational spill is 100 m³. Should an oil spill occur at Westridge the spilled oil will be contained within the pre-deployed oil spill boom and recovered by WCMRC. Risk is commonly defined as being the product of two terms: the probability (likelihood) of a failure and the consequences of that failure. Trans Mountain representative scenarios consider both probability and consequence of marine accidents or malfunctions to provide the foundation for a credible worst- case scenario.⁸
Evacuation	Evacuation Plan - The need for an evacuation plan in preparation for potential for winds to drive fumes and smoke into areas of the north shore (Deep Cove, Dollarton, and Indian Arm) in the event of	Evacuation Plan: The probability of a catastrophic fire or explosion at the Westridge Marine Terminal is low and will remain low in future. Trans Mountain provided information related to <u>the fire risk assessment</u> for WMT

⁷ See Trans Mountain’s response to VFPA IR No. 1.8.1 (Filing ID A3X6V4): <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2481038> (accessed July 24, 2017)

⁸ Exhibit B418-7 - Trans Mountain Reply Evidence, Attachment 1.08 – Reply to “Oil Spill Trajectory Modelling in Burrard Inlet for the Trans Mountain Expansion Project”, Genwest System Inc. Edmonds, Washington, USA 98020 (Genwest Report) (August 20, 2015) (A4S7K5), 4-5: <https://apps.neb-one.gc.ca/REGDOCS/File/Download/2812002> (accessed July 22, 2017)

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	<p>a catastrophic fire or explosion at the Trans Mountain Terminal or a ship at anchor</p>	<p>construction and operations (http://www.portvancouver.com/wp-content/uploads/2017/06/TR.19 TMEP VFPA Fire.Hazard Final May2017.pdf)</p> <p>Trans Mountain has an existing Emergency Management Program that contains robust plans for the entire pipeline system and associated infrastructure. These plans are continually reviewed, revised, practiced and communicated with first responders all along the pipeline route. Evacuation plans are a component of the EMP that Trans Mountain is engaging on with local stakeholders and Aboriginal groups.</p> <p>Evacuation plans are also a requirement for NEB condition 123: Emergency Response Plan for the Westridge Marine Terminal which must be filed with the NEB at least 6 months prior to commencing operations at the terminals, an Evacuation Plan for people present in areas potentially affected by an incident at each of Trans Mountain's Edmonton, Sumas, and Burnaby Terminals as well as at the Westridge Marine Terminal. Learn more about our existing emergency preparedness planning.</p>

APPENDIX A: DEFINITIONS AND ACRONYMS

Table 1: Definitions and Acronyms List

BC	British Columbia
BCEAO	British Columbia Environmental Assessment Office
bpd	Barrels per day
CPCN	Certificate of Public Convenience and Necessity
Facilities Application	NEB Facilities Application for TMEP
KML	Kinder Morgan Canada Ltd.
LMFAQCC	Lower Fraser Valley Air Quality Coordinating Committee
NEB	National Energy Board
PER	VFPA Project Environmental Review Process
PPA	Pacific Pilotage Authority
TMEP or the Project	Trans Mountain Expansion Project
TMPL	Trans Mountain Pipeline system
Trans Mountain	Trans Mountain Pipeline ULC
TC	Transport Canada
VFPA	Vancouver Fraser Port Authority
WMT	Westridge Marine Terminal