

TRANS MOUNTAIN EXPANSION PROJECT

Proposed by:

Trans Mountain Pipeline ULC

SUMMARY ASSESSMENT REPORT

Prepared by:

Environmental Assessment Office

pursuant to Section 17 of the *Environmental Assessment Act*, S.B.C. 2002, c.43

December 8, 2016



1. Introduction

Trans Mountain Pipeline ULC (Trans Mountain), a wholly owned subsidiary of Kinder Morgan Canada, proposes to build and operate the Trans Mountain Expansion Project (TMX), which would consist of approximately 987 kilometres (km) of new oil pipeline and the reactivation of 193 km of existing oil pipeline between Edmonton, Alberta and Burnaby, British Columbia (BC).

The TMX Project constituted a reviewable project under BC's *Environmental Assessment Act* (Act) pursuant to Part 4 of the Reviewable Projects Regulation, since it includes a new transmission pipeline with a diameter > 323.9 millimetre (mm) and a length of ≥ 40 km. TMX also required a federal environmental assessment (EA) under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and the *National Energy Board Act* (NEBA), which was undertaken by the National Energy Board (NEB). In 2010 the Environmental Assessment Office (EAO) and the NEB entered into an EA Equivalency Agreement (NEB-EAO Agreement),¹ under the terms of this agreement, the EA process completed by the NEB is substituted for the provincial EA process under the Act, and the NEB Report is accepted as the EA technical assessment report. On December 16, 2013, Trans Mountain submitted an application to the NEB for a Certificate of Public Convenience and Necessity (CPCN) and other requested relief to construct and operate TMX. In January 2016, the BC Supreme Court found that, to the extent that the NEB-EAO Agreement dispensed with the requirement for a Provincial decision by ministers on the provision of an EA Certificate, it was invalid. This decision had the practical impact of effectively converting the NEB-EAO Agreement to a substitution agreement.

The EAO is required to prepare a summary assessment report that summarizes the key findings of the NEB Report² that are relevant to BC's statutory decision makers (i.e., Minister of Environment and Minister of Natural Gas Development) to inform their decision regarding the issuance of an EA Certificate under Section 17(3) of the Act. This summary assessment report (Report) provides this summary along with an overview of the other key aspects of the provincial EA process that was completed for TMX. In particular, this Report provides a brief description of TMX, describes the EA process undertaken federally and provincially, summarizes the key conclusions and recommendations from the NEB Report, summarizes the key conclusions of the Crown's Aboriginal Consultation and Accommodation Report (CAR), summarizes supplemental information provided by Trans Mountain, provides an overview of the EA Certificate conditions proposed by EAO to the Ministers should they decide to approve TMX, and finally provides a summary of EAO's conclusions.

2. Project Description

TMX would twin (or loop) the existing Trans Mountain pipeline system (TMPL), which was authorized in 1951 and completed construction in 1953, and consists of a 1147 km, 610 mm (or 24 inch) pipeline

¹ http://www.eao.gov.bc.ca/pdf/NEB-EAO_Equivalency_Agreement_20100621.pdf

² This requirement arises from the Section 11 Order issued for the Project, as discussed in Section 3 of this report. The NEB Report is available at: <https://docs.neb-one.gc.ca/ll-eng/llisapi.dll?func=ll&objId=2969867&objAction=browse>.

between Edmonton and Burnaby, and a distribution line from the tanks at Trans Mountain’s Burnaby terminal to the Westridge Marine Terminal (WMT) on Burrard Inlet and another into Washington State. Between 2006 to 2008 upgrades were made to TMPL, including adding 13 new pump stations, modifying existing stations, and adding 160 km of new pipe through Jasper National Park and Mount Robson Provincial Park. The existing pipeline is currently the only major pipeline route for Western Canadian producers to transport oil to the west coast of Canada. The existing and proposed routes are shown on Figure 1 below. Most of the existing pipeline, along with the two reactivated segments, would become Line 1. The proposed new pipeline segments, along with two currently active pipeline segments, would become Line 2.

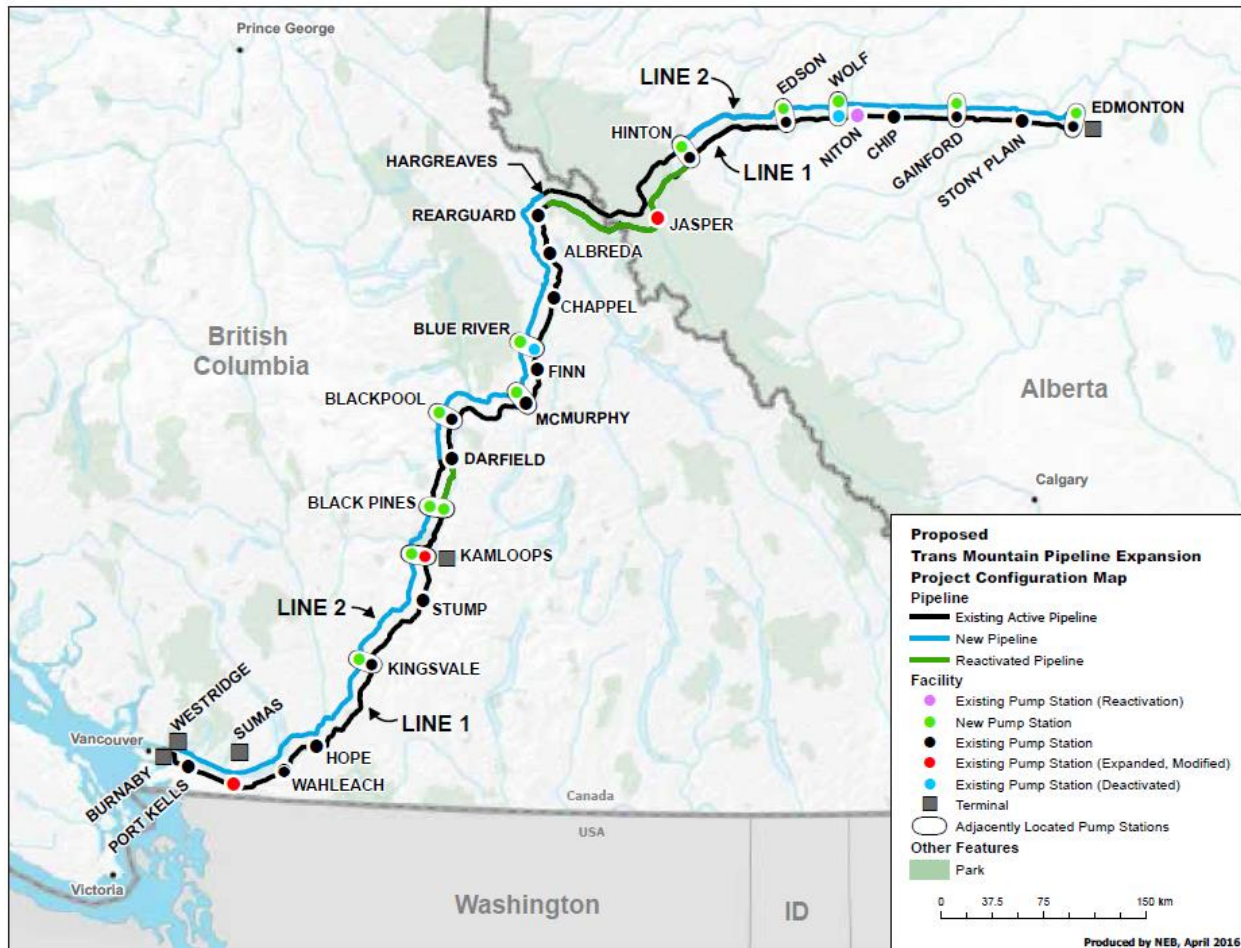


Figure 1: Location of the Proposed Trans Mountain Expansion Project

TMX would transport crude, semi-refined and refined petroleum products in series, known as batching. If constructed, the expansion would approximately triple the capacity of the TMPL, and enable an increase in overall pipeline capacity from 47,690 m³/day (m³/d) (300,000 barrels per day [bpd]) to 141,500 m³/d (890,000 bpd). The expansion would increase the WMT capacity from 5 to up to 34 Aframax tankers per month. The shipping route would follow the established shipping lanes shown on Figure 2.

Trans Mountain’s EA Application is for a 150 metre (m) wide corridor, though it would vary in some areas. In most cases, TMX would require a temporary 45 m construction right of way (ROW), which would be reduced to a permanent 18 m wide easement during operations (and to as narrow as 10 m in some places due to existing constraints). Over 85% of the proposed pipeline route would parallel existing disturbance, including the existing pipeline route, thereby reducing the impacts from construction and ROW clearing.

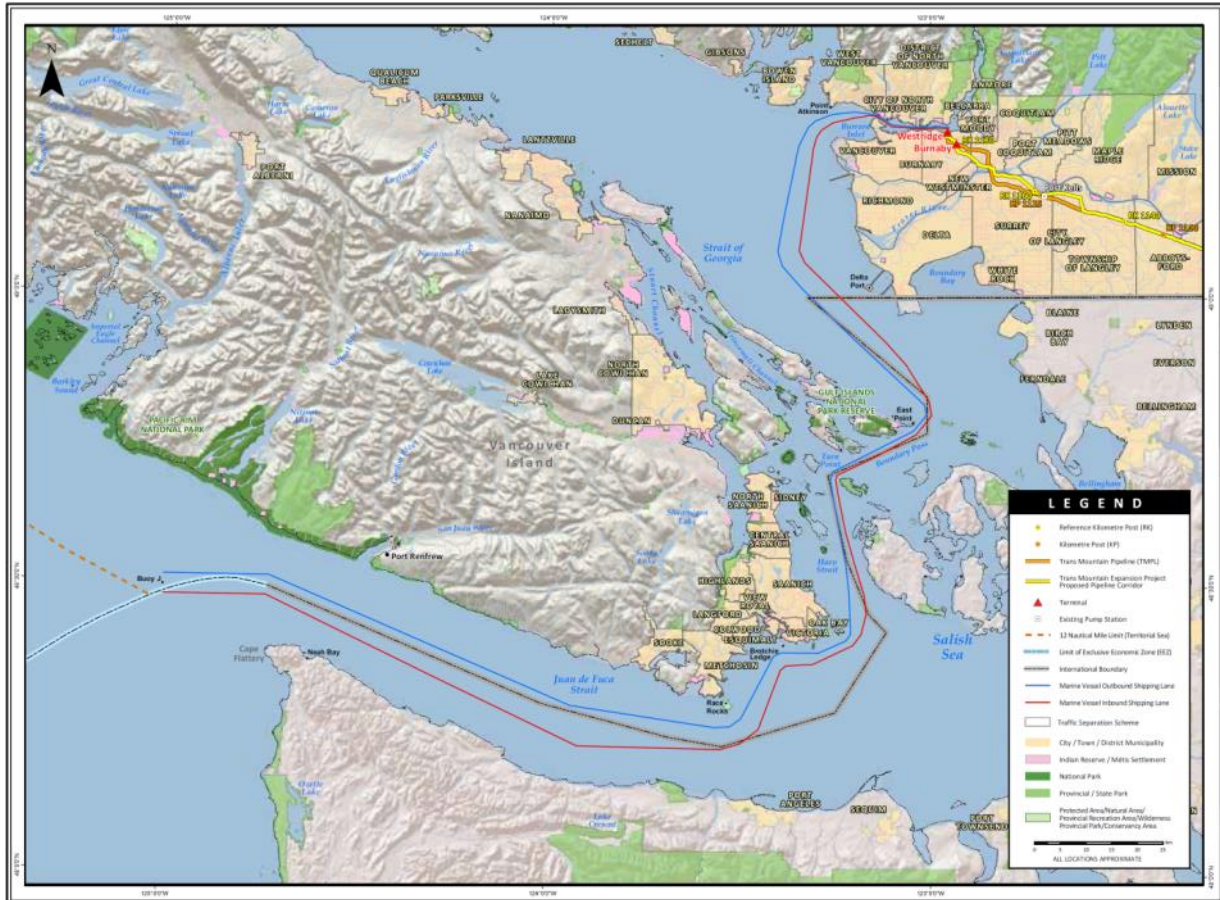


Figure 2: Shipping Lanes to and from the Westridge Marine Terminal

In addition to the pipeline, the key project components and activities associated with TMX within BC would include:

- Two 30-inch delivery lines from the Burnaby Terminal to WMT;
- Seven new electric pump stations (six at existing pump stations and one at a deactivated pump station site);
- One new tank at the Sumas Terminal and 14 new tanks at the Burnaby Terminal;
- A new dock complex at the WMT involving expansion of the foreshore area to enable a total of three Aframax-capable berth faces and a utility dock; and
- Ancillary components including mainline block valves, scraper traps (to send and receive pigs), pressure reduction or relief stations, containment, power lines, and access roads, and temporary infrastructure to support construction activities.

Additional technical details about TMX are summarized in Appendix 4 of the NEB Report, and presented in Volume 2 of Trans Mountain's Application to the NEB. The Project description and mapsheets showing the location of Project components including the corridor are provided in the proposed Certified Project Description.

