### *1.5.6 Phase 6 Engagement: Ongoing Operational Consultation, Post Construction Throughout Operational Life*

Trans Mountain believes our neighbours, governments and Aboriginal communities play an important role in how we conduct our business. Our success depends on earning the trust, respect, and cooperation of all community members.

We are committed to respectful, transparent and collaborative interactions with communities to develop long term effective relationships. Once the pipeline becomes operational, engagement opportunities will continue through hosting facility open houses, providing newsletters and Project updates, making safety and public awareness presentations, participating in community events, regulatory processes, and ongoing informal meetings with stakeholders.

Initiatives to be activated during this phase will be developed in the lead up to construction. Trans Mountain is committed to ongoing consultation in the communities in which it operates.

## 1.6 Government Relations

The NEB is the responsible Federal Authority for the assessment of the Project. Upon filing of the Trans Mountain Project Description on May 23, 2013, the NEB initiated a preparatory process in anticipation of this Facilities Application being filed. The NEB process included notification of all relevant federal government departments and provincial agencies in Alberta and BC.

In the lead up to the filing of the Project Description and the Facilities Application assessment process, all levels of government (local, provincial, and federal) where elected representatives and their constituents are potentially affected by the Project were engaged by Trans Mountain or provided opportunity to obtain information about the Project through the communications and engagement process described herein. This was undertaken in a manner consistent with the Project policy and vision for engagement whereby outreach and contact was made early and information needs were reasonably met prior to initiation of the formal Facilities Application process.

Local government officials, MLAs of Alberta and BC, and MPs from relevant jurisdictions in Alberta and BC were invited to, and participated in, the Stakeholder Engagement Program including such components as:

- stakeholder and issues identification;
- public information and input gathering;
- community conversations; and
- continuing engagement.

Where engagement with the federal government contributes to the understanding and evaluation of the Project, communications have also been undertaken through the Major Projects Management Office of the Department of Natural Resources. A formal protocol for the coordination of communications among federal departments and Trans Mountain was established.

Regular engagement has been maintained with the governments of Alberta and BC facilitating effective participation in the assessment process by provincial authorities. With respect to BC’s

Five Conditions for the Consideration of Heavy Oil Pipelines, Trans Mountain has consulted with the Province towards the goal of understanding and addressing its conditions.

The Trans Mountain team met twice with representatives of the BC Government Major Oil and Gas Initiatives Executive Director's Committee in 2013 to provide information in general about the Project, but also take questions from attendees. The Committee sought Trans Mountain's presentations to help them understand the role the Province may have with respect to provincial permitting and authority, but also to help prepare for the Province's participation in an anticipated NEB Facilities Application. Topics covered within the two presentations included:

- general project information;
- routing;
- Aboriginal engagement;
- stakeholder engagement;
- ESA studies;
- Marine ESA; and
- TERMPOL/marine risk studies.

## 1.7 Summary of Outcomes

The stakeholder engagement program encompassed a variety of activities to make the Project accessible to stakeholders with a wide range of preferences and interests. Feedback was received through the following:

- comments and questions posted on the Project website's online engagement portal;
- community workshops;
- ESA workshops;
- feedback forms;
- inquiries to the Project phone line and email address;
- municipal workshops;
- presentations and panels;
- public open houses;
- routing open houses; and
- social media stakeholder meetings.

Based on feedback from all sources, the top areas of interest or concern among stakeholders are:

- community capacity building;
- corporate policies;
- land based access;
- engagement process;
- nuisance complaints;
- operations and maintenance;
- regulatory;
- routing;
- safety; and
- terrestrial and marine environmental and socio-economic effects.

Based on comments received during electronic communication, the most common topics discussed through the online questions, the discussion forum and feedback forms were:

- climate change;
- construction;
- current operations;
- dilbit and refining;
- routing;
- economic benefits and impacts;
- employment and training;
- environment;
- liability; and
- safety.

Key topics and issues are relayed to the appropriate Project team representative to be considered, incorporated and addressed in this Application where applicable. Feedback received from the sources listed above is summarized in Table 1.7.1 to Table 1.7.5. Key topics of interest related to the marine regions that were brought up in the pipeline communities (Alberta, BC Interior and the Lower Mainland/Fraser Valley) are summarized in Tables 1.7.1 to 1.7.6. Feedback specific to the Website Forum is summarized in Table 1.7.7. Feedback specific to the ESA Workshops, Community Workshops, and Routing Open Houses is summarized in

Tables 1.7.8 to 1.7.34. Feedback specific to Terminal Open Houses is summarized in Tables 1.7.35 and 1.7.36.

### *1.7.1 Key Topics of Interest or Concern - Alberta (Edmonton to Jasper)*

Figure 1.7.1 displays the key topics of interest or concern in Alberta. This includes all comments from all engagement activities including public information sessions, ESA Workshops, community workshops, and online engagement.

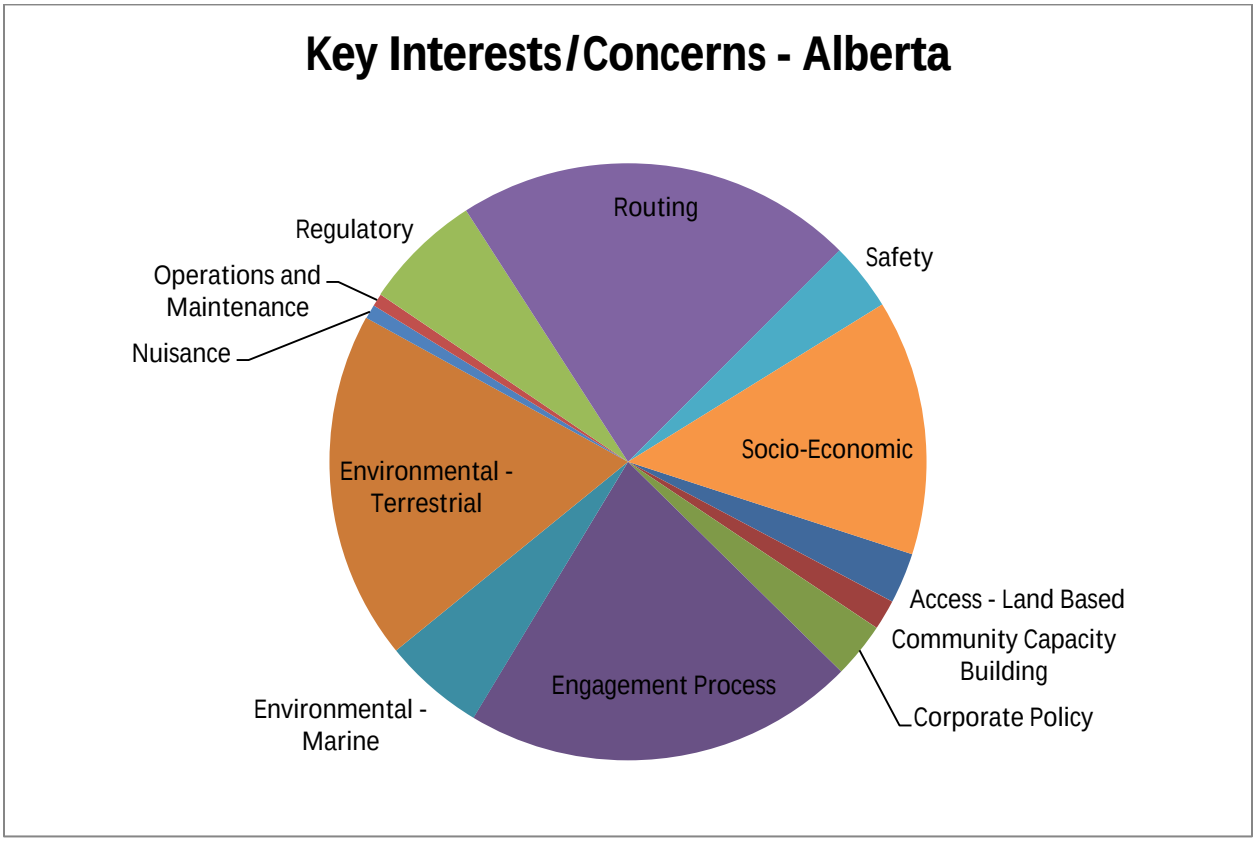


**Figure 1.7.1 Key Topics of Interest or Concern in Alberta**

Table 1.7.1 provides information on the key topics of interest for Alberta, the response to the interest or concern, and where in the Application that key interest or concern is addressed.