3. Environmental Assessment Process

National Energy Board Process

The NEB is responsible for regulating pipelines that cross international borders or provincial boundaries, as well as the related pipeline tolls and tariffs. On May 23, 2013, the NEB received a project description from Trans Mountain and on December 16, 2013, Trans Mountain submitted an application to the NEB for a CPCN and other requested relief to construct and operate TMX.

In January 2014, the NEB invited potentially interested Aboriginal groups and organizations to apply for participant status in its review process. On April 2, 2014, the NEB Panel (the Panel) announced that it had sufficient information to proceed to the public hearing phase of the review, based on a review of the Application against the NEB's filing manual and other regulatory and statutory requirements.

The process for the review was established in the NEB's Hearing Order of April 2, 2014. The hearing process was subject to a legislated time limit of 15 months. However, under s.52(2) of NEBA, two excluded periods were announced (seven months on July 15, 2014, and four months on September 24, 2015), resulting in the hearings continuing until February 17, 2016.

Under the Hearing Order, participants could apply to write a letter of comment to the NEB or to become an intervenor. A letter of comment gave the writer an opportunity to express his/her knowledge, views or concerns about the Project, while intervenors could file evidence, submit notices of motion, and ask questions of Trans Mountain and other intervenors. Intervenors also had the opportunity to provide final written and oral argument. The NEB heard from approximately 400 intervenors and 1,250 commenters.

During the Panel's review of TMX, all evidence, letters of comment, Board decisions and other relevant documents were filed with the NEB and placed on the Board's online document repository to be available to the public.³

The NEB assessed the potential adverse environmental and socio-economic effects as well as the adequacy of Trans Mountain's proposed environmental protection strategies and mitigation measures including standard mitigations. Where any residual effects remained after proposed mitigation, the NEB considered cumulative effects. The NEB considered all project phases including construction, ROW preparation and infrastructure installation, operations and abandonment.

³ These documents are here: <https://docs.neb-one.gc.ca/ll-eng/llisapi.dll?func=ll&objId=548311&objAction=browse>

Although marine shipping is not regulated by the NEB, as part of its overall public interest determination under NEBA, the NEB considered the potential environmental and socio-economic effects of Project-related marine shipping. This included the potential effects of accidents or malfunctions. Transport Canada and the Canadian Coast Guard are responsible for regulating the transit of tankers to and from WMT.

The NEB assessed whether further mitigation was recommended and developed conditions that would be legally binding on Trans Mountain pending issuance of the CPCN following federal approval. The NEB issued draft conditions for the Project on April 16, 2014 and August 12, 2015 (updated on December 11, 2015) and sought comments from intervenors on the 2015 version of the draft conditions by January 12, 2016. On May 19, 2016 the Panel released its Recommendations Report (NEB Report), including 157 conditions.

Federal Crown consultation with Aboriginal groups for TMX was undertaken by the Major Projects Management Office (MPMO) within Natural Resources Canada. Crown consultation took place during the NEB process and following the release of the NEB Report.

On November 29, 2016, the federal Governor-in-Council (GIC) approved TMX.

Provincial Environmental Assessment Process

At the time of the commencement of the review of TMX by the NEB, the terms of the NEB-EAO Agreement stipulated that a provincial EA process and decision was not required for projects undergoing a NEB review. As a result, a provincial EA process was not commenced and the Province participated as an intervenor in the NEB process.

In January 2016, the BC Supreme Court, in *Coastal First Nations v. British Columbia* (BCSC Decision), held that a portion of the NEB-EAO Agreement was invalid. The Court found that the Province had breached the honour of the Crown by failing to consult with the Coastal First Nations in relation to whether or not to terminate the NEB-EAO Agreement, prior to the federal government making a decision. Specifically, the Court ruled that the Act applies to NEB projects to the extent that they require a provincial decision on whether to issue a provincial EA certificate. Accordingly, the Province is required to consult with Aboriginal groups about potential impacts of the Project on areas of Provincial jurisdiction and how to address those impacts in a manner consistent with the honour of the Crown. Although effectively amended by virtue of the BCSC Decision, the remainder of the NEB-EAO Agreement remained valid, allowing the review process that was being completed by the NEB for TMX to be substituted for the BC EA process. Therefore, EAO has accepted the NEB Report as the EA technical assessment report for this Project, as required under the Act. Section 4 of this Report summarizes the NEB's conclusions and recommendations.

EAO issued an Order under s. 10(1)(c) of the Act on April 8, 2016 stipulating that an EA Certificate would be required for TMX. EAO issued an Order under s. 11 of the Act on June 17, 2016, following consultation on the draft with Aboriginal groups and Trans Mountain, establishing the procedures for the remaining provincial EA process for TMX. Among other procedural aspects, this Order specified the

Aboriginal groups to be consulted by EAO, the Aboriginal consultation opportunities that would be provided, and requirements for Trans Mountain.

EAO coordinated Aboriginal consultation activities with the MPMO, including sharing information, conducting joint consultation meetings, and drafting a joint CAR for the Ministers and the federal GIC. The CAR describes the consultation process, the key issues of concern raised by Aboriginal groups and the potential mitigations, and the Crown's assessment of the seriousness of potential impacts of TMX on Aboriginal groups' asserted or determined Aboriginal rights, including title, and treaty rights (Aboriginal Interests).

EAO and MPMO shared the first draft CAR with all potentially impacted Aboriginal groups included in the Section 11 Order on August 17, 2016 for a four-week review period. A revised draft of the CAR was provided on October 31, 2016 for an additional two-week review, along with a draft of this Report and EAO's draft proposed conditions and draft certified project description.

EAO engaged provincial agencies to obtain technical expertise and support to EAO in understanding key issues raised by Aboriginal groups, to consider the NEB Report findings and conditions, and to assist EAO by reviewing proposed provincial conditions.

If TMX receives approval from Ministers, a number of provincial agencies may be required to make various provincial permitting decisions: BC Oil and Gas Commission (OGC), BC Parks of the Ministry of Environment (MOE), Ministry of Transportation and Infrastructure (MOTI) and Ministry of Forests, Lands and Natural Resource Operations (FLNRO). Provincial agencies will seek to coordinate consultation with Aboriginal groups to the extent practicable and will rely in part on the consultation undertaken by EAO and MPMO.

During the provincial EA process, Trans Mountain provided the following supplemental information filings, which were posted on EAO's website:⁴

- Supplemental Filing 1 (August 15, 2016) summarized the project description with maps, provided an overview of stakeholder and Aboriginal engagement, and consolidated responses to the issues raised by the Province and local governments during the NEB process with reference to the NEB's recommended conditions.
- Supplemental Filing 2 (Aboriginal Engagement Report, July 28, 2016) was provided to EAO after first sharing a draft with Aboriginal groups for an opportunity to review and comment. The Aboriginal Engagement Report, pursuant to Section 5.1 of the Section 11 Order, summarized the efforts undertaken to engage with Aboriginal groups, identified feedback and information received from Aboriginal groups, and identified potential adverse impacts of the Project on Aboriginal Interests and how such impacts would be avoided, mitigated, addressed or otherwise accommodated.

⁴ http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_home_459.html

- Supplemental Filing 3 (Stakeholder Engagement Report, September 30, 2016) summarized engagement with local and regional governments and municipalities and identified the key issues raised by stakeholders, particularly local and regional governments and municipalities throughout the process and provided a status update regarding the resolution to these key issues.

Other Federal Reports and Initiatives

In January 27, 2016 the federal government announced interim measures to guide the federal review of TMX while the federal government is undertaking a broader review of its environmental assessment processes. These interim measures included additional time for Aboriginal consultation, the assessment of upstream greenhouse gas (GHG) emissions, and the appointment of a Ministerial panel to engage communities to seek their views and report back to the Minister of Natural Resources. The results of these two latter initiatives, and the Oceans Protection Plan announced November 7, 2016, are summarized below.

Environment and Climate Change Canada (ECCC) conducted an assessment of the upstream GHG emissions resulting from the production, processing and refining of products associated with TMX. The assessment estimated that emissions associated with the pipeline expansion could range from 13 to 15 megatonnes (MT) of carbon dioxide equivalent (CO₂e) per year. As discussed below, the NEB considered the direct GHG emissions associated with construction and operation of the Project. However, the ECCC report was not able to conclude definitively on whether emissions would increase as a result of TMX due to uncertainty related to key factors such as the expected price of oil, the availability and costs of other transportation modes (e.g. rail), and whether other pipeline projects are built.⁵ The federal government also notes that upstream GHG emissions must operate within the 100 MT cap in Alberta's proposed *Oil Sands Emissions Limit Act*.

In May 2016, the federal government announced a three-member Ministerial panel to hear from Canadians and local communities and Aboriginal groups along the pipeline ROW and shipping route to seek views that may not have been considered as part of the NEB review. The Ministerial panel report was released on November 1, 2016.⁶ The panel held public meetings in the BC communities of Kamloops, Chilliwack, Abbotsford, Langley, Burnaby, Vancouver, North Vancouver, and Victoria. The Ministerial panel noted that while they heard varying opinions in BC regarding support for the Project, compared to feedback from Albertans, British Columbians' comments reflected an increasing discomfort about the risks and implications of the Project. The panel reported hearing from areas of BC with pockets of support for the Project, but noted that in the Lower Mainland, especially among elected officials representing those communities located near the pipeline route or the ocean, there was clear opposition to the Project expressed.

⁵Trans Mountain Pipeline ULC - Trans Mountain Expansion Project - Review of Related Upstream Greenhouse Gas Emissions Estimates, Government of Canada (<http://www.ceaa.gc.ca/050/documents/p80061/116524E.pdf>)

⁶Report from the Ministerial Panel for the Trans Mountain Expansion Project (https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/files/pdf/16-011_TMXX%20Full%20Report-en_nov2-11-30am.pdf)

On November 7, 2016 the federal government announced the national Oceans Protection Plan, described as a marine safety plan that meets – or exceeds – international standards and is supported by commitments to Indigenous co-management, environmental protections, and science-based standards.⁷ While the Oceans Protection Plan is broader than for just TMX, it will respond to many of the concerns raised by Aboriginal groups during the Crown consultation process for the TMX. The federal government’s \$1.5 billion plan will be implemented starting in 2017 and includes:

- Spill response: Increasing the Canadian Coast Guard’s spill response capacity;
- Fate and behaviour of diluted bitumen: Investing in research into the fate and behaviour of diluted bitumen in the marine environment to further improve spill response technology and methods in the future;
- Indigenous involvement in emergency response: Creation of Indigenous Community Response Teams and an Indigenous Chapter of the Coast Guard Auxiliary, which will provide interested Indigenous groups with formal training in support of spill response, search and rescue, and marine incidents; and
- Cumulative effects: The launch of a new program on the south coast of BC that will collect and update baseline biological, ecological, social, cultural and economic data. This data will improve Canada’s understanding of the cumulative effects of marine shipping, inform the development of appropriate mitigation measures, and help protect sensitive marine habitats and species.

4. NEB’s Environmental Assessment Conclusions and Recommendations

The NEB assessed a wide range of environmental and socio-economic components including air quality, wildlife, vegetation, water quality, GHG, marine and freshwater fish, marine mammals, and people, communities and lands, including heritage, traditional land and marine resource use, and health. In conducting the public interest determination under NEBA, the NEB assessed the local, regional and national benefits and burdens of the Project. The NEB identified a number of benefits and burdens in the NEB Report.⁸ The NEB concluded that the overall benefits of the Project outweigh the burdens and the NEB concluded that the Project is in Canada’s public interest and recommended approval by GIC. The NEB noted that many of the benefits would be national or regional in scope, fewer would be strictly local; while the majority of the burdens of the Project and Project-related marine shipping would be shouldered by local and regional communities.

The NEB concluded that while the Project itself is not likely to cause significant adverse effects, Project-related marine vessels would contribute to and result in several significant adverse effects. The NEB found that the operation of Project-related marine vessels is likely to result in significant adverse effects to the southern resident killer whale, to Aboriginal cultural uses associated with the southern resident killer whale, and to GHG emissions from Project-related marine vessels.

⁷ Oceans Protection Plan, Government of Canada (<http://www.tc.gc.ca/eng/oceans-protection-plan.html>)

⁸ NEB Report, Chapter 2, tables 2 and 3 (p.15-17)

Project-related tankers would increase from 5 per month to 34 per month sailings from WMT, which would represent approximately 6.6% of total marine traffic volume in the Juan de Fuca Strait, as compared to the current 1.1%. The NEB noted that Project-related vessels would follow an established shipping route that currently has high volumes of vessel traffic and that, even if the Project does not proceed, the intensity of commercial and recreational traffic along the shipping route is predicted to increase in the future. The NEB noted it is encouraged by current initiatives being undertaken by Trans Mountain, Fisheries and Oceans Canada (DFO), and other organizations to support the recovery of southern resident killer whales. Chapter 14 of the NEB Report addresses potential effects of the routine operation of Project-related shipping, and the consequences of potential spills from Project-related tankers.

The assessment of the environmental components is in Chapter 10 and of socio-economic components is in Chapter 11 of the NEB Report. Appendix 1 of this Report provides a summary of the NEB's assessment for each component and provides where that assessment is located within the NEB Report. Section 5 below provides a summary of key areas of provincial interest in relation to these effects.

The NEB noted that a key mitigating factor for the Project is that most of the pipeline route (85%) would parallel existing disturbance, including the ROW for Trans Mountain's existing pipeline, reducing requirements for new disturbance from construction. Should GIC decide to approve the Project, the NEB considered it necessary that the CPCN and other instruments be subject to the 157 conditions provided in Appendix 3 of the Report. Thematically, the conditions are directed at: regulatory and/or overarching requirements (9 conditions); project engineering and safety (53 conditions); emergency preparedness and response (15 conditions); environment (49 conditions), including air emissions and GHGs (9 conditions); socio-economic considerations (35 conditions); economic, finance and markets (2 conditions); and, Project-related marine shipping (6 conditions).⁹ An overarching condition is that Trans Mountain would be required to implement all of the commitments made in its application or committed to during the NEB proceedings.

The NEB concluded that taken as a whole the benefits associated with TMX would be considerable. In particular, there would be considerable benefits as a result of the direct jobs created (Chapter 11.5); the local and regional spending on pipeline materials (Chapter 11.5); in providing Canadian shippers greater access to international markets (Chapter 12.4); and through greater choice and efficiencies gained through competition among pipelines (Chapter 12). There would also be modest benefits to local communities and the environment along the Project route from the establishment of a Community Benefit Program (Chapter 10 and 11); from enhanced marine spill response planning (Chapter 14); and from local capacity development (Chapter 11.5). The NEB also found that direct Project expenditures would likely result in considerable revenues to various levels of government (Chapter 11.5).

⁹ The NEB conditions for TMX are discussed in Section 1.3.3 of the NEB Report (p. 8-9) and are found in full in Appendix 3.

5. Key Issues of Provincial Interest

While the Project is a primarily federal-regulated undertaking, as described above, it also triggers a provincial EA and would require various provincial permits and authorizations. Under the terms of the NEB-EAO Agreement, the EA undertaken by the NEB for the proposed Project constitutes an equivalent assessment under s. 27 and s. 28 of the Act, and the NEB Report is substituted for the assessment report required under s. 17(2) of the Act.

The provincial and federal governments have shared jurisdiction over the environment and some of the socio-economic components that may be impacted by the Project, and the provincial government has authority for the management of provincial lands and natural resources that may be impacted by the Project. This section summarizes some of the findings of the NEB Report in relation to some of the key issues of provincial interest. It is organized around the following subsections: vegetation and wildlife, parks, fish and fish habitat, GHG emissions, and terrestrial and marine spills. References are provided to relevant sections of the NEB Report, and that report should be relied upon as the source for assessment conclusions of the NEB process. Appendix 1 of this Report provides a brief summary of the broad set of components assessed by the NEB.

Vegetation and Wildlife

During the NEB process and during Crown consultation with Aboriginal groups, concerns were raised regarding potential impacts to vegetation and wildlife species. The NEB's assessment included consideration of the following: rare plants and lichens and vegetation communities of concern (Chapter 10.2.7 in the NEB report); Old Growth Management Areas (OGMA) (Chapter 10.2.8); wetlands (Chapter 10.2.9); weeds (Chapter 10.2.10); and terrestrial wildlife and wildlife habitat, including woodland caribou and grizzly bear and other terrestrial wildlife species at risk (10.2.11).

Construction and operation of the proposed pipeline would disturb or alter about 2,231 hectares (ha) of native vegetation, and, although such areas would revegetate with appropriate native species, species composition would be altered. Vegetation within at least 3 m on either side of the pipeline centreline would be maintained to not exceed 1 m in height to allow for aerial reconnaissance and access for operational maintenance. The NEB noted that the effects of pipeline construction on native vegetation, and the effectiveness of related mitigation and remediation, are generally well understood. The NEB conditions 72 and 78 would require Trans Mountain to file Environmental Protection Plans, which include the Reclamation Management Plan and Rare Ecological Communities or Rare Plant Species Discovery Contingency Plan. NEB conditions 40 and 155 would require a Rare Ecological Community and Rare Plant Population Management Plan, and a Rare Ecological Community and Rare Plant Population Mitigation Evaluation Report and Offset Plan to evaluate the success of mitigation and offset remaining effects. The NEB recognized the rarity and sensitivity of grasslands in the BC interior, and the long duration and potential difficulties in successfully reclaiming them. The NEB conditions 42 and 157 would require a Grasslands Survey and Mitigation Plan and a Grasslands Reclamation Evaluation Report and Offset Plan to evaluate reclamation success after ten years and offset any remaining effects.

Some mature trees and old growth forest would be lost as a result of the Project, and regrowth of trees back to similar size would take decades. Sixty-six OGMA's would be crossed by the pipeline route. The NEB imposed condition 76 requiring an OGMA Mitigation and Replacement Plan with the aim of no-net-loss to OGMA's.

The proposed pipeline corridor crosses 538 wetlands; however, not all of these wetlands would be disturbed by the pipeline ROW, as it would be routed within the corridor to avoid wetlands to the extent practical. Trans Mountain has committed to no net loss of function at all wetlands. The NEB conditions 41 and 156 would require a Wetland Survey and Mitigation Plan and a Wetland Reclamation Evaluation Report and Offset Plan.

The Project has the potential to cause the introduction and spread of non-native and invasive species. During the NEB process and during Crown consultation with Aboriginal groups, concerns were raised about the potential use of herbicides to control weeds. NEB condition 45 would require a Weed and Vegetation Management Plan. EAO has proposed a condition that in addition to the requirements in NEB condition 45 would require Trans Mountain to engage with Aboriginal groups and private land owners regarding options for vegetation control before the Holder uses herbicides, and to describe the measures to mitigate impacts to traditional use plants and the opportunities for Aboriginal groups to salvage, harvest or translocate traditional use plants in the areas to be cleared.

TMX has the potential to impact wildlife and wildlife habitat, including migratory birds, through vegetation clearing, sensory disturbance, reduced habitat connectivity, barriers to movement, and increased mortality risk. Maintenance of the ROW could lead to increased predator efficiency and greater access for trapping, hunting, and poaching of wildlife. The NEB found that Trans Mountain's proposed mitigation is reasonable and would address the majority of the potential impacts on wildlife and wildlife habitat. Trans Mountain committed to a post-construction monitoring program for five years to determine the effectiveness of mitigation, and identify the need for further monitoring and adaptive measures. The NEB found that, taking into account mitigation proposed by Trans Mountain and the NEB conditions (36, 37, 38, 44, 47, 56, 71, 92, 128, 149, 150, 151, and 154), as well as the requirements of Section 48 of the NEB's Onshore Pipeline Regulations, the Project is not likely to cause significant adverse environmental effects on wildlife and wildlife habitat. The NEB provided separate conclusions for key species at risk, including woodland caribou and grizzly bear which are discussed below because of their provincial importance.

The southern mountain population of woodland caribou is listed as Threatened under Schedule 1 of the *Species at Risk Act* (SARA). The NEB Report states that cumulative effects to southern mountain caribou are substantial and are leading to declining populations. The Project would cross each of the Wells Gray and Groundhog subpopulations and the Mount Robson local population of southern mountain caribou. Trans Mountain noted that the project corridor and site selection was a primary mechanism to avoid or reduce project impacts to caribou: the use of existing access to facilitate construction in caribou range would reduce disturbance; and, the pipeline corridor is proposed adjacent to existing linear disturbance for approximately 71.7% of its length through Wells Gray caribou range, and would parallel the existing Trans Mountain pipeline ROW for the entire length in the Groundhog caribou range. NEB

conditions 36, 37, 128, 149 and 150 are specific to caribou and respectively require: a Pre-Construction Caribou Habitat Assessment for each caribou range potentially affected by the Project; a Caribou Habitat Restoration Plan to restore as much habitat as possible; an Offset Measures Plan for Residual Effects on Caribou Habitat; a Caribou Habitat Restoration and Offset Measures Monitoring Program; and Caribou Habitat Restoration and Offset Measures Monitoring Reports. In addition, NEB's Onshore Pipeline Regulations s. 48 would require Trans Mountain to develop, implement and maintain an environmental protection program that anticipates, prevents, manages and mitigates conditions that could adversely affect the environment. The NEB found that with mitigation, including human and predator access control, the potential for the Project to measurably affect predator-prey dynamics and, therefore, mortality risk for caribou, as a result of incidental predation, is low, while the magnitude of the effect would be moderate.

In consideration of the NEB conditions, and the NEB's Onshore Pipeline Regulations, EAO proposes a condition that would require Trans Mountain to ensure that the filings are consistent with relevant provincial legislation, regulation, policies and programs, and requiring that Trans Mountain develop and implement the required plans and programs in consultation with FLNRO, MOE, OGC and Aboriginal groups.

Within BC, TMX would intersect three viable Grizzly Bear Population Units (GBPU) (Columbia-Shuswap, Wells Gray, and Robson), and one threatened GBPU (North Cascades). Grizzly bears are blue-listed species in BC and the North Cascades grizzly bear population is at risk of extirpation. The NEB found that existing cumulative effects on mortality risk is considered substantial for all three GBPUs due to existing regional exceedances of generally accepted linear disturbance thresholds in the population units. Trans Mountain considered route options to avoid the North Cascades GBPU, but this would cause the Project to impact another threatened GBPU. The NEB report states that 82% of the proposed ROW in the North Cascades GBPU would be constructed within an existing transportation corridor that is largely restricted to the Coquihalla River Valley, and it would be parallel to the existing TMPL ROW.

NEB condition 56 requires Grizzly Bear Mitigation Plans for each vulnerable GBPU and grizzly bear management area, and NEB condition 47 requires an Access Management Plan. The NEB concluded that the residual effects to grizzly bear would be of low to moderate magnitude. EAO has proposed a condition, in consideration of NEB Condition 56 that would require Trans Mountain to develop a grizzly bear mitigation and monitoring plan for the vulnerable North Cascades GBPU that is consistent with BC's Policy for Mitigating Impacts on Environmental Values, and would include monitoring measures. EAO proposes another condition for grizzly bear that includes a number of specific measures to ensure that impacts to grizzly bear are further mitigated across all GBPUs. In addition, the proposed conditions would require Trans Mountain to develop and implement the mitigation and monitoring plans for grizzly bear in consultation with MOE, OGC, FLNRO and Aboriginal Groups.

TMX has the potential to affect various SARA-listed terrestrial wildlife species (Appendix 13 of the NEB Report). Trans Mountain stated that the Project could affect species at risk through habitat loss, change in movement, and increase in mortality risk. The NEB noted that Trans Mountain's mitigation plans would include measures to minimize disturbance to habitat, and to restore or enhance habitat. Trans

Mountain committed to develop and implement mitigation plans for each wildlife species whose draft, candidate, proposed or final critical habitat is directly or indirectly affected by the Project. Trans Mountain also committed to work with provincial authorities to determine the most appropriate offset approach, should those authorities deem offsets to be necessary for provincially managed species at risk, in consideration of the mitigation and habitat restoration plans. NEB condition 44 requires Wildlife Species at Risk Mitigation and Habitat Restoration Plans for each species whose draft, candidate, proposed or final critical habitat is directly or indirectly affected by the Project. NEB condition 38 requires a plan to ensure that mitigation and offset measures are implemented in the Sowaqua Long-Term Spotted Owl Habitat Area potentially affected by the Project. NEB condition 92 requires a summary of any relevant updates under the SARA. The NEB noted that the reason why many wildlife species at risk are classified as at risk, is because existing cumulative effects have often already exceeded a sustainability threshold for the species. However, the NEB found that the Project's contribution to the total cumulative effects is expected to be inconsequential.

In consideration of Trans Mountain's commitment to work with provincial authorities to determine whether offsets are necessary and, if so, the appropriate approach, EAO proposed a condition that would require Trans Mountain to develop a wildlife species at risk preliminary offset plan in consultation with FLNRO, ECCC, MOE, OGC and Aboriginal groups, and, as required, subsequent habitat offset plans.

EAO also proposed a condition, in consideration of NEB condition 47, that would require Trans Mountain to prepare an access management plan or plans for the pipeline ROW in consultation with FLNRO, OGC, MOTI and Aboriginal groups that would include a number of specific additional measures, in addition to meeting all of the requirements set out in NEB condition 47, including measures to avoid or mitigate disruption of members of Aboriginal groups carrying out traditional use activities.

Parks and Protected Areas

The TMX would cross three parks and protected areas and one Recreation Area in BC: Finn Creek Provincial Park, North Thompson River Provincial Park, Lac Du Bois Grasslands Protected Area, and Coquihalla Summit Recreation Area. Construction within a provincial park would require a park boundary amendment under the BC *Parks Act* and access to a park would require a park use permit. Construction in the Coquihalla Summit Recreation Area requires a resource use permit. Trans Mountain has advised BC Parks that works associated with the Project in North Thompson River Provincial Park would be within the existing ROW and therefore there would be no new permanent ROW taken from the park.