## TABLE 1.7.1

## INTERESTS OR CONCERNS – ALBERTA

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| **Corporate Policy** | | | |
| Bitumen | Concern regarding chemical content and properties of bitumen and diluents when compared to refined oil products, the proportion shipped and asked about clean-up methods in the event of a spill. | Bitumen is a heavier, thicker form of petroleum and contains fewer of the lighter hydrocarbon molecules found in conventional crude. In order to make bitumen flow through a pipeline, natural gas liquids or condensate (diluents) are added. This substance referred to as dilbit is made up of both light and heavy hydrocarbon molecules. The resulting density is the average of the materials blended.<br>Some people think dilbit sinks in water. With a maximum density of 0.94, dilbit is lighter than water (density 1.00) and seawater (density 1.03). Additional research is taking place to quantify how the dilbit reacts over time in water, with wave action, with fast-moving currents, with different sediment levels and with various other factors. Other studies have recently been conducted or are underway including the SL Ross Study (Meso-scale Weathering of Cold Lake Bitumen/Condensate Blend). The SL Ross Study was prepared for a Joint Review Panel submission by Enbridge Northern Gateway Project in anticipation of Natural Resources Canada requesting information on the weathering effects of dilbit on water.<br>No scientific basis has been found to claims that dilbit causes greater internal corrosion in oil pipelines than other crude oil sources (Alberta Energy Utilities Board, “Pipeline Performance in Alberta, 1990-2005”). | Volume 7, Section 5.0 Fate and Behaviour of a Hydrocarbon Release |
| Climate Change/Clean Air Technology | Concern over climate change threshold | Trans Mountain is assessing the carbon impact of constructing and operating the proposed expansion of the TMPL and its related facilities. The GHG impacts are outlined in the ESA submitted with the NEB Facilities Application. A carbon management plan will be developed to mitigate (reduce) emissions as much as possible.<br>For upstream or downstream impacts outside of Trans Mountain’s jurisdiction or control, Trans Mountain is acting as a catalyst to influence the industry to help address issues upstream and downstream from the pipeline. Examples include: climate change; oil sands development; shipping practices; emergency spill response; and protecting the ecological integrity of BC and Alberta.<br>Transitioning to a clean energy future takes time, financial investment and a shared commitment between government, industry and Albertans. It requires us to think beyond traditional methods and attitudes and accept that changes are necessary if Alberta is to remain a reliable, global energy provider.<br>The TMPL has a 60-year history of safe and responsible operations. Trans Mountain is designing a project that will account for our impact on communities, the environment, and our economy. A comprehensive assessment of our work are available in both Volumes 5 and 6 of the NEB Facilities Application.<br>The Conference Board of Canada states that over the next five years, more money ($6.1 billion) will be invested in climate friendly technology in Alberta than in all the other Canadian provinces combined. More than $312 million has been collected for a clean energy technology fund, which will be invested to find better ways to cleanly develop resources.<br>Funds are administered through the Climate Change and Emissions Management Corporation and awarded to Projects within the province. The Alberta government is investing $25 million into Carbon Management Canada, a national, university-led research network.<br>Climate change and water use are important issues, which Canada’s oil industry has been addressing through many activities. A lot has changed in the last fifty years and there are some great resources on the CAPP website about climate and water, as well as on the CEPA website. | n/a |
| Community Capacity Building | Trans Mountain opportunities in communities | The Kinder Morgan Foundation has donated almost $2 million in grants to youth organizations, which support education and art programs in many communities where they operate. Additionally, Trans Mountain has a history of supporting education and training. One example is Trans Mountain’s Skill Builder program, which offers condensed utility classes for Aboriginal workers.<br>Trans Mountain is exploring opportunities to provide and support education and training initiatives along the pipeline route; and has begun dialogue with local training institutions. Education and training in areas such as trades, maintenance, operations and environmental management will enhance the capacity of the local labour force to participate in Project opportunities. This will also build transferrable skills that can be used across other industries, and enhance the overall community capacity. | Volume 5B - ESA - Socio-Economic |
| **Environment - Terrestrial** | | | |
| Air | Dust in the air due to construction is perceived to have potential impacts on recreation and neighbourhoods | From the commencement of the staking to the final cleanup, a particular parcel of land could be disrupted for one to two months. This timing can be affected by many variables; however, every effort will be made to minimize impacts to landowners. In areas where there may be a concern regarding the safety of the public, restricted areas will be established. Noise, dust, and other disturbances will be mitigated to avoid the impact on people near the construction. | Volume 5A - ESA - Biophysical<br>Volume 6 – Project Execution |
| | Potential odours emitted during construction and operation of the proposed pipeline hold the potential to be a nuisance | Petroleum odours can be a nuisance for our neighbours, and sometimes they can also signal a problem with our operations. Because safe operations and protection of the environment are always top of mind in our line of work, Trans Mountain investigates and follows up on all odour reports.<br>Trans Mountain strives to minimize the impact of our operations on our neighbours by incorporating odour mitigation measures in our day-to-day activities and Project work. Trans Mountain is taking steps to enhance our early leak detection system and air monitoring/sampling protocol. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.1

## INTERESTS OR CONCERNS – ALBERTA (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Air | Pollution from Oil Sands Development | The Wood Buffalo Environmental Association (WBEA) monitors the air in the oil sands region in and around Fort McMurray, the centre of oil sands production. WBEA does this 24 hours a day, 365 days a year. Monitoring is science-based, transparent and credible. WBEA's air quality monitoring network is one of the most extensive in North America. Air monitoring information is available in real time at www.wbea.org. Data collected over the past 10 years at monitoring stations across Alberta indicate an improving or static trend in air quality across the province. Source: WBEA and CASA | n/a |
| Birds | Protection of migratory bird patterns, decreasing food supply | Trans Mountain will work with Environment Canada and comply with the *Migratory Birds Convention Act* and Migratory Birds Sanctuary Regulations related to the Project components and impacts. Trans Mountain will conduct clearing and preconstruction activities outside the minimum migratory bird restricted activity period (RAP) of May 1 to July 31 where practical. In the event the schedule changes and clearing activities are planned during the migratory bird RAP, a migratory bird nest sweep will be conducted. In the event an active nest is found, a protective buffer will be established around the nest. The size of the buffer will be influenced by the status of the bird. Typically a 30 m buffer is applied to a songbird nest and a 100 m buffer around waterfowl or raptor nests. If a bird species with a provincially or federally recommended setback distance is found, then that buffer will be applied around the nest, unless otherwise authorized by the appropriate regulatory authority.<br>Trans Mountain is aware that small amounts of residual petroleum products found floating on the surface of ponds can pose a threat to the waterfowl landing on the pond. Ponds are settling basins that enable water to be separated, recycled and used over and over. Trans Mountain has such ponds as emergency catchment at its Terminals (Edmonton, AB, Sumas and Burnaby, BC). Several mechanisms are in place to deter birds from landing, including cannons and radar/laser deterrent systems. | Volume 5A - ESA - Biophysical |
| | Protection of waterfowl habitat at wetlands | | |
| | Big Lake - important water body for birds | | |
| Cumulative Effects | Overlap with other Projects and cumulative effects | Trans Mountain is committed to determine the significance of the Project's contribution to cumulative effects and to develop technically and economically feasible mitigative measures. The main sources of cumulative ecological effects are: direct habitat loss; indirect habitat loss adjacent to facilities, clearings, and corridors; and increased mortality from altered inter-species relationships (such as: predation and invasive species) and human activities (such as hunting, road kill). The main sources of cumulative social effects are short or long-term changes in population size, particularly from in-migration; associated demand for goods and services; and indirect effects on community quality of life. | Volume 5A - ESA - Biophysical |
| Noise | Potential noise during construction and noise pollution. | The potential effects on human receptors are not anticipated to extend beyond the Acoustic Environment local study area. Trans Mountain will use well maintained equipment to reduce air pollution and unnecessary noise. Trains Mountain will also restrict the duration that vehicles and equipment are allowed to sit and idle to less than one hour unless air temperatures are less than 0°C.<br>Ambient sound surveys representative of sound levels at noise receptors and existing facilities will be conducted, and all noise level results will be compared to Alberta Energy Resource Conservation Board's Directive 038 Noise Control and the BC Oil and Gas Commission's Noise Control Best Practices Guideline.<br>Standard mitigation plus noise-specific mitigation measures will be implemented along with compliance with local noise by-laws. | Volume 5B - ESA - Socio-Economic<br>Volume 6 – Project Execution |
| | Expectation to remediate the acoustic environment and air quality following tree removal, through replanting and additional planting in other areas. | Trees can act as a natural carbon sink and their removal has the potential to affect air quality by not removing some airborne contaminants during the growing season. In some cases, trees can be a source of natural sound that masks man-made noises. Trans Mountain will not be removing a significant number of trees in this area and does not expect an increase in the noise level in the area around Henday following tree removal. Additionally, Alberta TRANS does not allow replanting in the transportation utility corridor (TUC). In the event that tree removal negatively impacts noise level, Trans Mountain will re-establish suitable trees or shrub species within the temporary work space (TWS) area following construction or at an agreed upon location that would serve to mitigate noise in a manner similar to the trees that were removed. | Volume 5A - ESA – Biophysical<br>Volume 6 – Project Execution |
| Soils | Soil conservation and erosion in the TUC, especially community gardens, local recreational trails | During the construction phase, the Environmental Inspector, in consultation with Trans Mountain's environmental staff, will determine the appropriate procedures to be implemented to control soil erosion and other soil handling problems encountered during construction. Similar procedures will be followed once operational. Where present in non-forested areas, topsoil or strippings will be salvaged to ensure soil productivity is maintained. The width and depth of topsoil or strippings salvaged will depend on the land use, soil conditions, microtopography, regulatory agency requests, and grading requirements. Any salvaged topsoil or strippings will be segregated and stockpiled along the construction right-of-way and at facility sites in low-profile berms or in piles adjacent to the site perimeter. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.1