The NEB report noted Trans Mountain's commitment to work with BC Parks to develop offset projects of an ecological comparable nature to achieve no-net loss of native biodiversity and ecological integrity on a regional basis, and to summarize the proposed offset projects once they are defined. Further to this commitment, EAO proposed a condition that would require Trans Mountain to prepare an offset plan to identify offset projects for any provincial protected areas (which includes parks, protected areas and recreation areas) that would be impacted by TMX (if park boundary adjustments are approved by an Order in Council).

The preferred route from the Burnaby tank terminal to WMT is to tunnel through Burnaby Mountain, which is within the Burnaby Mountain Conservation Area. In the event that the tunnel option is not viable, the alternate route would have the potential to affect the Burrard Inlet Conservation Area, including great blue heron that may nest in the conservation area. The NEB found that Trans Mountain's proposed mitigation for potential effects on great blue heron in the conservation area to be reasonable and acceptable.

Fish and Fish Habitat

During the NEB process and Crown consultation with Aboriginal groups, concerns were raised regarding the potential impacts of TMX on fish, and in particular, Pacific salmon, as a culturally, economically and ecologically important species within BC. Concerns were raised about the existing cumulative effects from industrial and urban development, impacts to riparian areas, and potential impacts to species at risk. Chapter 10.2.5 of the NEB Report provides the assessment of the potential impacts to freshwater fish and fish habitat, including the key mitigation measures identified by Trans Mountain. The NEB found that proposed watercourse crossings designs, mitigation measures, reclamation activities, and post construction monitoring would be appropriate and would effectively reduce the extent of effects on fish and fish habitat. Watercourse crossings would need to comply with federal (NEB and DFO) and provincial laws and regulations, and would require permits under the BC *Water Sustainability Act*, which protects the quality and quantity of water for fish and fish habitat. The NEB agreed with Trans Mountain's self-assessment of the potential for serious harm, in that the majority of proposed watercourse crossings would not constitute serious harm under the *Fisheries Act*.

The NEB condition 43 requires site-specific information to make an accurate serious harm determination for higher risk crossings, and would include consideration of riparian habitat. The NEB noted that it would use this information to conduct a site-specific review of each of the proposed watercourse crossings where Trans Mountain cannot meet all of DFO's Measures to Avoid Causing Harm to Fish and Fish Habitat, and to verify the results of Trans Mountain's self-assessment of the potential for serious harm. The NEB would refer to DFO any watercourse crossing activities that may likely require authorization under the *Fisheries Act*. DFO would then be responsible for issuing any authorizations. Trans Mountain also committed to developing any Fish and Fish Offset Plans in consultation with regulators, fisheries managers, Aboriginal groups and other stakeholders. The NEB conditions would also require a Riparian Habitat Management Plan (71) and a Riparian Habitat Reclamation Evaluation Report and Offset Plan (154). Trans Mountain committed to develop an Environment Stewardship Program as part of its Community Benefit Program, where Trans Mountain would seek opportunities, alone or in partnership, to restore, secure, or enhance elements of aquatic ecosystems above and beyond regulatory requirements. The NEB concluded that there would not be significant adverse effects to freshwater fish and fish habitat. In consideration of the NEB's findings, the NEB conditions, the existing regulatory and policy framework for protecting fish and fish habitat, and Trans Mountain's commitments, EAO has not proposed additional conditions. However, EAO proposed a condition that would require Trans Mountain to prepare an access management plan or plans for the pipeline ROW that must include the means by which access within the Riparian Reserve Zone of fish-bearing streams with a Riparian Class of S1, S2, or S3, as defined in the Environmental Protection and Management

Regulation under the *Oil and Gas Activities Act* (OGAA), will be minimized. This proposed condition would also help to mitigate potential effects on traditional use by Aboriginal groups within these areas.

Greenhouse Gas Emissions

The NEB Report (Chapter 10.2.2) assessed the direct greenhouse gas (GHG) emissions generated from Project construction and operations. Construction would generate approximately 1.0 MT of CO₂e, of which 0.9 MT CO₂e (90%) would be from land-clearing. Total GHG emissions from construction in BC are estimated to be 0.84 MT CO₂e and annual emissions in BC during operations are expected to decrease by 323 tonnes CO₂e due to change of the vapour combustion unit at WMT to stand-by mode. However, The WMT would generate GHG emissions during operations that exceed BC's reporting threshold (i.e., 10,000 tonnes of CO₂e annually) and will be required to report under BC's *Greenhouse Gas Industrial Reporting and Control Act*.

Construction-related GHG emissions are not usually large enough to trigger reporting under federal or provincial GHG regulations. The NEB condition 140 requires Trans Mountain to quantify the total direct GHG emissions after all construction activities are complete, to provide a more accurate estimate of the direct GHG emissions that are required to be offset. NEB condition 142 requires Trans Mountain to develop an offset plan for the Project's entire direct construction-related GHG emissions. In consideration of the NEB offset condition, net emissions from construction are expected to be fully offset and therefore of low magnitude and not significant. The NEB noted that emissions anticipated during operations would be below national reporting thresholds and therefore would not be significant.

The NEB considered GHG emissions generated from Project-related marine shipping. The NEB reports that Project-related marine vessels are expected to result in an increase of approximately 6.9% in the region's marine GHG emissions, 2.1% in BC's marine GHG emissions, and 1.2% in Canada's marine GHG emissions. The NEB found that as there are no regulatory reporting thresholds or specific requirements for marine GHG emissions in Canada, and as emissions would result in measurable increases, GHG emissions from Project-related marine vessels are likely to be significant.

EAO has proposed a condition that, in addition to NEB condition 140, would require Trans Mountain to quantify and report GHG emissions in a manner that is consistent with BC's *Greenhouse Gas Industrial Reporting and Control Act* and accompanying regulations. EAO has also proposed a condition that would require Trans Mountain to develop a plan to offset GHGs from the Project Construction in British Columbia, including a requirement for Trans Mountain to cause to be retired offset units under the *Greenhouse Gas Industrial Reporting and Control Act* equal to the GHGs from Project Construction in British Columbia.

Terrestrial or Marine Spills

During the EA, many commenters and intervenors, including municipal and regional government and Aboriginal groups raised concerns about the risks of accidental spills on land or in the marine environment. Aboriginal groups raised concerns about the potential serious impacts on their Aboriginal Interests if a spill occurred. The NEB acknowledged that environmental effects of a tanker spill would

depend on numerous factors including the volume and type of product spilled, the location of the spill, the time required to respond to the spill, the effectiveness of spill containment and clean up, valued components that are impacted, weather conditions, and the time of year that the spill occurs. The NEB concluded that the effects of a credible worst-case spill on the current use of lands, waters and resources for traditional purposes by Aboriginal people would likely be adverse and significant. As described in the NEB Report Chapter 14.2, marine spill response remains a responsibility of the federal government and the certified response organization Western Canada Marine Response Corporation (WCMRC). During the NEB process Trans Mountain committed to a \$100 million investment in new equipment by WCMRC for increased capacity to respond including five new spill-response bases.

The NEB concluded that, should the Project be designed, constructed and operated according to the fulfillment of its conditions and Trans Mountain's commitments, there would be a very low probability of a Project spill (i.e., from pipeline, tank terminals, pump stations, or WMT) that may result in a significant effect (high consequence) and that the level of risk is acceptable. The Panel also concluded that there is a very low probability of a marine spill from a Project-related tanker that may result in a significant effect (high consequence) and that this level of risk is acceptable.

Chapter 8 of the NEB report includes the NEB's findings about the fate and behaviour of spilled oil. The NEB concluded that an effective emergency response would not guarantee recovery of all spilled oil, and that the oil spill preparedness and response commitments made by TMX could not ensure recovery of the majority of oil from a large spill. Recovery of the majority of spilled oil may be possible under some conditions, but experience indicates that oil recovery may be very low due to factors such as weather conditions, difficult access, and sub-optimal response time, particularly for large marine spills. During the NEB process, information was provided about the federal government's research and concerns were raised about the need for more research into the fate and behaviour of oil products in the environment to develop a better understanding of how to mitigate the risks of heavy oil in the event of a spill. EAO has proposed a condition that would require Trans Mountain to develop a plan to lead, jointly lead, or support, with other government and industry participants, a research program regarding the behaviour and clean-up of heavy oils spilled in freshwater and marine aquatic environments, with the objective of providing Trans Mountain and spill responders with improved information on how to effectively respond to spills. As part of the initiative Enhancing Marine Safety Strategy, ECCC will also continue to conduct research on the major chemical and physical processes influencing the fate and effects of spills.

Chapter 9 of the NEB Report includes the NEB's findings related to emergency prevention, preparedness and response. Marine spill prevention, preparedness and response are discussed in Sections 14.2 to 14.7 of the NEB Report. The NEB recommended several conditions with respect to accidents, malfunctions, emergency preparedness and response:

- NEB conditions that relate to emergency preparedness and response include 89, 90, 117-120, 123-127, 136, 138, 145, and 153.
- NEB conditions 90, 117, and 124 would require Trans Mountain to undertake consultation with appropriate government authorities, first responders, impacted Aboriginal groups and tenants/landowners with regards to enhancing and integrating emergency response planning.

- To monitor future developments of Trans Mountain's Tanker Acceptance Standard, NEB condition 134 requires Trans Mountain to file the Standard and future updates with the NEB. Trans Mountain committed to ensuring a tug escort accompany tankers through the Strait of Georgia and between Race Rocks and the 12 nautical mile limit, in addition to tug requirements to assist with navigation.
- NEB condition 133 requires Trans Mountain to implement its commitments related to oil tanker traffic and enhanced oil spill response including to implement enhanced tug escort measures as supported by TERMPOL Review Committee and to increase the capacity of the response to 20,000 tonnes within 36 hours of notification of a spill.
- NEB condition 115 requires Trans Mountain to provide reports describing the final design of the Project's supervisory control and data acquisition (SCADA) and leak detection systems. This would include consideration of a second complimentary computational pipeline monitoring (CPM) system that would operate in parallel with the existing system, creating a redundancy that would add an extra level of robustness to the leak detection system. If it is successful, it will also be implemented into the Project, which would exceed current regulatory requirements.

The requirements for emergency preparedness and response for Trans Mountain generally are contained within Sections 32 to 35 of the NEB's Onshore Pipeline Regulations as this aspect of the pipelines operations is subject to Federal oversight.

EAO proposed a number of conditions related Trans Mountain's emergency and spill preparedness and to support provincial agencies' emergency and spill preparedness. EAO proposed a condition that would require Trans Mountain to provide provincial agencies with copies of the risk assessments required by the NEB, as well additional analysis regarding Oil Spill Containment and Recovery (OSCAR) units and trained responders and operational support.

EAO proposed a condition, in consideration of the requirements set out in NEB conditions 125 and 126 as well as Section 32 of the Onshore Pipeline Regulations, that would require Trans Mountain to develop emergency response plans that would describe how Trans Mountain would coordinate participation of first responders, agencies, municipalities and regional districts, and Aboriginal Groups that may be involved in an emergency response related to the Project.

EAO proposed a condition that would increase the requirements associated with Trans Mountain's emergency preparedness and response exercise and training program, including testing additional plans in the exercises. EAO also proposed a condition that would require Trans Mountain to complete full scale exercises or deployments of emergency equipment in advance of the commencement of operations for each of the following scenarios:

- Full-scale full-bore rupture under ice and snow conditions in BC;
- Deployment of emergency equipment for a full-bore rupture into major river in BC under peak flow conditions; and
- Deployment of emergency equipment for a tank fire at the Burnaby Terminal.

If a pipeline spill incident occurs, the NEB would verify that there is adequate and appropriate clean-up and full remediation of any environmental effects resulting from the incident. Trans Mountain would be required to conduct, to the NEB's satisfaction, a complete clean-up and remediation of any adverse environmental effects. The Pipeline Financial Requirements Regulations, as announced and explained on the NEB's website in October 2016, provides further details of the liability and compensation regime in place for pipelines.¹⁰

Trans Mountain would also need to notify the Province of any spills as per the Spill Reporting Regulation under BC's *Environmental Management Act*. Trans Mountain would also be required to comply with the Contaminated Sites Regulation and the Hazardous Waste Regulation under BC's *Environmental Management Act*.

The Province of BC is also in the process of updating the Provincial Spill Response System, which will include new requirements for spill preparedness, response and recovery, as outlined below.

The Province has passed legislation that will allow for the implementation of a preparedness, response and recovery regime for hazardous substance spills. Key elements of the new spill regime, including an initial set of detailed regulations, will come into effect in 2017.¹¹ EAO has proposed a condition that would require Trans Mountain to develop and implement in consultation with MOE, OGC, and Aboriginal groups, in-land based geographic response plans, which align with BC's spill preparedness, response and recovery regime.

The OGC is responsible for regulatory oversight of emergency preparedness and response for provincially regulated oil and gas activities and promulgated an Emergency Management Regulation (EMR) in 2014, which consolidated provincial oil and gas emergency management requirements into a single regulation that requires pipeline companies to provide notification and consultation in the development and implementation of an emergency response plan. While these Regulations do not specifically apply to this Project, they do apply to other portions of Trans Mountain's operations that fall under provincial jurisdiction. In addition, the OGC and the NEB have a memorandum of understanding to improve pipeline safety and provide opportunities for regulatory efficiency.

While response to marine spills falls under federal jurisdiction, spills in the marine environment can negatively impact BC's coast. BC continues to work with federal partners to align regulatory processes for a consistent spill response framework across BC. EAO proposed a condition that, if requested, Trans Mountain must participate in coastal geographic response planning undertaken by the provincial government, federal government or a certified response organization.

¹⁰ <http://www.gazette.gc.ca/rp-pr/p1/2016/2016-10-08/html/reg3-eng.php>

¹¹ Information about the legislation and regulations is available at: <http://www2.gov.bc.ca/gov/content/environment/air-land-water/spills-environmental-emergencies/spill-preparedness-and-response-bc>.

6. Aboriginal Consultation Conclusions

EAO and the MPMO undertook joint consultation activities and produced a joint CAR, which is included with the referral packages to both federal and provincial decision makers. This report details the consultation that occurred throughout the entire process, the issues that were raised by Aboriginal groups, the relevant mitigation and accommodation measures, and the Crown's (joint federal-provincial) assessment of the seriousness of the potential impacts on each Aboriginal group's asserted or determined Aboriginal rights, including title, and treaty rights (Aboriginal Interests). A summary of the CAR including the Crown's consultation, key issues raised by Aboriginal groups, and the Crown's conclusions about the potential impacts of the Project on Aboriginal Interests is provided in this section.

Within BC, 96 Aboriginal groups were identified by EAO to be consulted on the Project including Aboriginal groups located along the pipeline route, in the vicinity of WMT, and along the marine shipping route. These groups are specified in the legal order issued by EAO under s. 11 of the Act.¹² This list of Aboriginal groups is consistent with those identified by the federal Crown. Tables 2, 3, and 4 of the CAR list the Aboriginal groups consulted in BC.

Some of the general themes of issues raised by Aboriginal groups during the review of the Project were:

- Pipeline construction and operations;
- Pipeline accidents and malfunctions;
- Marine terminal construction and operations;
- Marine terminal accidents and malfunctions;
- Marine shipping operations;
- Marine shipping accidents and malfunctions;
- Cumulative effects;
- Social and cultural impacts;
- Other Aboriginal and treaty rights;
- Review process and methodology;
- Adequacy of consultation;
- Economic effects; and
- Health and human safety.

The CAR's Section 4 includes a summary of each of these concerns as they related to potential impacts on Aboriginal Interests (i.e. hunting, trapping, gathering, fishing, marine harvesting, other traditional and cultural practices, Aboriginal title), as well as other interests (accidents and malfunctions, health and human safety, socio-economic issues, cumulative effects, etc.). Relevant Trans Mountain commitments, NEB conditions, and Crown responses, where available are described and key project modifications and other accommodation measures are presented in relation to how they would address key Aboriginal Interests and concerns.

¹² http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_459_40634.html

The CAR includes appendices that describe the key concerns raised by each Aboriginal group, the consultation undertaken with each Aboriginal group, and the Crown's conclusions about the potential impacts of the Project on each Aboriginal group's Aboriginal Interests. The appendices for Aboriginal groups listed in the Section 11 Order were prepared jointly by the federal government and EAO, and only these appendices have been included in the referral package to Ministers.

In addition to discussing a range of concerns related to the potential impacts of the Project, risks posed by spills, and concerns with the regulatory process, many Aboriginal groups also raised concerns about on-going opportunities to be consulted if the Project were to proceed and an interest in participating in monitoring activities. EAO proposed a condition that, in consideration of NEB conditions 96 and 146, would require Trans Mountain to submit Aboriginal consultation reports for EAO in consultation with Aboriginal groups.

Specific to the concerns of Aboriginal groups along the marine route, EAO also proposed a condition, in consideration of NEB condition 131, that would require Trans Mountain to develop and implement an Aboriginal marine outreach program in consultation with Aboriginal groups along the marine shipping route that would include engagement related to marine initiatives, programs, and research that Trans Mountain is directly or indirectly involved in to address the impacts of increased Project-related tanker traffic in the Salish Sea.

EAO also proposed a number of other conditions that would serve to address concerns raised by Aboriginal groups regarding potential impacts of the Project, including requiring consultation with Aboriginal groups on conditions that are related to Aboriginal Interests. These proposed conditions include opportunities to participate in construction monitoring, in archaeological and heritage activities, and in environmental and socio-economic plan development, as well as requiring Trans Mountain to endeavour to engage with the impacted Aboriginal groups to seek to identify opportunities for cultural awareness and recognition. Other proposed EAO conditions referenced throughout this Report include requirements to engage with Aboriginal groups. Appendix 2 provides a summary of EAO's proposed conditions in relation to several of the key issues that were raised by Aboriginal groups during consultation.

Appendix 3 of this Report summarizes the Crown's conclusions regarding the depth of consultation owed to each Aboriginal group in BC, the potential Project-related impacts on Aboriginal Interests for each Aboriginal group, and the overall range of potential Project-related impacts. The tables are organized by geographic region. There are a total of 96 individual Aboriginal groups listed in the tables provided in Appendix 2, including the groups within collectives¹³. In total, 39 Aboriginal groups were identified as being owed a deeper level of consultation, 7 Aboriginal groups were assessed as being owed a middle-to-deep level of consultation, 29 Aboriginal groups were assessed at the middle of the

¹³ The accounting of the overall number of individual Aboriginal groups consulted with by the Crown on the Project varied over time as the scope of consultations evolved. Consultations were informed by an understanding of the basis for which an Aboriginal group may represent the interests of a collective rights bearing entity under Section 35 of the *Constitution Act, 1982*, or whether a group preferred to be consulted as a Band under the *Indian Act*. In some cases more than one distinct Aboriginal community is recognized as part of the same First Nation under the *Indian Act*.

consultation spectrum, and 21 Aboriginal groups were assessed as being owed a low depth of consultation.

Impacts on Aboriginal Interests were assessed for each individual Aboriginal group and for each category of rights (e.g. hunting, fishing, gathering, and cultural use). These impacts are described based on the level of seriousness of potential impacts, after mitigation, from negligible to serious, defined as follows:

- Negligible impact – no detectable impact or any change from current conditions;
- Minor impact – ability to exercise the right is minimally disrupted;
- Moderate impact – ability to exercise the right has been diminished or disrupted; and
- Serious impact – ability to exercise the right has been significantly diminished.

In some instances the Crown used hyphenated levels of impacts (e.g. minor-to-moderate), which indicates that the impacts fall between the two categories. The Crown recognizes that the potential impacts on any Aboriginal group may vary in time and space. That is, impacts on Aboriginal Interests in one area of an Aboriginal group’s territory are not the same as elsewhere, and impacts during construction are not the same as during operations.

Table 1 - Greatest Assessed Impact on Aboriginal Interests and Depth of Consultation for Aboriginal Groups in BC

Seriousness of Impacts	Moderate		Lyackson; Malahat; Pacheedaht; Pauquachin; Stz’uminus (Chemainus); Tsartlip; Tsawout; T’Sou-ke	Lower Nicola; Peters; Syilx (Okanagan Nation Alliance) [5 groups]; Tsawwassen; Tseil- Waututh
	Minor-to-Moderate		Nooaitch; Siska	Boston Bar; Coldwater; Cook’s Ferry; Enoch Cree; Kwantlen; Kwikwetlem; Matsqui; Musqueam; Paul; Popkum; Shxw’ōwhámel; Stó:lō Collective [13 groups]
	Minor	Canim Lake; Semiahmoo;	Adams Lake; Ashcroft; Cowichan Tribes; Ditidaht; Halalt; Hwlitsum; Penelakut Tribe; Yale	Chawathil; Cheam; Katzie; Nlaka’pamux Nation Tribal Council [5 groups]; Seabird Island; Shackan; Simpcw; Squamish; Stk’emlupsemc te Secwepemc Nation [2 groups]; Union Bar;
	Negligible-to-Minor	Horse Lake; Lheidli T’enneh; Little Shuswap Lake; Maa-nulth [5 groups]; Neskonlith; Snaw-naw-as (Nanoose); Whispering Pines/Clinton;	Lake Cowichan; Scia’new (Beecher Bay); Songhees; Tseycum	
	Negligible	High Bar; Lhtako Dene; Shuswap; Sts’ailes (Chehalis); Stswecem’c Xgat’tem; Toosey; Ts’kw’aylaxw (Pavilion); Williams Lake; Xats’ull First Nation (Soda Creek)	Bonaparte; Esquimalt; Kanaka Bar; Nicomen; Splats’in; Snuneymuxw (Nanaimo)	
		Low	Middle	Deeper
	Depth of Consultation			

The impact assessment reported for each Aboriginal group is the greatest expected impact on the Aboriginal Interest as a result of routine Project construction and operations. Table 1 identifies the Crown's conclusion regarding the greatest potential impact on each BC Aboriginal group's Aboriginal Interests, as well as the depth of consultation. As shown, 17 Aboriginal groups were assessed as having Aboriginal Interests that have the potential to be up to moderately impacted by the Project. Twenty-five Aboriginal groups are expected to have up to a minor-to-moderate level of impact, 25 would have up to a minor level of impact, 15 would have up to a negligible-to-minor level of impact, and 15 would have up to a negligible level of impact.

The nature of the impacts on Aboriginal Interests from the Project itself (that is, the pipeline, terminals and supporting infrastructure) would differ from impacts associated with Project-related marine shipping activities. In general, the Crown is of the view that the Project's routine construction and operation would result in a minor level of impacts on Aboriginal groups' Aboriginal Interests. There are a range of factors that contributed to a greater assessed impact on some Aboriginal groups' Aboriginal Interests, including: a greater number or proportion of traditional use sites or areas that would be impacted by the Project; identification of key sites or areas of importance identified by the Aboriginal group that would be impacted by the Project, and; ways in which the Project could impact cultural or experiential aspects for an Aboriginal group. This information was made available by Aboriginal groups through the NEB process and Crown consultation.

Project-related marine vessels have the potential to impact the Aboriginal Interests of coastal Aboriginal groups who rely on the marine environment for traditional use. The Crown is of the view that the routine operation of Project-related marine vessels would result in a negligible-to-minor level of impacts on Aboriginal groups' Aboriginal Interests. The Crown concluded that Aboriginal groups that identified cultural use of southern resident killer whale would be moderately impacted as a result of the significant adverse effects to southern resident killer whale and to the traditional use of southern resident killer whale found by the NEB. The 10 Aboriginal groups that identified cultural use for southern resident killer whale are Lyackson, Malahat, Pacheedaht, Pauquachin, Stz'uminus (Chemainus), Tsartlip, Tsawout, T'Sou-ke, Tsawwassen and Tseil-Waututh.

As described above, the NEB found that there is a very low probability of either a Project spill (i.e. from pipeline, tank terminals, pump stations, WMT) or a marine spill from a Project-related tanker that may result in a significant effect (high consequence). However, over the life of the Project the probability of small spills is high. The Crown acknowledges that Aboriginal peoples who rely on subsistence foods and natural resources are at greatest risk for adverse effects from an oil spill regardless of its size. The seriousness of impact on Aboriginal Interests will depend on the size, location and conditions of a spill and the effectiveness of response measures, and the Crown is of the view that spills have the potential to result in impacts on Aboriginal Interests that could range from negligible to serious.

During consultation on TMX, Aboriginal groups raised concerns about potential impacts to their Aboriginal Interests and several Aboriginal groups proposed mitigation and accommodation measures to the Crown, as described in each Aboriginal group's appendix to the Consultation and Accommodation Report. Twenty-seven Aboriginal groups proposed mitigation or accommodation measures in relation to

the terrestrial portions of TMX. These proposals included requests for opportunities to participate in monitoring and oversight, capacity and opportunities to participate in emergency response planning and exercises, opportunities to engage on detailed routing to ensure mitigation for culturally important sites, and access to capacity funds to assist Aboriginal groups to participate in consultation on follow-up programs and plans. Thirteen groups raised proposals with regard to the marine shipping Project impacts including proposing locations of WCMRC spill response bases, providing equipment and training for members of coastal Aboriginal communities to assist with spill response, providing capacity and opportunities to participate in marine emergency response planning and exercises, increasing escort tug support, establishing a marine spill compensation regime, developing a Salish Sea stewardship foundation, and conducting further research into the fate and behaviour of diluted bitumen. Many Aboriginal groups requested the Crown engage in discussions about revenue sharing and other forms of economic benefits to Aboriginal groups if TMX is approved and constructed.

In response to the concerns raised and mitigations proposed by Aboriginal groups, EAO proposed several provincial EA conditions, which have been discussed above and are summarized in Appendix 2. The federal government proposed potential accommodation measures during the consultation process, which are described in Section 5.3 of the CAR. The federal government announced several key accommodation measures on November 29, 2016, along with its approval of TMX. The federal government committed to establish an Indigenous advisory and monitoring committee, with up to \$64.7 million in funding, that will work with federal regulators and Trans Mountain to oversee environmental aspects throughout the project life cycle. The exact terms of this committee will be collaboratively developed with Indigenous groups. The federal government also announced that it will establish an Economic Pathways Partnership, which will make it easier for Aboriginal groups to access existing federal programs that will help support job training and business opportunities. The federal government also committed to taking actions to implement the Recovery Plan for the southern resident killer whale including, reducing the impacts of marine vessel noise, ensuring sufficient food supplies, and reducing pressure from persistent contaminants, before Project-related shipping begins.