## INTERESTS OR CONCERNS – ALBERTA (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Soils | Potential impacts of increased erosion on the right-of-way | Appropriate procedures will be implemented to control soil erosion and other soil handling problems encountered during construction. Similar procedures will be followed once operational. Although not exhaustive, examples of control options to be implemented as soon as practical include:<br>· installation of temporary berms of subsoil, logs, timbers, sandbags or bales during construction activities;<br>· installation of silt fences near the base of slopes;<br>· construct cross ditches and berms decreasing the spacing on steeper slopes or on more erodible soils;<br>· apply netting, mulch or tackifier to hold soil;<br>· armour the upslope face of berms with geotextile, logs or sandbags;<br>· transplant native shrubs, plant willow stakes or use other bioengineering techniques; and<br>· install slope indicators at locations where the risk of slope failure, or creep exists; consult a geotechnical engineer. | Volume 5A - ESA - Biophysical<br>Volume 6 - Environmental Compliance |
| Water Quality | Crossing methods at Blackmud and Whitemud creeks | Crossing methods specific to each watercourse will be determined in consultation with engineering, geotechnical evaluations, and environmental specialists, as well as applicable local and regulatory authorities. | Volume 4A, Section 2.10 Watercourse - Crossing Methods<br>Volume 4A, Table 5.1.5 Preliminary Watercourse Stage 2 Review Crossings<br>Volume 5A - ESA - Biophysical |
| | Fish habitat disruption at the North Saskatchewan River | Trans Mountain understands that measures to protect water bodies and riparian areas are critical and will take a multi-layered approach to pipeline safety, including taking measures such as strategically placed pipeline valves near waterways and drilled river crossings at some locations. | Volume 4A, Section 2.10 Watercourse - Crossing Methods<br>Volume 4A, Table 5.1.5 Preliminary Watercourse Stage 2 Review Crossings<br>Volume 5A - ESA - Biophysical |
| | Potential effects of spills on freshwater environments, including wetlands | Safety is our highest priority. Trans Mountain has comprehensive spill response plans in place for TMPL and facilities. These plans are constantly being updated to keep them current and are regularly practiced through deployment exercises. While the specific strategies used in response to a spill will vary depending on the circumstances, the primary objectives in all cases is to ensure safety and to minimize environmental damage. There are a range of strategies available to achieve these objectives including: mechanical recovery (using skimmers), in-situ burning (controlled burning the oil), and dispersion (use of dispersing agents to dilute and disperse the oil reducing its concentration). To ensure there are sufficient funds to remediate a spill, Trans Mountain is covered by insurance necessary to respond to all spills or releases from our pipelines and facilities. Trans Mountain monitors the insurance program continuously, and makes annual adjustments as necessary to ensure adequate coverage. | Volume 5A - ESA - Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Precautions taken to protect streams and lakes (*e.g.*, valves) | Construction through streams will be completed in accordance with all regulatory conditions, the Environmental Protection Plan and utilization of appropriate construction practices. Additionally, water quality will be monitored during all instream activity. Each watercourse will be approached correctly, so the cumulative impact of changes to all the crossings and the surrounding watershed will be limited.<br>Approximately 92 automated MLBVs will be installed along the pipeline for emergency shutdown and isolation of pipeline segments. Automated MLBVs will be constructed within the operating pipeline right-of-way and most will be sited adjacent to existing TMPL valves. Many automated MLBVs will be accessed by existing access roads; however, permanent access roads may be required at yet unspecified locations. It takes approximately 4-5 seconds to connect with devices and shut down valves.<br>Automated MLBVs will require a permanent power source. Typically, new power lines will only be used when there is a source nearby and so reducing additional disturbances. Otherwise, alternative power sources such as solar panels, battery banks and/or nitrogen bottles will be used. Each automated MLBV installation will require a fenced and gravelled operating area of approximately 5 m × 12 m (60 $m^2$). The exact location of MLBVs and power sources utilized will be determined during detailed engineering design.<br>The number of emergency shutoff valves (ESVs) for the proposed line has not yet been determined. The number and locations of ESVs will be guided by modelling studies that factor in local conditions and potential consequences. As Trans Mountain develops detailed design and engineering work, the final locations of the valves will be chosen. Their design will consider the protection of sensitive areas and minimize impacts identified during the routing and design process. | Volume 4B - Project Design and Execution - Construction<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Water table is naturally high and there are buried springs along the west side of Edmonton | The AESRD Water Well database noted one spring on the west side of Edmonton (ID#88953) near the North Saskatchewan River (about 900 m from the proposed route centreline). In that area (southern portion of the west side of Edmonton), the surficial materials contain sand and gravel and are of higher permeability thus increasing the risk for potential contamination of groundwater. With regard to mitigation of concerns around springs, Trans Mountain will develop a mitigation plan commensurate with site specific conditions. During construction, Trans Mountain will avoid blasting near springs and consider other mitigative engineering measures. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.1

## INTERESTS OR CONCERNS – ALBERTA (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Water Quality | Wetland restoration concerns | As part of Trans Mountain's commitment to environmental protection, Trans Mountain will minimize potential adverse impacts to wetlands by:<br>· expediting construction in and around wetlands;<br>· restoring wetlands to their original configurations and contours;<br>· segregating topsoil during excavation;<br>· permanently stabilizing upland areas near wetlands as soon as possible after backfilling;<br>· inspecting the right-of-way periodically during and after construction; and<br>· repairing any erosion control or restoration features until permanent revegetation is successful.<br>Trans Mountain will comply with the applicable permit conditions issued by federal, provincial and local permitting agencies to restore baseline wetland function.<br>As an example of Trans Mountain's commitment to environmental protection and restoration, several major restoration activities were undertaken on the award winning Anchor Loop Project to ensure a positive project legacy in both Jasper National Park and Mount Robson Provincial Park. Some of the legacy benefits of the Anchor Loop project include:<br>· Detailed mapping of the parks;<br>· Over 30 environmental and socio-economic technical reports. These included extensive wildlife species studies that enhanced the knowledge base for the Parks, as well as new information about bird migrations;<br>· Greenhouses to grow indigenous plants for the areas that were subsequently donated to the Hinton Community Garden;<br>· Rebuilt roads and bridges; and<br>· Functional and stable riparian and wetland area.<br>In 2010, KMC received a prestigious Emerald Award from the Alberta Emerald Foundation. Each year, Emerald Awards "recognize and reward the excellent environmental initiatives undertaken each year by large and small corporations, individuals, not-for-profit associations, community groups and governments". | Volume 5A - ESA - Biophysical<br>Volume 6 - Project Execution |
| | Private wells and aquifers | Trans Mountain will review existing geological, hydrogeological and other information to determine potential hydrogeological conditions along the pipeline right-of-way and proposed facilities. GIS mapping and assessment strategies will be applied. Trans Mountain will develop site-specific hydrogeological investigation activities that may include field verified surveys, hydraulic response testing, monitoring requirements and water quality parameter surveys. Trans Mountain will assess water quality and/or quantity changes to nearby groundwater, which could result in adverse effects for other stakeholder or environmental receptors. | Volume 5A - ESA - Biophysical |
| Wildlife | Protection of wildlife habitat, wildlife corridors, migration and endangered species. | The Fish and Wildlife Division of AESRD has developed RAP and setback distance guidelines to provide effective management for selected wildlife species within the Grassland and Parkland natural regions of Alberta. Clearing activities conducted in designated Caribou Zones will be completed by February 15 and where practical, no activities will be conducted during the March 1 to July 15 RAP.<br>Trans Mountain will employ an "early in/early out" approach by initiating construction activities as early as possible in the winter and working expeditiously to limit late winter activities. Additionally, Trans Mountain will discuss the timing of their activity with AESRD and maintain contact with AESRD during the construction period to advise them of the construction progress and anticipated completion date within Key Wildlife Biodiversity Zones.<br>Construction, routine maintenance and operation activities will be scheduled outside the spring period for caribou (generally mid-March to mid-July), unless otherwise approved by AESRD.<br>Every effort is made to minimize impact to wildlife, watercourses and key wildlife biodiversity zones. A detailed environmental protection plan (EPP) is being submitted to the NEB as part of the Application. Volume 6B documents every linear metre of the construction right-of-way and mitigation strategies to help avoid or minimize environmental impacts from construction. | Volume 5A - ESA - Biophysical |
| **Land Private and Public Access** | | | |
| Land Use/Access | Impact to landowner from routing on their properties | Operating and building pipeline infrastructure affects many along the route and Trans Mountain recognizes the potential impact to its neighbours and communities in proximity to operating areas. Trans Mountain works with landowners along its pipeline network. A key objective is to treat each landowner fairly and equitably. For those who may be directly affected by the Project, Trans Mountain will identify and address landowners' concerns and questions about the Project. These landowners will then work with the Land Team to reach jointly equitable solutions for the Project.<br>In the event of a spill, Trans Mountain would endeavour to return any affected properties to an equivalent or better condition than existed before the spill. These efforts could include landscaping, and interior and exterior renovations, if applicable. | Volume 3C – Landowner Relations<br>Volume 7, Section 2.0 - Measures to Prevent and Mitigate Oil Spills |
| | Mitigations for trail-users during and after construction | Trans Mountain is conducting environmental studies along the proposed pipeline corridor to gather data for the environmental assessment. This assessment will consider the potential environmental impacts of the construction, operation, and maintenance of the pipeline; the assessment considers ways in which these impacts can be minimized or avoided altogether; and mitigation and reclamation strategies that will further reduce these impacts.<br>Overall, Project-related impacts on recreation use are being addressed in the | Volume 4B - Project Design and Execution - Construction<br>Volume 5B - ESA - Socio-Economic<br>Volume 6 - Project Execution |