Trans Mountain reports that it collaborated with potentially impacted Aboriginal groups to identify and support economic development opportunities resulting from the Project. As of December 7, 2016, the Crown was aware that 37 potentially affected Aboriginal groups in BC (and 49 total Aboriginal groups, including 3 BC Métis groups) had signed a confidential mutual benefit agreement (MBA), including a letter of support, with the proponent.¹⁴ This is more groups than listed in Table 12 in Section 4 of the CAR, as the proponent signed MBAs with additional Aboriginal groups. Trans Mountain states that more than \$300 million has been committed to Aboriginal groups under these MBAs, which may include

¹⁴ The BC Aboriginal groups are Simpcw First Nation, Skeetchestn First Nation, Tk'emlups te Secwepemc, Whispering Pines/Clinton Indian Band, Lower Nicola Indian Band, Popkum Indian Band, Union Bar Indian Band, Shxw'ow'hamel First Nation, Peters Band, Ts'elxweyeqw Tribe (Kwaw-Kwaw-Apilt First Nation, Soowahlie Indian Band, Aitchelitz First Nation, Shxwha:y Village, Skowkale First Nation, Squiala First Nation, Tzeachten First Nation, Yakweakwoose Band, Skwah First Nation), Cheam First Nation, Matsqui First Nation, Canim Lake Band, Seabird Island Band, Kwikwetlem First Nation, Semiahmoo First Nation, Yale First Nation, Ashcroft First Nation, Esquimalt Nation, Halalt First Nation, Hwlitsum First Nation, Lake Cowichan First Nation, Malahat First Nation, Pacheedaht First Nation, Pauquachin First Nation, Penelakut First Nation, Beecher Bay (Scia'new) Band, T'Sou-ke First Nation, and Ditidaht First Nation.

provisions for employment, training and procurement opportunities. Trans Mountain also provided capacity funding to several potentially impacted Aboriginal groups to help their participation in the process.

All Aboriginal groups were also given the opportunity to provide a submission outlining any outstanding concerns, issues or fundamental views in respect of the Project for the direct consideration of Ministers and GIC. Twenty-six Aboriginal groups¹⁵ provided separate submissions for both Provincial Ministers and the federal GIC. Subsequently, Cook's Ferry Indian Band, Siska Indian Band, and Tsleil-Waututh Nation provided submissions specifically for Ministers.

7. Public and Local Government Consultation

The NEB hearing process provides opportunities for participation by those members of the public who are either directly affected or have relevant information or expertise. The NEB required Trans Mountain to contact anyone who lives, works or uses land and resources along the proposed pipeline route. The NEB also made efforts to ensure that those who could be potentially affected by the Project were aware of it and knew how they could get involved in the review (Appendix 5 of the NEB Report). The NEB assigned a Process Advisory Team to help participants understand the hearing process and decide how best to participate.

Trans Mountain implemented a Stakeholder Engagement Program designed to foster participation from the public who have an interest in the scope, activities and routing of the Project. The program sought input from stakeholders regarding the proposed pipeline corridor, environmental effects, and socio-economic effects and benefits. The program also shares information with stakeholders to keep them informed throughout the process. Trans Mountain's record of its stakeholder engagement activities were filed during the NEB hearing process, including four consultation updates.

In addition, EAO required Trans Mountain to submit a Stakeholder Engagement Report¹⁶ which summarized engagement with local and regional governments and municipalities, identified the key issues raised by stakeholders, particularly local and regional governments and municipalities throughout the process, and provided a status update regarding the resolution to these issues. Table 1.1-5 in the Stakeholder Engagement Report summarizes the Project changes that Trans Mountain states resulted from stakeholder engagement. Table B-2 in the Stakeholder Engagement Report provides a summary of the issues and the status of resolutions for municipal and regional governments.

¹⁵ Adams Lake Indian Band, Beecher Bay (Scia'new) First Nation, Chawathil First Nation, Cheam First Nation, Coldwater Indian Band, Cook's Ferry Indian Band, Ditidaht First Nation, Esquimalt Nation, Katzie First Nation, Kwantlen First Nation, Kwikwetlem First Nation, Lower Nicola Indian Band, Lyackson First Nation, Maa-nulth Treaty Society, Matsqui First Nation, Musqueam Nation, Nlaka'pamux Nation Tribal Council, Pacheedaht First Nation, Pauquachin First Nation, Shxw'ow'hamel First Nation, Simpcw First Nation, Squamish Nation, Stó:lō Collective, Tsawout First Nation, T'sou-ke First Nation, and Yale First Nation.

¹⁶ http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_document_459_41085.html

Key issues raised by local and regional governments and municipalities included:

- Emergency response;
- Economic benefits/ impacts;
- Lack of community support;
- Impacts to infrastructure and services;
- Environmental impacts; and
- Tanker traffic and marine spills.

Trans Mountain has committed to offer continued engagement opportunities to affected municipalities through the formation of technical working groups to support addressing the concerns raised by municipalities regarding ongoing consultation, particularly during the design and construction phase of the Project. To facilitate the establishment and development of the technical working groups, NEB condition 14 would require Trans Mountain to file with the NEB, prior to commencing construction, the terms of reference for the technical working groups, to be developed in collaboration with participating affected municipalities, and facility owners and operators. NEB condition 13 would require Trans Mountain to file with the NEB for approval, a plan for monitoring potential adverse socioeconomic effects of the Project during construction. NEB condition 131 would require Trans Mountain to file with the NEB, a report describing completed activities and observed outcomes of Trans Mountain's Marine Public Outreach Program, and any further planned activities for this program. The NEB had included several conditions regarding emergency planning, preparedness and response, as described in Section 7 of this report.

In addition, EAO proposes conditions that would require Trans Mountain to continue to engage until the end of operations, to establish and maintain a project website for sharing information, to provide EAO with reports on its public consultation, and to develop a workforce accommodation strategy for construction.

8. Regulatory Oversight and EAO's Proposed Conditions

The EA decision on the Project would form just one phase of the regulatory oversight of the Project and Project-related marine shipping throughout its lifecycle. The NEB would be the primary lifecycle regulator of this inter-provincial pipeline. As described in Section 3 of this Report, if TMX receives approval from Ministers, a number of provincial agencies may be required to make various provincial permitting decisions, which could also include imposing conditions on Trans Mountain. The NEB is responsible to keep its regulated pipelines and facilities safe and secure, and to protect people, property and the environment. To accomplish this, the NEB would review or assess Trans Mountain's condition filings, track condition compliance, verify compliance with regulatory requirements, and employ appropriate enforcement measures where necessary to quickly and effectively obtain compliance, prevent harm, and deter future non-compliance. Many of these conditions require Trans Mountain to consult with appropriate government authorities (including provincial government agencies) and potentially affected Aboriginal groups.

Trans Mountain must prepare plans showing the detailed pipeline route and notify landowners, and a detailed route hearing may be required under NEBA s.35. While some NEB conditions may apply for the life of a pipeline, typically the majority must be satisfied prior to the NEB granting leave to begin operations, or within the first five to six years of operations. However, Trans Mountain would be required to continue to comply with plans and conditions, as well as with the NEB Onshore Pipeline Regulations and other regulatory requirements to operate the pipeline safely and protect the environment.

Pipeline safety is primarily managed and regulated through the NEB, as described in Section 3.6 of the NEB Report. In June 2016 the federal *Pipeline Safety Act* came into effect, which has introduced an additional level of accountability on companies, including absolute liability for all costs and damages irrespective of fault, and additional authority for the NEB, including the ability to order reimbursement of clean-up costs and take control of company incident response. BC has also passed legislation that will allow for the implementation of a world-leading preparedness, response and recovery regime for hazardous substance spills. The key elements of this new spill regime, including an initial set of detailed regulations, will come into effect in 2017.

As discussed in the NEB Report Chapter 14.2, evidence provided during the NEB process by Trans Mountain, Transport Canada, Vancouver Fraser Port Authority, Pacific Pilotage Authority, and the Canadian Coast Guard, outlined a broad and detailed regulatory framework governing safety, security and environmental protection in relation to marine shipping, which would cover Project-related tankers. This includes international conventions and agreements, federal and provincial legislation, regulation and programs, and more regionally-focussed bodies and organizations that have a role in regulating marine shipping activities or in marine spill response. While the federal government has constitutional authority for shipping and navigation, both the provincial and federal governments have shared jurisdiction over the environment, and the provincial government has authority for the management of provincial lands and natural resources.

In addition, there is a range of ongoing and developing federal and provincial government regulatory and policy initiatives that would support the management and mitigation of potential adverse effects to the environment and Aboriginal groups, both generally and specifically in relation to TMX. These include enhancements to federal and provincial spill response regimes, Transport Canada's development of a coastal strategy, and the federal proposal for an Indigenous Advisory and Monitoring Committee for this Project, should TMX be approved. These initiatives are summarized in Section 4.2.5 and 4.2.6 of the CAR.

In consideration of existing legal requirements, and the 157 NEB conditions that would be legally-binding on TMX, EAO proposes to provincial Ministers an additional 37 conditions that Ministers may attach to a provincial EA Certificate, if approved. These proposed conditions are in relation to areas of provincial jurisdiction. EAO recognizes that the NEB has the primary responsibility for ensuring the Project is developed, constructed and operated in a manner that is safe and secure, and protects people, property and the environment. EAO's proposed conditions respond to concerns that have been raised by Aboriginal groups during the joint Crown consultation undertaken for TMX. The proposed

conditions are also in response to the key areas of provincial interest within the EA. The conditions endeavour to ensure that the Project would be developed and operated in a manner that is consistent with provincial policies and programs, in consideration the existing regulatory regime. The conditions also support the ongoing participation of Aboriginal groups in the activities of Trans Mountain, including in implementing the requirements of NEB conditions and proposed provincial conditions.

9. Conclusions

The NEB concluded that:

- With the implementation of Trans Mountain's environmental protection procedures and mitigation, and the NEB's recommended conditions, the Project is not likely to cause significant adverse effects;
- The operation of Project-related marine vessels would result in significant adverse effects to southern resident killer whale, significant adverse effects on the traditional Aboriginal use associated with southern resident killer whale, as well as significant adverse GHG emissions.
- TMX could be constructed, operated and maintained in a safe manner;
- There would be a very low probability of a Project spill that may result in a significant effect (high consequence) and that the level of risk is acceptable;
- There is a very low probability of a marine spill from a Project-related tanker that may result in a significant effect (high consequence) and that the level of risk is acceptable;
- TMX is in Canada's public interest, and it recommends the federal GIC approve the Project and direct the Board to issue the necessary CPCN and amended CPCNs; and
- Should the GIC approve the Project the associated regulatory instruments issued by the NEB would come into effect, and would be subject to the 157 recommended conditions.

Based on:

- Information contained in the NEB Report, Trans Mountain's Application, information filed with the NEB during the review of the Project, and supplemental information provided during the remaining provincial review of the Project;
- The record of consultation and engagement with Aboriginal groups, including by the NEB and Trans Mountain, the federal government, and EAO's efforts at consultation with potentially affected Aboriginal groups, including the joint EAO-MPMO Crown consultation;
- Issues raised by Aboriginal groups regarding outstanding issues and concerns during Crown consultation;
- Commitments and requirements for ongoing consultation and engagement of Aboriginal groups by Trans Mountain and the federal and provincial governments;
- Participation of, and opportunities for the participation of, Aboriginal groups, government agencies, and the public, in the NEB panel process and subsequent regulatory processes;
- Changes to TMX made by Trans Mountain in response to issues raised by Aboriginal groups, federal, provincial and local government agencies, stakeholders and the public;

- Commitments of Trans Mountain, requirements imposed by the NEB conditions, and the regulatory requirements of the federal and provincial governments;
- The federal GIC's approval of the Project on November 29, 2016; and
- Mitigation measures identified as proposed conditions in Schedule B (Table of Conditions) of the EA Certificate to be undertaken by the proponent.

EAO is satisfied that:

- The EA conducted by the NEB has adequately identified and assessed the potential adverse effects of the Project to areas of provincial jurisdiction;
- Practical means have been identified to prevent or reduce any potential adverse effects of the Project to areas of provincial jurisdiction;
- Consultation has been carried out in good faith and the Crown's process of seeking to understand potentially outstanding issues and impacts was reasonable;
- The potential adverse effects on the Aboriginal Interests of Aboriginal groups have been avoided, minimized or otherwise accommodated to an acceptable level; and
- The provincial Crown has fulfilled its obligations for consultation and accommodation to Aboriginal groups relating to the issuance of a provincial EA Certificate.