## TABLE 1.7.1

## INTERESTS OR CONCERNS – ALBERTA (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | ESA. This will include development of mitigation plans to reduce impacts and optimize opportunities to enhance recreational use.<br>Proposed mitigation/enhancement measures will be part of the final ESA. The ESA is expected to be completed in late 2013 and then will be carried forward into the planning and design of the Project. | |
| | Land Rights | Trans Mountain has established and maintained relationships with landowners, neighbours, and communities along the pipeline corridor for the last 60 years. Trans Mountain does not have the right to expropriate land from landowners. Expropriation is a legal term that conveys the right of an entity to acquire private property for a purpose deemed to be in the public interest. Expropriation is sometimes used by agencies such as municipalities to obtain private lands for a public use such as a roadway.<br>In rare cases, the NEB could grant a Right-of-Entry Order to a pipeline company where the landowner and the company are unable to reach agreement and the NEB determines the Project is in the public interest. This type of order is made under the *NEB Act* that grants a company access to and use of a defined portion of land for the purposes set out in the order – such as the building and maintaining of a pipeline. This is a long and involved process and is not the way Trans Mountain wishes to conduct its business. Trans Mountain's goal is to treat all landowners fairly and equitably. | Volume 3C – Landowner Relations |
| | Existing routing through residential areas and private property | Since the TMPL began operating in 1953, many communities have grown and developed around the pipeline right-of-way. It is important to understand that while the pipeline may be near homes and private property, it does not run under any buildings. Living or being active near our pipeline does not pose a health risk. In fact, there are community trails, sporting events, community gardens and all kinds of businesses and agricultural activities safely co-existing near the TMPL.<br>Where practical, the route for the proposed expanded pipeline will remain along the existing TMPL right-of-way. Where land use has changed since the pipeline went into operation in 1953, there may be a need to route parts of the new line away from the existing TMPL right-of-way. In these cases, Trans Mountain will look at alternatives through comprehensive routing studies in combination with its consultation process. | Volume 4A, Section 2.8 - Pipeline Corridor and Route Centreline Selection Process<br>Volume 5B – ESA – Socio-Economics |
| Forestry Rights/Timber | Tree removal and vegetation management along existing and new rights-of-way | Timber and brush disposal options will be subject to agreements with landowners and appropriate government authorities. Where present in non-forested areas, topsoil or strippings will be salvaged to ensure that soil productivity is maintained. The width and depth of topsoil or strippings salvage will depend on the land use, soil conditions, microtopography, regulatory agency requests and grading requirements. Any salvaged topsoil or strippings will be segregated and stockpiled along the construction right-of-way and at facility sites in low-profile berms or in piles adjacent to the site perimeter. Equipment used during topsoil or strippings handling activities will include bulldozers, graders and backhoes.<br>In forested areas where erosion is not expected, natural revegetation or seeding using a native seed mix will be the preferred methods of reclamation. In agricultural areas, an appropriate seed mix will be planted in consultation with the landowner and regulatory authority. Restoration activities and monitoring activities typically extend for a number of years following construction to ensure areas disturbed during construction are satisfactorily restored. | Volume 5A - ESA - Biophysical<br>Volume 6 - Project Execution |
| **Operations and Maintenance** | | | |
| Right-of-way Maintenance | Poor Vegetation management along the TUC in Edmonton | Vegetation management on the right-of-way is an integral part of our comprehensive approach to pipeline safety. It allows Trans Mountain to protect the pipeline, ensure public safety, and provide access for maintenance, inspections, and emergency response. Vegetation management is a planned process, which Trans Mountain conducts regularly and has done before in other areas along the pipeline route.<br>Trans Mountain will facilitate this program through the identification and assessment of vegetation of concern to ensure that the TMPL system is able to continue to safely operate for many years to come. Trans Mountain works closely with the City of Edmonton to implement a plan for vegetation management on the right-of-way and endeavours to balance the requirements for pipeline safety with minimizing the impact of the required work to the environment and neighbouring areas. | Volume 6 - Project Execution |
| **Construction** | | | |
| Construction | The season of construction is important – participants generally expressed a preference for winter construction throughout Alberta. | It is expected that construction will take place in four or five pipeline construction spreads in each of the three construction seasons (two in summer and one in winter) for a total of 15 spreads. Each construction spread is expected to range from 30 to 100 km in length. The timing and number of construction spreads might change based on more detailed engineering and environmental studies, and construction planning. | Volume 4B – Project Design and Execution – Construction<br>Volume 6 - Project Execution |
| | Strong preference that construction crews should use existing local facilities and suppliers where practical | Expanding the TMPL system will create both short- and long- term job opportunities in Alberta communities along the pipeline route and an increase in tax revenue for the provincial and local governments.<br>Of the total construction and long-term operating expenditures related to the Project, approximately 32 per cent (or $3.5 billion) is to be spent in Alberta. The estimated job impact is 17,000 person-years (full-time equivalents) of employment in Alberta during construction and operations. For example, during the peak construction period of the TMEP and associated facilities, construction hubs are to be established along the route. Hubs will be filled with construction workers, who will spend money on accommodation, meals and other local goods and services.<br>The Project is also anticipated to generate substantial provincial and municipal tax revenue for Alberta. Over the life of the Project (based on an assumption of six years of design and construction and 30 years of operations), approximately $163 million in increased provincial tax revenues | Volume 4B, Section 5.3 - Security<br>Volume 5B – ESA – Socio-Economic<br>Volume 6 - Project Execution |
| | Suggestions to implement adequate signage and fencing will be required in urban areas particularly where there is a potential for children-at-play. | | |
| | Important to community and quality of life that | | |

## TABLE 1.7.1

## INTERESTS OR CONCERNS – ALBERTA (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Project maintains the preservation of parks and protected areas | are anticipated in Alberta, as well as additional municipal tax revenues of about $100 million ($3.2 million annually).<br>The proposed expanded operations are anticipated to create 40 new full-time permanent positions in Alberta.<br>*Note: All figures on this page are based on the proposed expansion of the TMPL at a proposed capacity of 890,000 barrels per day (bbl/d). These estimates will change as economic impact figures are updated to reflect Project design changes and economic conditions.*<br>Extensive dialogue with all landowners, neighbours, Aboriginal Peoples, communities, and other stakeholders is underway and will continue throughout the construction and post-construction phases.<br>At the beginning of the Project, an easement and any additional temporary workspace required for construction will be staked out. This area, normally less than 45 m in width, will then be cleared of all trees and brush. The topsoil will also be removed and carefully stockpiled for future reclamation. Public awareness campaigns will be undertaken to notify local communities when, where and for how long construction and/or disturbances may take place.<br>From the commencement of staking to final cleanup, a particular parcel of land could be disrupted for 3 to 12 months. This timing is affected by variables such as winter construction, where we cannot complete final clean-up until summer. In areas where there may be a concern regarding the safety of the public, restricted areas will be established. Noise, dust and other disturbances will be mitigated to avoid impacting people near the construction.<br>Trans Mountain is fully committed to environmental management, protection and stewardship of the land during the construction and operation of all its facilities.<br>A comprehensive ESA will be completed for the Project. There will be over 30 environmental surveys completed by local and regional biologists and resource specialists. The results of the surveys will be incorporated into an application to be submitted to the NEB for review and approval. Species of special status and their habitats will be identified and assessed as part of the ESA.<br>Through the development of thousands of kilometres of pipelines, there have been a number of mitigation strategies developed that can be employed to minimize impacts to wildlife and wildlife habitat. These can range from avoiding important wildlife periods through the timing of construction, to conducting detailed surveys immediately prior to construction.<br>Where practical, the route will remain within the existing TMPL right-of-way, which will minimize new disturbances to ecological communities.<br>Trans Mountain has not finalized the pipeline route or construction plans and will consider landowners concerns during these phases.<br>Every effort is made to minimize impact to landowners. Project construction will leverage the latest in building technologies with well-trained, safety-conscious work crews in all areas of construction. Public awareness campaigns will be undertaken to notify local communities when, where and for how long construction and/or disturbances may take place. | |
| Reclamation | Project restoration to return areas to as good a condition post-construction as pre-construction. Example of restoration standard as applied to Jasper National Park. | Trans Mountain is committed to best practices in reclamation, always striving for opportunities leading to advancement. As with all of its construction projects, Trans Mountain will reclaim any areas that are affected by the Project. Trans Mountain is committed to full reclamation of the pipeline right-of-way and surrounding areas following construction. Following construction, Trans Mountain aims to return the right-of-way to preconstruction conditions, to the extent possible. This could include adding new footpaths, developing new habitats, improving water crossings or bettering migration corridors. Reclamation efforts could include the planting of native plant and grass species, riparian and wetland areas, wildlife habitats, and any other areas disturbed during construction. Post-construction monitoring and ongoing right-of-way maintenance will continue following construction.<br>As an example of Trans Mountain's commitment to environmental protection and restoration, several major restoration activities were undertaken on the award winning Anchor Loop Project to ensure a positive project legacy in both Jasper National Park and Mount Robson Provincial Park.<br>In 2010, KMC received a prestigious Emerald Award from the Alberta Emerald Foundation. Each year, Emerald Awards "recognize and reward the excellent environmental initiatives undertaken each year by large and small corporations, individuals, not-for-profit associations, community groups and governments". | Volume 6 - Project Execution |
| **Regulatory** | | | |
| Process | Toll and NEB Facilities Applications | On June 29, 2012, Trans Mountain filed a Toll Application for NEB approval of the toll or fee structure that would be implemented on the Project. This Toll Application addresses commercial matters pertaining to the tolls that would be charged to the shippers.<br>Trans Mountain will apply for a CPCN under Section 52 of the *NEB Act*, authorizing Trans Mountain to build and operate the necessary facilities for the Project. Trans Mountain is planning to file the Facilities Application with the NEB in late 2013. Trans Mountain has allowed an amount of time before filing the Facilities Application so that it can undertake extensive Aboriginal, landowner and stakeholder engagement activities as well as detailed environmental, socio-economic assessment, and engineering activities.<br>If the NEB makes a recommendation to approve the Project and if the federal cabinet gives the final go-ahead, the NEB's involvement with the Project and engagement with the public will continue. The NEB takes a life cycle approach to regulation. With any Project approval, the NEB sets forth conditions that must be followed by the company. The NEB follows up with inspections to ensure the company is meeting the conditions and to ensure that the Project is constructed and continues to operate in a safe manner for | n/a |