Appendix 1: Summary of the NEB's conclusions for environmental and socio-economic components

Environment	Component	Summary of the NEB's conclusions	Section of NEB Report
	Air emissions	<p>Air emissions for construction activities are expected to be intermittent, of limited duration, localized, and reversible in less than a year. In the NEB's view construction-related air emissions from the Project are not likely to cause significant adverse effects.</p> <p>Air emissions during operations would primarily be from the Burnaby and WMT, as a result of fugitive emissions from storage tanks and exhaust from tankers during tanker loading, and service and maintenance vehicles and equipment. While some existing ambient air quality concentrations are high, the effects of the Project would be low and cumulatively inconsequential.</p>	10.2.1
	GHG emissions	<p>In consideration of the NEB's conditions to offset to achieve no net emissions, emissions from construction are expected to be fully offset and therefore of low magnitude and not significant. Emissions anticipated during operations would be below national reporting thresholds and therefore not considered significant.</p> <p>The NEB found that as there are no regulatory reporting thresholds or specific requirements for marine GHG emissions in Canada, and as emissions would result in measurable increases, GHG emissions from Project-related marine vessels are likely to be significant.</p>	10.2.2
	Surface water quality and quantity	<p>Surface water quality and quantity effects are expected to be mostly short-term, reversible and generally of low to moderate magnitude taking into account the mitigation, reclamation activities, and post-construction environmental monitoring. The NEB concluded the Project is not likely to cause significant adverse effects.</p>	10.2.3
	Groundwater quality and quantity	<p>Impacts to groundwater quality and quantity are expected to be low to moderate, reversible and primarily short-term. The NEB concluded the Project is not likely to cause significant adverse effects.</p>	10.2.4
	Freshwater fish and fish habitat	<p>Generally, impacts to freshwater fish and fish habitat are expected to be of low magnitude, reversible and short-term. Some individual watercourse crossings have the potential to result in serious harm; however, in these situations, offset measures would be required to compensate for any residual serious harm, and therefore the effects are expected to be of moderate magnitude. The NEB concluded the Project is not likely to cause significant adverse effects.</p>	10.2.5
	Soil and soil productivity	<p>Generally impacts from construction would be low to moderate and reversible in the medium term. At facilities, impacts would be long-term and permanent. The NEB concluded the Project is not likely to cause significant adverse effects.</p>	10.2.6

	Rare plants and lichens, and vegetation communities of concern	Impacts are expected to be low magnitude, reversible and medium-term, with the exception of long-term at facilities and the ROW. The NEB concluded the Project is not likely to cause significant adverse effects.	10.2.7
	Forests	Impacts are expected to be moderate and long-term for clearing the ROW and facilities, but would be reversible. The NEB concluded the Project is not likely to cause significant adverse effects.	10.2.8
	Wetlands	Impacts are expected to be low to moderate and mostly medium term, but some impacts would be long-term from clearing the ROW and facilities. The NEB concluded the Project is not likely to cause significant adverse effects.	10.2.9
	Weeds	Impacts are expected to be low to moderate, short to medium term and reversible. The NEB concluded not likely to cause significant adverse effects.	10.2.10
	Terrestrial wildlife and wildlife habitat	The NEB concluded that the Project is not likely to cause significant adverse environmental effects on wildlife and wildlife habitat. Impacts to Woodland caribou are expected to be moderate and reversible and long-term, but effects are expected to be offset in the medium term. The NEB concluded the Project is not likely to cause significant adverse effects. Impacts to grizzly bear are expected to be low to moderate, long-term and reversible. The NEB concluded the Project is not likely to cause significant adverse effects.	10.2.11
	Parks and protected areas	Effects of the Project on valued environmental components within the parks are considered in sections for fish habitat, vegetation and wildlife (Sections 10.2.5, 10.2.7 and 10.2.11). No separate effects conclusion.	10.2.12
	Marine sediment and water quality	Impacts are expected to be low, short to long-term and reversible. The NEB concluded the Project is not likely to cause significant adverse effects.	10.2.13
	Marine fish and fish habitat	Impacts are expected to be low to moderate, medium-term and reversible. NEB reported that some effects could be considered permanent (e.g., mortality of an individual marine fish); however, they are not expected to result in noticeable changes to marine fish abundance. The NEB concluded the Project is not likely to cause significant adverse effects.	10.2.14
	Marine mammals	Impacts are expected to be low, medium-term and reversible. The NEB concluded the Project is not likely to cause significant adverse effects.	10.2.15
	Marine birds	Impacts are expected to be low at the population level, long-term and reversible. The NEB concluded the	10.2.16

		Project is not likely to cause significant adverse effects.	
People, communities and lands	Occupancy and resource use	The NEB is of the view that the effects to other users, land use, and visual quality would be acceptable following mitigation. The views of the NEB are provided on p. 253-255 of the NEB Report.	11.2
	Infrastructure and services	The NEB is of the view that, with Trans Mountain's commitments and the NEB conditions, the Project's potential adverse effects on the infrastructure and services of communities in proximity to the Project, including the Project's contribution to cumulative effects, can be effectively addressed.	11.3
	Social and cultural well-being	Based on Trans Mountain's commitments and the NEB conditions, the NEB is of the view that the Project's effects on the social and well-being of communities can be effectively addressed.	11.4
	Employment and economy	The NEB agreed with Trans Mountain's assessment, and concluded that there would be positive economic benefits, including revenues for various levels of government, and employment for local, regional and Aboriginal individuals and business, and that these effects are likely to occur during construction and continue for at least the 20 initial years of operation.	11.5
	Heritage resources	The NEB found that with Trans Mountain's obligation to meet provincial requirements, its commitments and the NEB conditions, the construction and operation of the pipeline facilities and the WMT are not likely to cause significant adverse environmental effects on heritage resources, including with respect to Aboriginal people. The NEB found that in the event of a credible worst-case spill, environmental effects to heritage resources could be adverse and significant. However, as discussed in the NEB Report Chapter 9, the NEB is of the view that, should the Project be designed, constructed and operated according to the fulfillment of its certificate conditions and Trans Mountain's commitments, the probability of such an event is very low. Therefore, the NEB concluded that there are not likely significant adverse effects for the purposes of CEEA 2012.	11.6
	Traditional land and marine resource use	The NEB is of the view that during construction and operations, the Project is not likely to cause significant adverse environmental effects on the lands, waters or resources used for traditional purposes by Aboriginal groups, and is not likely to cause significant adverse effects on the ability of Aboriginal groups to utilize lands, waters or resources for traditional purposes. The NEB found that in the event of a credible worst-case spill, environmental effects to the lands, waters or resources used for traditional purposes by Aboriginal groups would be adverse and significant. However, as discussed in the NEB Report Chapter 9, the NEB is the view that, should the Project be designed, constructed and operated according to the fulfillment of its certificate conditions and Trans Mountain's commitments, the probability of such an event is very low. Therefore, the NEB concluded that there are not likely significant adverse effects for the purposes of CEEA 2012.	11.7

	Human health	The NEB is of the view that its requirements relating to emergency preparedness and response are also protective of human health. The NEB is of the view that its conditions, along with the commitments by Trans Mountain, can effectively address any effects on human health via potential Project impacts to groundwater. The NEB is of the view that with Trans Mountain's proposed measures and commitments, and with the NEB conditions, the construction and operations of the pipeline and WMT are not likely to cause significant adverse effects on community health, including of Aboriginal communities.	11.8
	Need for the project and economic feasibility	The NEB found that increasing pipeline capacity for the purpose of accessing Pacific Basin markets is important to the Canadian economy and that this economic benefit of the Project is significant. The NEB is satisfied that the Project would likely be used at a reasonable rate over its economic life and that the tolls would be paid.	12.0
	Financial matters	The views of the NEB in relation to the appropriateness of Trans Mountain's business structure and financial assurances are provided on p. 314 and p. 319-322 of the NEB report.	13.0
Marine shipping, emergency preparedness and response	Project-related increase in shipping – effects assessment	<p>Trans Mountain will be required to adhere to all federal and international emission requirements to reduce emissions from the Project-related marine shipping. The NEB found that the increase in operational air emissions from the tankers is expected to be of long-term (expected to occur for the operational life of the tankers), reversible (emissions will reverse shortly once the tankers exit the area), low to moderate magnitude, and expected to disperse. In addition, the NEB finds that the contribution from Project-related marine shipping to total cumulative effects on marine air emissions is not likely to be significant given that there is an existing regulatory regime that governs the air emissions from the tankers.</p> <p>Given that there are no regulatory reporting thresholds or specific requirements for marine GHG emissions in Canada, and that the modelled emissions would result in measurable per cent increases as noted above, the NEB finds the magnitude of these emissions to be high. Consequently, the Board finds that GHG emissions from Project-related marine vessels are likely to be significant.</p> <p>Compliance with Ballast Water Control and Management Regulations of the <i>Canada Shipping Act, 2001</i> would effectively minimize any potential introduction of aquatic invasive species from Project-related marine vessels. Therefore, the NEB has not provided a detailed assessment of the potential effects on marine fish from the introduction of aquatic invasive species from Project-related ballast water.</p> <p>The NEB is of the view that the southern resident killer whale population has crossed a threshold where any additional adverse environmental effects would be considered significant. The NEB finds that the operation of Project-related marine vessels is likely to result in significant adverse effects to the southern resident killer whale.</p>	14.3

	<p>Project-related marine shipping (mortality and sensory disturbance) on marine birds are expected to be long-term and would vary in spatial extent. Effects are expected to be reversible, and of low magnitude and that population-level effects are not likely to occur, even in the absence of specific mitigation.</p> <p>Recognizing the stated cultural importance of the killer whale to certain Aboriginal groups, the NEB finds that the increase in marine vessel traffic associated with the Project is likely to result in significant adverse effects on the traditional Aboriginal use associated with the southern resident killer whale.</p>	
Spill prevention	Views of the NEB are provided in the NEB Report p. 376.	14.4
Emergency preparedness and response	Views of the NEB are provided in the NEB Report p. 386.	14.5
Effects of a spill	Views of the NEB are provided in the NEB Report p. 386, 390, 392, 397, 399, 400, 401 and 404.	14.6
Financial responsibility, liability and insurance	Views of the NEB are provided in the NEB Report p. 407.	14.7

Appendix 2: Summary of proposed provincial EA Conditions to respond to concerns raised by Aboriginal groups

Aboriginal Group Comment/ Issue (key themes) ¹⁷	NEB Condition No.	Proposed EA Conditions ¹⁸
On-going consultation and opportunities to participate in the Project and process	2; 10; 12	<ul style="list-style-type: none"> • Consultation (2): Sets EAO’s expectations of the proponent to ensure appropriate consultation occurs on any condition that requires the proponent to consult. • Aboriginal Consultation Reports (10): Requires the proponent to report on engagement with Aboriginal groups, including in relation to NEB Condition requirements and provincial EA Certificate conditions. • Involvement of Aboriginal Groups in Construction and Post Construction Monitoring (12): Requires the proponent to prepare a plan to support the participation of Aboriginal groups in construction and post- construction monitoring. <p>Several other proposed EA conditions, many described in this table also require consultation with potentially affected Aboriginal groups.</p>
Pipeline construction and operations and potential social effects	13, 23, 24	<ul style="list-style-type: none"> • Aboriginal Cultural Awareness and Recognition (13): Requires the proponent to engage with impacted Aboriginal groups to seek to identify opportunities for cultural awareness and recognition and to endeavor to implement such opportunities. • Worker Accommodation Strategy (23): Requires the proponent to prepare a worker accommodation strategy that must, in addition to meeting all of the requirements set out in NEB Condition 59, identify Aboriginal groups whose asserted traditional territory or Treaty lands overlap with the locations of the temporary worker camps, describe how the potential environmental and social-economic impacts of temporary worker camps on potentially impacted Aboriginal groups has been assessed, and include a description of relevant mitigation measures. • Workforce Conduct (24): Requires the proponent to implement and enforce an employee and contractor code of conduct that includes prohibiting hunting, fishing trapping and plant gathering by the Holder’s employees and contractors during work hours.
Construction and operations and potential effects on Aboriginal Interests (e.g. hunting, trapping, gathering, fishing)	16,17,18,19, 20, 22	<ul style="list-style-type: none"> • Wildlife Species at Risk Offset Plan (16); Grizzly Bear Mitigation and Monitoring (18 & 19); Caribou Mitigation and Monitoring (20): Requires the proponent to consult with relevant Aboriginal groups in the development of these plans. • Weed and Vegetation Management Plan (17): Requires the proponent to engage with Aboriginal groups and private land owners regarding options for vegetation control before the proponent uses herbicides, and to describe the measures to mitigate impacts to traditional use plants and opportunities for Aboriginal groups to salvage, harvest or translocate traditional use plants in the areas to be cleared.

¹⁷ List of key issues reflected in this table is a summary and is not exhaustive.

¹⁸ Conditions are summarized in this table. Please see Schedule B (Table of Conditions) for the complete condition wording.