## TABLE 1.7.1

## INTERESTS OR CONCERNS – ALBERTA (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
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| | | the benefit of Canadians. This means that the NEB doesn't just make a decision and move on to the next application. For the most part, the NEB is involved in Projects from start to finish – from the Application process to the construction phase to the long-term operations and ultimately to the abandonment of a pipeline. | |
| **Routing** | | | |
| Routing | Potential reroutes | Pipelines are installed within a strip of land known as the right-of-way. Before the right-of-way is selected, an assessment corridor is determined, and studies are undertaken to identify potential routes. During the spring and summer of 2013, online and in-person discussions took place about the proposed pipeline route for the Project. Maps showing the proposed study corridors and, where applicable, proposed alternative corridors for the Project were included in the discussions and were also available on the website.<br>To date, Trans Mountain has had discussions with the stakeholders about the proposed pipeline route and what it would mean for the community in Edmonton, Edson, Hinton, Parkland County, Yellowhead County and Anchor Loop communities. Following a series of open houses, stakeholders requested that Trans Mountain conduct focused engagement on the proposed route as soon as it was identified. In response, Trans Mountain held routing open houses in May through July of 2013 in communities where the routing had changed. The attendees for the routing discussion involved the most impacted stakeholders and representatives from a broad range of organizations who represented each community's economic, environmental, recreational and land use interests. Trans Mountain continues to circle back to gather feedback and input about the study corridor identified in Alberta and looks forward to continuing the conversation throughout the life of the Project. | Volume 4B - Project Design and Execution - Construction |
| | Clearcutting and vegetation management in Callingwood and Brander Gardens neighbourhoods | Vegetation management on the right-of-way is an integral part of our comprehensive approach to pipeline safety. It allows Trans Mountain to protect the pipeline, ensure public safety, and provide access for maintenance, inspections and emergency response. Vegetation management is a planned process which Trans Mountain conducts regularly and has done before in other areas along the pipeline route.<br>Trans Mountain has been working with the City of Edmonton and nearby residents and sought input for its operational restoration plans. The operations restoration activities were undertaken in August and September of 2013 and included general site cleanup and native grass seeding in the area from the North Saskatchewan River hilltop to Wolf Willow Crescent. In Brander Gardens on the upper east valley slope, Trans Mountain has completed the required preparatory work and is set to plant 50 bushes. Trans Mountain also installed bumpers as a safety precaution across the right-of-way at Wolf Willow Crescent next to the existing City of Edmonton trail access gate and also at the top of the North Saskatchewan River slope. | Volume 4B - Project Design and Execution - Construction<br>Volume 5A - ESA - Biophysical<br>Volume 6 - Project Execution |
| | Routing through recreational areas and facilities<br>Proximity to schools, hospitals<br>Utility crossings<br>Routing across roads and intersections<br>Municipal land use and development plans | Where practical, the alignment of the proposed expansion route will parallel the existing TMPL. Trans Mountain recognizes that many regional changes have occurred since the pipeline was installed 60 years ago and that some routing decisions made in 1952 would be different if made today. In some areas, Trans Mountain is looking at options that go beyond the current operational corridor. Alternate routes for the proposed expanded pipeline may be necessary, especially in areas where land use has changed since the pipeline was built nearly 60 years ago. The selection of the proposed pipeline corridor included both field and desktop assessments of the existing TMPL right-of-way and alternative routing locations and resulted in a preferred route. The preferred route meets all requirements of the NEB, the Canadian Standards Association (CSA), and all applicable regulatory authorities, and was chosen on the basis of minimal new disturbance and public impact. Where practical, the route for the proposed expanded pipeline will remain along the existing TMPL right-of-way. Where land use has changed since the pipeline went into operation in 1953, there may be a need to route parts of the new line away from the existing TMPL right-of-way. In these cases, Trans Mountain will look at alternatives through comprehensive routing studies in combination with its consultation process. To minimize impacts to the urban landscape and landowners, the proposed route of the new pipeline would follow existing linear infrastructure, such as municipal streets or highway, railway or utility corridors, or in some cases parklands.<br>In communities where routing may deviate from the existing TMPL right-of-way, Trans Mountain will discuss and apply routing considerations and decision-making criteria in discussions with local stakeholders. Trans Mountain will continue to engage and communicate with communities as new information becomes available. Trans Mountain will continue to contact landowners along the existing TMPL right-of-way, and when route alternatives are selected, Trans Mountain will work with landowners to identify mutually agreeable solutions to concerns. | Volume 4B - Project Design and Execution - Construction<br>Volume 3B - Landowners<br>Volume 5B - ESA - Socio-Economic |
| | Location of valve sites (existing and new) | Valves and other fittings are installed at intermediate locations as required by the CSA pipeline code. The valves are used once the line is operational to shut off or isolate part of the pipeline. Approximately 92 automated MLBVs will be installed along the pipeline for emergency shutdown and isolation of pipeline segments. Automated MLBVs will be constructed within the operating pipeline right-of-way and most will be sited adjacent to existing TMPL valves. Many automated MLBVs will be accessed by existing access roads; however, permanent access roads may be required at yet unspecified locations. Automated MLBVs will require a permanent power source. Typically, new power lines will only be used when there is a source nearby, thereby reducing any additional disturbance. Otherwise, alternative power sources such as solar panels, battery banks and/or nitrogen bottles will be used. Each automated MLBV installation will require a fenced and gravelled operating area of approximately 5 m × 12 m (60 $m^2$).<br>The exact number of ESVs for the proposed line has not yet been determined. The number and locations of ESVs will be guided by modelling studies that factor in local conditions and potential consequences. As Trans | Volume 4B - Project Design and Execution - Construction |

## TABLE 1.7.1

## INTERESTS OR CONCERNS – ALBERTA (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
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| | | Mountain develops detailed design and engineering work, the final locations of the valves will be chosen. Their design will consider the protection of sensitive areas and minimize impacts identified during the routing and design process. | |
| | Routing across nearby wetlands, aquifers, lakes, streams | Special precautions, such as completing construction through wetlands and watercourses during the winter months when the ground is frozen, will be conducted at river and stream crossings along the pipeline route where practical. Additionally, water quality will be monitored during all instream activity. Each watercourse will be approached correctly, so the cumulative impact of changes to all the crossings and the surrounding watershed would be limited and will be done in accordance to regulatory requirements and stakeholder input. | Volume 4B - Project Design and Execution - Construction<br>Volume 5A - ESA - Biophysical |
| | Existing TMPL right-of-way would conflict with neighbourhoods, terrain, and land use. | TMPL currently crosses over 2,200 private properties, as well as public lands, traditional territories and Aboriginal Reserves. Long-standing agreements are in place with landowners, Aboriginal groups, municipalities, and crown agencies along the route that have allowed Trans Mountain to build and operate the existing pipeline. These land agreements grant pipeline companies – such as Trans Mountain – the right to use these lands to build, operate and maintain pipelines. | Volume 2 – Project Overview |
| **Safety** | | | |
| Emergency Planning and Response | Existing routing through residential areas and private property | Trans Mountain has in place a comprehensive emergency preparedness and response program in accordance with the environment, health and safety (EHS) Policy and Section 32 of the NEB Onshore Pipeline Regulations (NEB 1999). In the event of a release that could impact local residents or the environment, Trans Mountain will call 911 to notify and activate local community emergency response organizations. Based on the significance of the event, Company personnel will also notify local residents by going door to door, supplementing by periodic press releases or media advisories, posting material to websites and using social media where appropriate.<br>If releases occur, Trans Mountain implements an air monitoring program for the protection of responders and local area residents. In the event the potential exists for hydrocarbon vapours to reach unsafe concentrations in the community, the local police force will be advised to initiate evacuation.<br>Trans Mountain uses the ICS to manage incidents. ICS outlines clear roles and responsibilities with respect to emergency response and includes Unified Command for coordination with Federal, Provincial, Municipal and Aboriginal agencies. Trans Mountain works closely with local emergency responders and regularly practice table top and deployment exercises. From alert to isolation, this procedure takes about 15 minutes or less. If an incident were to occur, Trans Mountain can act quickly to protect its employees and the public as well as mitigate any harm to the environment or property.<br>Teams prepare for these worst-case scenarios on a regular basis using the Trans Mountain Emergency Response Plan (ERP) and the ICS. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Pipeline protection (against terrorism). Reporting a suspicious person | Trans Mountain is prepared not only for product releases, but a variety of other emergencies as well, such as fire, security breaches and natural disasters including earthquakes, floods, lightning strikes and avalanches. Teams prepare for these worst-case scenarios on a regular basis using the Trans Mountain ERP and the ICS. In the event of a pipeline emergency or suspicious activity, people can call 911 and their local pipeline emergency Trans Mountain System number: (Alberta, BC, or Washington State) 1.888.876.6711. | |
| | Incident/Spill reporting process for the public | The pipeline is monitored 24 hours per day using a sophisticated leak detection system as well as pressure and flow alarms and Trans Mountain is prepared to shut the pipeline down immediately if there is any indication of potential problems on the pipeline. Trans Mountain works closely with local police and fire departments, government agencies, regulators and Aboriginal communities in developing and maintaining comprehensive plans to ensure preparedness for any type of potential emergency. ERPs are constantly being updated to keep them current. Stakeholders noticing warning signs such as a strong gasoline, petroleum or rotten egg smell or petroleum liquid on the ground near the pipeline should:<br>· Leave the area immediately – on foot, and in an upwind direction.<br>· Extinguish ignition sources. If you are in a vehicle with the ignition on, turn it off.<br>· When safe to do so, call 1-888-876-6711. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Spill response time to leaks | In the event of a release, and in addition to prevention measures, steps would be taken to minimize the consequence of a release by quickly shutting down and isolating the damaged section of the pipeline or facility. Trans Mountain has developed comprehensive emergency response procedures that control centre and local operators must follow. These procedures, together with aerial and ground patrols, calls from the public to Trans Mountain's toll-free emergency number, and continuous Supervisory Control and Data Acquisition (SCADA) monitoring and leak detection systems combine to form the first line of defense in reducing the consequences of a spill. In addition to this, all Trans Mountain pump stations and terminals have automated leak detection and containment systems that are monitored continuously in the control centre. In the event of a facility leak, automatic emergency shutdown protection will immediately isolate the facility and trigger a call out of local personnel to investigate further.<br>The TMPL system is remotely controlled and monitored from a control centre located at the Edmonton Terminal using a SCADA system. The SCADA system provides continuous operating information to control centre operators, who are responsible for operating the TMPL system. The SCADA system contains a real-time transient leak detection system that monitors flow metering and other instrumentation across the pipeline. This information provides input to a hydraulic model that simulates pipeline operating conditions and compares the simulated result to the actual operating | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |

## TABLE 1.7.1

## INTERESTS OR CONCERNS – ALBERTA (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
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| | | conditions along the pipeline. Through this analysis, the SCADA system will generate alarms if flow imbalances exceed threshold levels. Control centre operators are responsible for and empowered to shut down the pipeline if the SCADA system analysis indicates that a leak might have occurred.<br>It takes approximately 4-5 seconds to connect with devices and shut down valves. The number of ESVs for the proposed line has not yet been determined. The number and locations of ESVs will be guided by modelling studies that factor in local conditions and potential consequences. As Trans Mountain develops detailed design and engineering work, the final locations of the valves will be chosen. Their design will consider the protection of sensitive areas and minimize impacts identified during the routing and design process. | |
| Emergency Planning and Response | Pipeline communities recommended education in regard to spill prevention - both Trans Mountain's role and the role of the public. | Trans Mountain is exploring opportunities to provide and support education and training initiatives along the pipeline route, and has begun dialogue with local training institutions.<br>Education and training in areas such as trades, maintenance, operations and environmental management will enhance the capacity of the local labour force to participate in Project opportunities. This will also build transferrable skills that can be used across other industries, and enhance the overall community capacity.<br>Trans Mountain has a history of supporting education and training. One example is Trans Mountains Skill Builder program, which offers condensed utility classes for Aboriginal workers. | |
| | Potential for community participation in monitoring the pipeline and clear information regarding who to call in the event of an emergency | | |
| | WCMRC response capacity | WCMRC is comprised of a team of spill response professionals (biologists, environmentalists, engineers, fire and police, and others trained specifically in the handling of oil products), and is funded through a tariff charged to every vessel entering PMV.<br>Their ability to effectively manage and direct spill response procedures within the first few hours after response activation reduces the negative impacts oil can have on the surrounding environment.<br>In the event of a spill, WCMRC personnel immediately respond with carefully designed strategies and countermeasures. WCMRC maintains various response-oriented warehouses and equipment caches that can be activated such as containment booms, skimmers and vessels. Incident Command team members, supervisors, vessel skippers and crew, technical assistance personnel, advisors, and others are pooled from within WCMRC and from its network of partners across Canada, the USA, and around the world. | |
| Pipeline Integrity | Condition of existing pipeline | The existing TMPL system has been successfully operating for almost 60 years as a result of continuing proactive maintenance and integrity programs. With a strong focus on inspection and proper maintenance, pipelines can operate indefinitely. | n/a |
| | Pipeline life expectancy | With a strong focus on inspection and proper maintenance, pipelines can be operated indefinitely. | Volume 4B - Project Design and Execution - Construction |
| | Pipeline materials and coating | Pipeline coating materials comply with current industry practice and the current CSA Z662-11 standards. | |
| | Location of Valves | Approximately 92 automated MLBVs will be installed along the pipeline for emergency shutdown and isolation of pipeline segments. Automated MLBVs will be constructed within the operating pipeline right-of-way and most will be sited adjacent to existing TMPL valves. Many automated MLBVs will be accessed by existing access roads; however, permanent access roads may be required at yet unspecified locations. Automated MLBVs will require a permanent power source. Typically, new power lines will only be used when there is a source nearby, thereby reducing any additional disturbance. Otherwise, alternative power sources such as solar panels, battery banks and/or nitrogen bottles will be used. Each automated MLBV installation will require a fenced and gravelled operating area of approximately 5 m × 12 m (60 $m^2$). The exact location of MLBVs and power sources utilized will be determined during detailed engineering design.<br>The number of ESVs for the proposed line has not yet been determined. The number and locations of ESVs will be guided by modelling studies that factor in local conditions and potential consequences. As Trans Mountain develops detailed design and engineering work, the final locations of the valves will be chosen. Their design will consider the protection of sensitive areas and minimize impacts identified during the routing and design process. | |
| Pipeline Integrity | Materials to be used for new pipeline (origin of materials) | Pipeline integrity begins with sourcing the materials – oil pipelines are generally constructed from steel with an inner diameter typically ranging from 100 to 1,200 mm (4 to 48 inches). The steel used is of the highest quality and manufactured to stringent CSA specifications, which include chemistry and material properties. Through production, transportation to the job site, and installation, quality management processes are in place to ensure the pipe fully meets the requirements. | Volume 4B - Project Design and Execution - Construction |
| | Pipeline monitoring and maintenance program (*e.g.*, smart pigs, digs for repairs/replacements) | Trans Mountain's integrity management program uses an integrated approach to ensure the long-term functional integrity of its pipeline system. The core of the program is the identification of hazards that are considered potential threats to safe and reliable pipeline operations, and the concept of tailoring the program to implement proactive measures to prevent such hazards from occurring. The integrity management program is continuously evolving in response to potential hazards to the safe operation of the system. Corrosion control for all pipelines will be provided by an impressed-current cathodic protection system. Pigs will be used upon successful completion of hydrostatic testing. Tested sections will be dewatered using pigs (foam or rubber sealing plugs) propelled through the pipeline by compressed air. Testing programs will be subject to NEB approval. Appropriate designs and construction practices will be implemented to meet technical standards and | Volume 4B - Project Design and Execution - Construction |

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## INTERESTS OR CONCERNS – ALBERTA (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
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| | | protect the safety of workers and the public.<br>Internal inspection tools called Smart Pigs are sent down the pipeline with the product. Carrying onboard computers and sensors, they measure the diameter of the pipe and the thickness of the pipe wall and can detect dents, gouges or other damage to pipeline. Ultrasonic or electromagnetic acoustical transmission (EMAT) testing further detects signs of any corrosion or cracks that have initiated in the pipe. In general, cleaning pigs are run on mainline sections of the TMPL on a monthly basis. | |
| Risk Assessment | Risk of Pipelines | Trans Mountain recognizes that risk assessments are important to stakeholders as a tool to identify and mitigate risks associated with a project. As part of a mandatory risk modelling process in Canada that originated in the USA, Trans Mountain has an evolved formalized risk assessments program in place. Pipeline integrity, risk management and emergency management are part of our engagement and communications. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| **Socio Economic** | | | |
| Compensation | Property rights, land use and compensation for landowners | Through respectful dialogue, Trans Mountain's goal is to negotiate mutually-agreeable arrangements with each landowner, who may be impacted by the Project. In cases where Trans Mountain is unable to reach a mutually-agreeable arrangement, the NEB has a multi-step process that Trans Mountain will follow to address differences of opinions as part of the routing review and approval process. More information about the process from the NEB is available here: www.neb-one.gc.ca/clf-nsi/rthnb/pblcprtcptn/pplnrgltncnd/pplnrgltncnd_ndx-eng.html> Pipeline Regulation in Canada: A Guide for Landowners and the Public | Volume 3C - Landowner Relations<br>Volume 5B - ESA - Socio-Economic |
| Economic Impact/Benefits | Municipal tax increases<br>Economic benefits resulting from construction activities | Overall, the proposed expansion will enhance Canada's ability to reach diversified markets with its oil, while also increasing tax revenues that can be used to fund government projects and services Canadians depend on, such as health care, education, roads and infrastructure.<br>Trans Mountain plans to spend $5.4 billion by the end of 2017 to construct the line and associated facilities, and a further $2.4 billion to operate it for the first 20 years. British Columbia's economy is forecasted to grow by $2.8 billion (GDP) through construction-related spending, and up to $11.3 billion including Project operations through to 2037<br>The Project is also anticipated to generate substantial provincial and municipal tax revenue. Provincial governments revenues associated with the Project are anticipated to be in the order of $1.7 billion, with BC provincial government receiving $1 billion in provincial taxes and Alberta receiving over $0.4 billion in provincial taxes. Municipal tax revenues which can support community services and infrastructure are estimated to increase approximately $23 million annually, or $460 million over 20 years of operations. In Alberta, municipal property taxes are estimated to increase approximately $3.4 million annually, or $68 million over 20 years of operations. In communities along the pipeline route annual property tax payments to more than 20 local governments and more than 24 Aboriginal communities would jump to $52.4 million from $25.9 million per year at present.<br>Expanding the TMPL system will create both short- and long- term job opportunities in BC communities along the pipeline route. Construction is scheduled in 2016 and 2017 with an estimated 4,500 workers at peak manpower. Trans Mountain expects to create 108,000 person-years of employment, from construction and the first 20 years of operations across Canada; of this 66,000 person years of employment will be in BC and 25,000 will be in Alberta (related to direct project spending as well as supply chain effects and spending of wages). In communities where construction activities concentrate, the economic impacts will be significant. During the peak construction period of the TMEP and associated facilities, construction hubs will be established along the route for the staging of work and accommodation of workers. Construction workers residing in construction hub communities will spend money on accommodation, meals and other goods and services, which will create spin-off benefits for local businesses and economies. A large number of the total construction workforce will come from the communities directly along the route, including nine in BC. In larger communities it is estimated up to 30 per cent of the workforce will be local hires.<br>The proposed expanded operations are anticipated to create 40 new full-time permanent positions in Alberta and 50 new full-time permanent positions in BC. | Volume 5B - ESA - Socio-Economic |
| Employment Opportunities | Vendor Opportunities; Jobs/Contracts during construction period | The Trans Mountain database is tagging the job/vendor emails accordingly and interested parties are encouraged to sign up for the latest updates on the website. At the appropriate time, this database will be accessed to provide information to those that have registered. | Volume 5B - ESA - Socio-Economic |
| | Permanent operations jobs | Overall, the proposed expansion will enhance Canada's ability to reach diversified markets with its oil, while also increasing tax revenues that can be used to fund government projects and services Canadians depend on, such as health care, education, roads and infrastructure.<br>The Project will also lead to new jobs in the short and long term, job-related training opportunities, and increases in taxes collected through all three levels of government. The proposed expanded operations are anticipated to create 40 new full-time permanent positions in Alberta and 50 new full-time permanent positions in BC.<br>In addition, Trans Mountain plans to spend $5.4 billion by the end of 2017 to construct the line and associated facilities, and a further $2.4 billion to operate it for the first 20 years. British Columbia's economy is forecasted to grow by $2.8 billion (GDP) through construction-related spending, and up to $11.3 billion including Project operations through to 2037.<br>Trans Mountain expects to create 108,000 person years of employment, from | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.1