		<ul style="list-style-type: none"> • Access Management Plan (22): Requires the proponent to prepare an access management plan or plans for the pipeline ROW that must, in consideration of NEB Condition 47, include road deactivation measures for temporary construction roads, set out the types, locations and rationale for all access that will be required for the Project, and identify measures to avoid or mitigate disruption caused by the Project to members of Aboriginal Groups carrying out traditional use activities. It also must include the means by which access within the riparian area of fish-bearing streams, will be minimized.
Construction and operations and potential effects on Aboriginal Interests related to cultural heritage	27	<ul style="list-style-type: none"> • Archaeology – Heritage Resources (27): Requires the proponent to develop a plan, in consultation with Aboriginal groups, for the mitigation of any impacts of the Project on archaeological and heritage resources in accordance with the <i>Heritage Conservation Act</i>, and to include opportunities for Aboriginal monitors, develop a chance find procedure, and integrate site-specific information from Aboriginal groups.
Pipeline and facilities accidents and malfunctions	30, 31,32, 33, 35, 36, 37	<ul style="list-style-type: none"> • Pipeline Design to Reduce Spill Risk (30); Oil Spill Containment and Recovery (OSCAR) Units (31); Emergency Response Plans (32); Geographic Response Plans (33); Emergency Preparedness and Response Exercise and Training Program and Reporting (36); Pre-Operations Emergency Response Exercises (37): Requires the proponent to undertake various actions, in consideration of the NEB conditions, to improve spill preparedness and response. Aboriginal Groups, as identified based on the location of each emergency response exercise, will be invited to observe or participate in the exercises. Condition 32 requires the proponent to develop and implement, in consultation with Aboriginal groups, in-land based geographic response plans. The proponent must consult Aboriginal groups in the development of emergency response plans (31), which must include a description of how the proponent will coordinate the participation of first responders, agencies, municipalities and regional districts, and Aboriginal groups that may be involved in an emergency response related to the Project. • Fate and Behaviour of Bitumen Research (35): Requires the proponent to provide a report regarding the current and future research programs that the proponent is leading, jointly leading, supporting, or otherwise involved in regarding the behaviour and clean-up of heavy oils spilled in freshwater and marine aquatic environments, with the objective of providing spill responders with improved information on how to effectively respond to spills. The report must be developed in consultation with the MOE, MNGD, OGC, ECCC, Canadian Coast Guard and Aboriginal groups.
Marine shipping and accidents and malfunctions	11, 34, 35	<ul style="list-style-type: none"> • Aboriginal Marine Outreach Program (11): Requires the proponent to develop and implement an Aboriginal marine outreach program in consultation with Aboriginal groups that must include the means by which the proponent will communicate with Aboriginal groups regarding relevant marine-related initiatives, programs, and research that the proponent is directly or indirectly involved in to address the impacts of increased Project-related tanker traffic in the Salish Sea; and provide opportunities for continued engagement with Aboriginal groups to identify potential activities and actions that the proponent may

		<p>undertake to support safe Aboriginal traditional marine use and to support on-going education, planning, and capacity related to spill preparedness and response, in consideration of the increased Project-related tanker traffic; and to inform Aboriginal groups of opportunities to participate in or be informed of the identified activities.</p> <ul style="list-style-type: none"> • Coastal Geographic Response (34): Requires the proponent to participate in BC coastal geographic response planning undertaken by the provincial government, federal government or a certified response organization if requested by the provincial government, federal government or a certified response organization. • Fate and Behaviour of Bitumen Research (35): (See above).
Water	25, 26	<ul style="list-style-type: none"> • Coldwater Aquifer (25): Requires the proponent to retain one or more Qualified Professionals to prepare a hydrogeological report relating to the aquifer at Coldwater Indian Reserve No. 1. • Drinking Water (26): Requires the proponent, in the event a spill originating from the Project is confirmed to have contaminated drinking water, as determined by a Qualified Professional, to provide one or more alternate source(s) of drinking water for all persons who use water for human or animal consumption from the contaminated water source for the period of time during which contamination exists.

Appendix 3: Summary of the Crown's conclusions for depth of consultation and impacts to Aboriginal Interests by Aboriginal groups in BC

BC Interior Aboriginal Groups

Aboriginal Group	Depth of Consultation	Assessed Impact on Aboriginal Interest				Greatest Assessed Impact on Aboriginal Interests
		Hunting, Trapping, and Plant Gathering	Fishing and Harvesting	Other Traditional and Cultural Activities	Aboriginal Title	
Adams Lake	Middle	minor	minor	minor	negligible	Minor
Ashcroft	Middle	minor	minor	minor	negligible	Minor
Bonaparte	Middle	negligible	negligible	negligible	–	Negligible
Boston Bar	middle to deeper	Minor-to-moderate	minor	Minor-to-moderate	minor	Minor-to-moderate
Canim Lake (Tsq'escen)	Lower	minor	minor	negligible-to-minor	negligible	Minor
Coldwater	Deeper	minor-to-moderate	minor-to-moderate	minor-to-moderate	minor-to-moderate	minor-to-moderate
Cook's Ferry	Deeper	minor-to-moderate	minor	minor-to-moderate	minor	Minor-to-moderate
High Bar	Lower	negligible	negligible	negligible	–	Negligible
Kanaka Bar	Middle	negligible	negligible	negligible	–	Negligible
Lheidli T'enneh	Lower	negligible-to-minor	negligible	negligible	negligible	negligible-to-minor
Lhtako Dene	Lower	negligible	negligible	negligible	negligible	Negligible
Little Shuswap Lake	Lower	negligible-to-minor	negligible-to-minor	negligible-to-minor	negligible	negligible-to-minor
Lower Nicola	Deeper	moderate	minor-to-moderate	minor-to-moderate	minor-to-moderate	Moderate
Neskonlith	Lower	negligible-to-minor	negligible-to-minor	negligible-to-minor	negligible	negligible-to-minor
Nicomien	Middle	negligible	negligible	negligible	–	Negligible
Nooaitch	Middle	minor	minor-to-moderate	minor	minor	minor-to-moderate
Nlaka'pamux Nation Tribal Council *	middle to deeper	minor	minor	minor	minor	Minor
Shackan	middle to deeper	minor	Negligible-to-minor	minor	–	Minor
Shuswap	Lower	negligible	negligible	negligible	–	Negligible
Simpcw	Deeper	minor	minor	minor	negligible	Minor
Siska	Middle	Minor-to-moderate	minor	Minor-to-moderate	Minor	Minor-to-moderate
Splats'in	Middle	negligible	negligible	negligible	–	Negligible
Stk'emlupsemc te Secwepemc Nation **	Deeper	minor	minor	minor	minor	Minor
Stswecem'c Xgat'tem	Lower	negligible	negligible	negligible	–	Negligible
Syilx (Okanagan Nation Alliance) ***	Deeper	moderate	minor-to-moderate	moderate	minor-to-moderate	Moderate
Toosey	Lower	negligible	negligible	negligible	–	Negligible
Ts'kw'aylaxw (Pavilion)	Lower	negligible	negligible	negligible	–	Negligible
Whispering Pines/Clinton	Lower	negligible-to-minor	negligible-to-minor	negligible	–	negligible-to-minor
Williams Lake	Lower	negligible	negligible	negligible	–	Negligible

Aboriginal Group	Depth of Consultation	Assessed Impact on Aboriginal Interest				Greatest Assessed Impact on Aboriginal Interests
		Hunting, Trapping, and Plant Gathering	Fishing and Harvesting	Other Traditional and Cultural Activities	Aboriginal Title	
Xats'ull First Nation (Soda Creek)	Lower	negligible	negligible	negligible	–	Negligible

* Nlaka'pamux Nation Tribal Council member groups are Boothroyd Indian Band, Oregon Jack Creek Indian Band, Lytton First Nation, Spuzzum First Nation, Skuppah Indian Band and Boston Bar First Nation.

** Stk'emlupsemc te Secwepemc Nation member groups are Skeetchestn Indian Band and Tk'emlups Band.

*** Syilx (Okanagan Nation Alliance) member groups are Lower Similkameen Indian Band, Okanagan Indian Band, Penticton Indian Band, Upper Nicola Indian Band, Upper Similkameen Indian Band, and Westbank First Nation.

Lower Fraser Aboriginal Groups

Aboriginal Group	Depth of Consultation	Assessed Impact on Aboriginal Interest				Greatest Assessed Impact on Aboriginal Interests
		Hunting, Trapping, and Plant Gathering	Fishing and Harvesting	Other Traditional and Cultural Activities	Aboriginal Title	
Chawathil	Deeper	minor	minor	minor	minor	Minor
Cheam (Pilalt)	Deeper	minor	minor	minor	minor	Minor
Katzie	Deeper	minor	minor	minor	minor	Minor
Kwantlen	Deeper	minor	minor-to-moderate	minor	minor	minor-to-moderate
Kwikwetlem	Deeper	minor	minor	minor	minor-to-moderate	minor-to-moderate
Matsqui	Deeper	minor-to-moderate	minor-to-moderate	minor	negligible	minor-to-moderate
Musqueam	Deeper	minor	minor-to-moderate	minor-to-moderate	minor	minor-to-moderate
Peters	Deeper	minor-to-moderate	minor-to-moderate	moderate	negligible	Moderate
Popkum	Deeper	minor	minor-to-moderate	minor	negligible	minor-to-moderate
Seabird Island	Deeper	minor	minor	minor	negligible	Minor
Shxw'ow'hamel	Deeper	minor-to-moderate	minor	minor-to-moderate	negligible	minor-to-moderate
Squamish	Deeper	negligible-to-minor	minor	minor	minor	Minor
Stó:lō Collective	Deeper	minor	minor-to-moderate	minor-to-moderate	minor-to-moderate	minor-to-moderate
Sts'ailes (Chehalis)	Lower	negligible	negligible	negligible	–	Negligible
Tsawwassen	Deeper	negligible-to-minor	minor	moderate	(treaty)	Moderate
Tsleil Waututh	Deeper	minor	moderate	moderate	minor-to-moderate	Moderate
Union Bar	Deeper	minor	minor	minor	negligible	Minor
Yale	Middle	minor	negligible-to-minor	minor	negligible	Minor

¹Stó:lō Collective member groups are Aitchelitz First Nation, Kwaw-Kwaw-Apilt First Nation, Leq'a:mel First Nation, Shxwha:y First Nation, Skawahlook First Nation, Skowkale First Nation, Skwah First Nation, Soowahlie First Nation, Squiala First Nation, Sumas First Nation, Tzeachten First Nation, Yakweakwioose First Nation, and Scowlitz First Nation.

Vancouver Island and Other Coastal Aboriginal Groups

Aboriginal Group	Depth of Consultation	Assessed Impact on Aboriginal Interest				Greatest Assessed Impact on Aboriginal Interests
		Hunting, Trapping, and Plant Gathering	Fishing and Harvesting	Other Traditional and Cultural Activities	Aboriginal Title	
Cowichan Tribes	Middle	minor	minor	negligible-to-minor	negligible-to-minor	Minor
Ditidaht	Middle	negligible-to-minor	minor	negligible-to-minor	–	Minor
Esquimalt	Middle	negligible	negligible	negligible	(treaty)	Negligible
Halalt	Middle	minor	minor	negligible-to-minor	negligible	Minor
Hwlitsum*	Middle	–	–	–	–	Minor
Lake Cowichan	Middle	negligible	negligible-to-minor	negligible-to-minor	negligible	negligible-to-minor
Lyackson	Middle	negligible-to-minor	minor	moderate	negligible-to-minor	Moderate
Maa-nulth	Lower	negligible	negligible-to-minor	negligible-to-minor	(treaty)	negligible-to-minor
Malahat	Middle	minor	negligible-to-minor	moderate	(treaty)	Moderate
Pacheedaht	Middle	negligible-to-minor	minor	moderate	none	Moderate
Pauquachin	Middle	negligible-to-minor	minor	moderate	(treaty)	Moderate
Penelakut Tribe*	Middle	negligible-to-minor	minor	negligible-to-minor	negligible	Minor
Scia'new (Beecher Bay)	Middle	negligible	negligible-to-minor	negligible-to-minor	(treaty)	negligible-to-minor
Semiahmoo	Lower	negligible-to-minor	minor	negligible-to-minor	negligible	Minor
Snaw-naw-as (Nanoose)	Lower	negligible-to-minor	negligible-to-minor	negligible-to-minor	(treaty)	negligible-to-minor
Snuneymuxw (Nanaimo)	Middle	negligible	negligible	negligible	(treaty)	Negligible
Songhees (Lekwungen)	Middle	negligible-to-minor	negligible-to-minor	negligible-to-minor	(treaty)	negligible-to-minor
Stz'uminus (Chemainus)	Middle	negligible-to-minor	minor	moderate	negligible-to-minor	Moderate
Tsartlip	Middle	negligible-to-minor	negligible-to-minor	moderate	(treaty)	Moderate
Tsawout	Middle	minor	minor	moderate	(treaty)	Moderate
Tseycum	Middle	negligible-to-minor	negligible-to-minor	negligible-to-minor	(treaty)	negligible-to-minor
T'Sou-ke	Middle	minor	minor	moderate	(treaty)	Moderate

* The Crown is of the view that Hwlitsum is a family group/component of Penelakut Tribe. However, the Crown is aware of Hwlitsum's views that it is an Aboriginal group independent of the Penelakut Tribe or any other Cowichan community. Therefore the overall conclusions reported for Hwlitsum are the same as for Penelakut Tribe.