## INTERESTS OR CONCERNS – ALBERTA (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | construction and the first 20 years of operations across Canada; of this 66,000 person years of employment will be in BC and 25,000 will be in AB (related to direct project spending as well as supply chain effects and spending of wages). In communities where construction activities concentrate, the economic impacts will be significant. | |
| | Location of jobs<br>Location of construction spreads<br>Timing of construction | It is expected that construction will take place in four or five pipeline construction spreads in each of the three construction seasons (two in summer and one in winter) for a total of 15 spreads. Each construction spread is expected to range from 30 to 100 km in length. The number of construction spreads might change based on more detailed engineering and environmental studies, and construction planning.<br>Large mainline work crews will construct most of the pipeline within each construction spread. Smaller specialty work crews will work in parallel with the mainline work crews to complete construction of non-standard pipeline sections, such as at road, rail, utility and watercourse crossings. Specialty contractors will be used for construction in urban or industrial areas to ensure safe pipeline and facilities installation. | |
| | Training programs and opportunities | Trans Mountain is exploring opportunities to provide and support education and training initiatives along the pipeline route, and has begun dialogue with local training institutions. Education and training in areas such as trades, maintenance, operations and environmental management will enhance the capacity of the local labour force to participate in Project opportunities. This will also build transferrable skills that can be used across other industries, and enhance the overall community capacity. | Volume 5B - ESA - Socio-Economic |
| Recreational Use | Potential impacts to water-based recreation and tourism | There are no designated recreational sites along the proposed Alberta segment. Outdoor recreational activities, such as hunting, camping, hiking, mountain biking and snowmobiling are expected to occur at numerous locations along the Alberta segment. Recreational fishing occurs on the large watercourses and lakes. During construction Trans Mountain will provide advanced and ongoing notification to users of the area to ensure they are fully aware of the activities that will and are occurring. | Volume 5B - ESA - Socio-Economic |
| | Use of TMEP right-of-way as a recreational trail in Yellowhead County | Trans Mountain is open to discussing recreational use of the right-of-way. Walking, hiking and biking are all great activities for the right-of-way. Trans Mountain does restrict motorized vehicle access like snowmobiles and ATVs because they can cause disturbance to the ground. Trans Mountain is open to discussing opportunities to leave infrastructure post construction to benefit recreational users in Yellowhead County. | |
| | Potential opportunity to leave infrastructure (*e.g.*, swamp mats, crossing structures) behind to benefit recreational trails. | Should TMEP impact recreational user's infrastructure during construction, mitigation processes will ensure the infrastructure is left in the same, if not better condition. Actual methods will be discussed with landowners and or permit holders, prior to construction. | Volume 5B - ESA - Socio-Economic |
| Social and Cultural Well Being | Impacts to outdoor recreation and tourism; Historical sites, sport fishing | Outdoor recreational activities, such as hunting, camping, hiking, mountain biking, canoeing, trail rides; wildlife viewing and snowmobiling are expected to occur at numerous locations along the proposed pipeline corridor. Recreational fishing occurs on the large watercourses and lakes. During construction Trans Mountain will provide advanced and ongoing notification to users of the area to ensure they are fully aware of the activities that will occur and are occurring.<br>Should the Project impact recreational user's infrastructure during construction, mitigation processes will ensure the infrastructure is left in the same, if not better condition. Actual methods will be discussed with landowners and or permit holders. Trans Mountain is open to discussing opportunities to leave infrastructure post construction to benefit recreational users.<br>The social, economic, cultural, and physical well-being of local residents along the proposed expansion route are important to Trans Mountain. Forthcoming socio-economic studies will examine potential impacts related to a range of different factors of the human environment including the extent to which project-related activities, toxic components, nuisances and environmental changes could have human health effects (HHRA), and the consideration of community health and wellbeing.<br>Archaeology studies will also be undertaken to examine potential impacts related to archaeological, paleontological and historical sites.<br>Trans Mountain is committed to best practices in reclamation, always striving for opportunities leading to advancement. As with all of its construction projects, Trans Mountain will reclaim any areas that are affected by the proposed pipeline Project including the pipeline right-of-way and surrounding areas following construction. This could include adding new footpaths, developing new habitats, improving water crossings or bettering migration corridors. Post-construction monitoring and ongoing right-of-way maintenance will continue following construction.<br>Project-related impacts on recreation use are being addressed in the ESA. This will include development of mitigation plans to reduce impacts and optimize opportunities to enhance recreational use. | Volume 5B - ESA - Socio-Economic |
| | Use of infrastructure and services by construction crews (*e.g.*, roads, hotels, food services) and potential impacts or use. | Trans Mountain recognizes that the Project is a major infrastructure project and, as such, the public will have an interest in the Project's scope, environmental assessment and routing. Trans Mountain has begun and will continue to engage in meaningful consultation with affected stakeholders regarding socio-economic impacts and benefits.<br>The Project's objective, where feasible, is to maximise local sourcing and content. This will be undertaken in discussion and engagement with local communities and businesses. | |

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## INTERESTS OR CONCERNS – ALBERTA (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Social and Cultural Well Being | Residential areas | Where practical, the alignment of the proposed expansion route will parallel the existing TMPL. Trans Mountain recognizes that many regional changes have occurred since the pipeline was installed 60 years ago and that some routing decisions made in 1952 would be different if made today.<br>Where new roads and infrastructure have been built, and patterns of land use have changed with the growth of communities, Trans Mountain is listening to landowners and will consider deviating from the existing route while balancing operational, engineering, environmental, community and economic factors.<br>It is Trans Mountain's intention to find a route for the proposed pipeline, which minimizes impact to residences and communities. Where privately-held land is needed for the proposed new route, land agents from Trans Mountain will discuss proposed locations of the pipeline with landowners. Our goal is to reach mutually-acceptable agreements with landowners to allow Trans Mountain to build and maintain the TMEP. | |
| | Agricultural and resource extraction land uses (human occupancy and resource use - disruption to agricultural and grazing activities and farm productivity) | Agricultural land uses such as grazing pastures, field crops, organic and specialty crops (*e.g.*, blueberries, raspberries, nurseries) and livestock facilities are located along the proposed pipeline corridor. Trans Mountain is working with landowners to reduce the potential disturbance to agricultural lands and disruption of agricultural practices during construction. Appropriate mitigation (*e.g.*, soil handling, erosion control) and monitoring activities will be implemented during construction to maximize reclamation success. Additional special reclamation measures will be applied, as required, to return the disturbed areas to a stable and maintenance-free condition. As part of the proposed post-construction environmental monitoring (PCEM) program, Trans Mountain will monitor revegetation growth on the construction right-of-way and implement remedial measures where necessary. | Volume 5B - ESA - Socio-Economic |
| | Awareness/mitigation of potential social issues with influx of workers into communities, and increase in traffic. Does Trans Mountain have a traffic management plan? | Socio-economic studies are being undertaken to assess existing conditions and types of land use in the Project area, as well as possible impacts. Mitigation strategies and management plans will be developed through discussions with regulators, Aboriginal communities, municipalities and stakeholders to help minimize the potential effects of the Project on biophysical and human environments. All of these reports will be posted on the Project's website and the NEB website once Trans Mountain's Facilities Application is submitted in late 2013.<br>Trans Mountain's engagement process will continue throughout the development of the Facilities Application to the NEB, and after it is filed in late 2013. Opportunities for stakeholders to provide feedback, express concerns and submit suggestions will be available through the entire process until the proposed expanded pipeline operations begin, if the Project is approved. | |
| | Sexually-transmitted diseases and teen pregnancies are associated with an influx of temporary male residents and participants asked about impacts on health in the community. | Trans Mountain recognizes that the construction of the Project will require a large workforce and may exert an influence on health in nearby communities. The effects of an influx in temporary workers would primarily manifest in those communities acting as a construction hub for construction workers and in particular, those communities that have relatively small resident populations compared to the size of the temporary Project workforce.<br>As the Project Team continues its detailed design of the Project, community readiness discussions will be part of the ongoing engagement. | Volume 5B - ESA - Socio-Economic |

### *1.7.2 Key Topics of Interest or Concern – BC Interior (Valemount to Hope)*

Figure 1.7.2 displays the key topics of interest or concern in BC Interior. This includes all comments from all engagement activities including public information sessions, ESA Workshops, community workshops and online engagement.

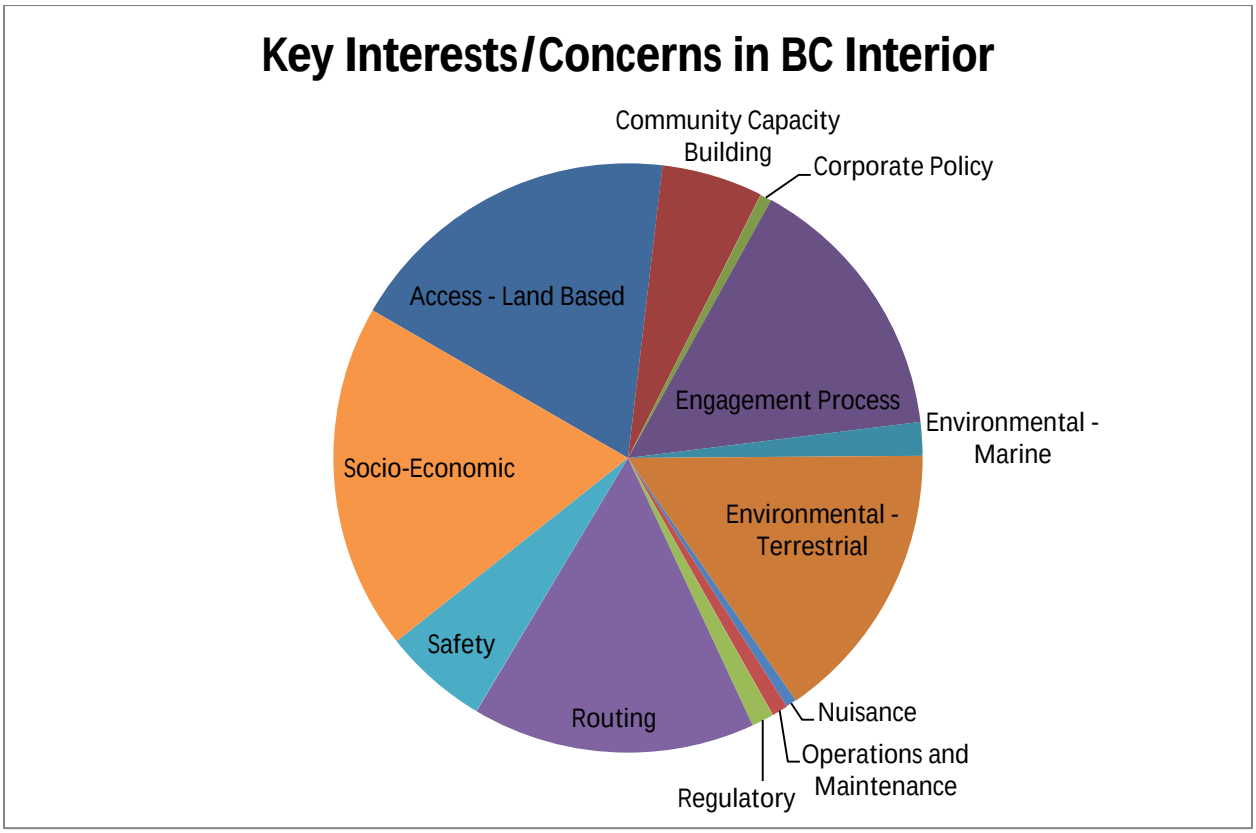


**Figure 1.7.2 Key Issues or Concerns in BC Interior**

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| **Corporate Policy** | | | |
| Community Capacity Building | Trans Mountain support for local communities | Trans Mountain is exploring opportunities to provide and support education and training initiatives along the pipeline route, and has begun dialogue with local training institutions. Education and training in areas such as trades, maintenance, operations and environmental management will enhance the capacity of the local labour force to participate in Project opportunities. This will also build transferrable skills that can be used across other industries, and enhance the overall community capacity. The Kinder Morgan Foundation has donated almost $2 million in grants to youth organizations which support education and arts programs in many communities where they operate. Additionally, Trans Mountain has a history of supporting education and training. One example is Trans Mountain's Skill Builder program, which offers condensed utility classes for Aboriginal workers. | Volume 5B - ESA - Socio-Economic |
| Economic Feasibility | Insurance to cover the cost of an oil spill<br>Liability for oil spills<br>Compensation after spills | In Canada, liability and compensation for ship-source oil spill pollution are governed by *the Canada Shipping Act* and *Marine Liability Act*. Both acts reflect Canada's commitment to international conventions administered by the IMO, such as those regarding the International Oil Pollution Compensation (IOPC) Funds. Up to $1.312 billion is available for an individual spill. Liability for an oil spill depends on the source of the spill. Trans Mountain would cover the costs of a spill clean-up and restoration and then recover them from insurance or third parties if applicable.<br>Trans Mountain carries liability insurance to provide coverage for all aspects of spill management, including compensation and remediation. There are a variety of industry-funded sources available to cover the costs of cleaning up such a spill. Visit IOPC Funds (http://www.iopcfunds.org/) to learn about the IOPC Funds, and Ship-source Oil Pollution (SSOP; http://www.ssopfund.gc.ca/english/) Fund to learn about Canada's Ship-source Oil Pollution Fund.<br>As part of an ongoing commitment to safety and environmental protection, Trans Mountain takes responsibility for the cleanup and remediation of spills by responding immediately to any release from the pipeline system. Trans Mountain works with pre-qualified and trained consultants and contractors to ensure any spill is cleaned up as quickly as possible while ensuring the safety of the public and minimizing impacts to the environment. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Climate Change/Clean Air Technology | Concern over climate change threshold | Trans Mountain is assessing the carbon impact of constructing and operating the proposed expansion of the TMPL and its related facilities. The GHG impacts will be outlined in the ESA submitted with the NEB Facilities Application. A carbon management plan will be developed to mitigate (reduce) emissions as much as possible.<br>For upstream or downstream impacts outside of Trans Mountain's jurisdiction or control, we will also describe how Trans Mountain is acting as a catalyst to influence the industry to help address issues upstream and downstream from the pipeline. Examples include: climate change; oil sands development; shipping practices; emergency spill response; and protecting the ecological integrity of BC and Alberta.<br>Transitioning to a clean energy future takes time, financial investment and a shared commitment between government, industry and British Columbians. It requires us to think beyond traditional methods and attitudes and accept that changes are necessary if Canada is to remain a reliable, global energy provider.<br>TMPL has a 60 year history of safe and responsible operations. Trans Mountain is designing a project that will account for our impact on communities, the environment and our economy. A comprehensive assessment of our work will be available in the ESA when Trans Mountain files the Facilities Application to the NEB.<br>The Conference Board of Canada states that over the next five years, more money ($6.1 billion) will be invested in climate friendly technology in Alberta than all the other Canadian provinces combined. More than $312 million has been collected for a clean energy technology fund, which will be invested to find better ways to cleanly develop resources.<br>Funds are administered through the Climate Change and Emissions Management Corporation and awarded to projects within the province. The Alberta government is investing $25 million into Carbon Management Canada, a national, university-led research network.<br>Climate change and water use are an important issues which Canada's oil industry have addressed through many activities. A lot has changed in the last fifty years and there are some great resources on the CAPP website about climate and water. As well as on the Canadian Energy Pipeline Association website. | N/A |
| **Engagement Process** | | | |
| Engagement | Community Input | All input received through the stakeholder engagement program will be considered by the Project team in developing and designing the Project. Opportunities to provide your feedback, express concerns and submit suggestions will be available through the entire process until the proposed expanded pipeline operations begin, if the Project is approved.<br>When input is received from a stakeholder, the stakeholder engagement team shares that input with the relevant discipline group. For example, questions or concerns about watercourses would be directed to the Project Environment Team, who will then take the comments into account in designing their studies and in assessing impacts and developing mitigation measures.<br>All comments received at information sessions, at public meetings, through the website, online engagement, email address, info line, and other engagement methods will be documented in Trans Mountain's Application to the NEB.<br>The Application will include a description of comments and concerns raised by stakeholders along with a description of how Trans Mountain plans to address these comments. The Application to the NEB will be a public document and is anticipated to be filed in late 2013. | N/A |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| **Environment - Marine** | | | |
| Tankers | Tanker sizes | The largest vessels calling at the Trans Mountain Westridge Marine Terminal are Aframax tankers – due to harbour restrictions, they are loaded only up to 80 to 90 per cent of their 650,000-barrel capacity. Aframax tankers are considered mid-size range of tankers that operate globally. The proposed expansion at the Westridge Marine Terminal is based on the loading of Aframax tankers, the same tankers currently being loaded at Westridge. | Volume 8A - Marine Transportation |
| | Responsibility for cleanup and costs in the event of a spill from a tanker | In Canada, liability and compensation for ship-source oil spill pollution are governed by the *Canada Shipping Act* and *Marine Liability Act*. Both acts reflect Canada's commitment to international conventions administered by the IMO, such as those regarding the IOPC Funds. Up to $1.312 billion is available for an individual spill.<br>As part of an ongoing commitment to safety and environmental protection, Trans Mountain takes responsibility for the cleanup and remediation of spills by responding immediately to any release from the pipeline system. Trans Mountain works with pre-qualified and trained consultants and contractors to ensure any spill is cleaned up as quickly as possible while ensuring the safety of the public and minimizing impacts to the environment.<br>During any cleanup, biologists and environmental consultants are on site to help with their areas of expertise. These partners work in tandem with the WCMRC and Western Canadian Spill Services (WCSS), both of which are organizations built specifically to respond to marine spills. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Impacts from an increase in number of tankers in Burrard Inlet on pleasure craft use | The marine component of the proposed expansion is under development. PMV currently handles 250 vessels of all types on a monthly basis. At present, the Westridge Marine Terminal handles approximately eight vessels per month (five of which are tankers) — representing less than three per cent of the total traffic in PMV. Should the proposed expansion be approved, the number of vessels, including tankers and barges, being loaded at the Westridge Marine Terminal could increase to approximately 37 per month (34 of which could be tankers) in 2017, or about 14 per cent of today's total PMV vessel traffic.<br>In addition to Trans Mountain's internal standards and procedures, the stringent regulations and requirements of Transport Canada, Canadian Coast Guard (CCG), PPA and PMV provide oversight and ensure that oil tankers navigate local waters safely. All tankers in local waters are double hulled and guided by BC Coast Pilots. PMV-led changes have benefited all local marine traffic by improving navigation safety.<br>PMV is Canada's largest and busiest port, and additional tanker traffic required for the Project would represent a comparatively minor proportion of vessel activity within the port. Nonetheless, Trans Mountain has committed to completing a 'TERMPOL' submission in support of the Project. The TERMPOL review process refers to the Technical Review Process of Marine Terminal Systems and Transshipment Sites. This process focuses on operational ship safety, route safety in Canadian waters, and the environmental concerns associated with bulk loading or unloading of oil, chemicals, or liquefied gases at a marine terminal system. The TERMPOL process is managed by Transport Canada and conducted by a committee (Transport Canada 2001). | Volume 8A - Marine Transportation |
| | Tug boat escorts and tanker pilotage | The PPA is the federal organization responsible for the administration of the *Pilotage Act* on the West Coast of Canada. The principal mandate of the PPA is to provide safe, reliable and efficient marine pilotage and related services in the coastal waters of BC including the Fraser River.<br>The British Columbia Coast Pilots Association (BCCPA) is the organization that provides service to the PPA under the Pilotage Act and the Canada Shipping Act, 2001. Pilots have to meet rigorous knowledge and experience requirements and then be examined and certified by the PPA.<br>Empty tankers inbound for Westridge Marine Terminal are required to pick up a pilot at the Victoria pilot station at Brotchie Ledge. Under the pilot's guidance, and with the supervision from the CCG's Marine Communications Traffic Services (MCTS), the tanker navigates through established shipping lanes to PMV and the Westridge Marine Terminal. Laden tankers leaving the Westridge Marine Terminal are required to have two pilots to guide navigation on the return trip to the Pacific Ocean, through the Burrard Inlet, Strait of Georgia, and the Strait of Juan de Fuca. The two pilots on the laden tanker leaving Westridge Marine Terminal disembark from the tanker at the Victoria pilot station at Brotchie Ledge. The PPA also sets in place escort requirements for tankers transiting the Haro Straits and Boundary Pass. In addition, through Instructions to Pilots, the PPA establishes procedures that guide the pilots' actions in specific areas along the coast of BC.<br>All tankers are now expected to have two radar systems in working order — one of which must be specialized collision-avoidance radar. Additionally, ships are equipped with automatic identification system (AIS), which broadcasts ships coordinates and other information for use by traffic services and other vessels to help avoid collision. Tankers carry sophisticated navigation aids mandated by IMO and Canada Shipping Act including certified charts, position monitoring, and anti-collision devices such as: precise GPS, redundant compasses, echo sounder to measure depth of water, speed log, among other devices.<br>Although Trans Mountain is not directly involved in marine shipping, our support of the centre helps train crews who ensure vessels move safely along our coast. | Volume 8A - Marine Transportation |
| **Environment - Terrestrial** | | | |
| Air | Air Emissions/GHG | The majority of air emissions produced during construction activities will be from fugitive dust. Fugitive dust will result from land clearing, grading, excavation, concrete work, and vehicle traffic on paved and unpaved roads. The amount of dust generated will be a function of construction activities, soil type, moisture content, wind speed, frequency of precipitation, vehicle traffic, vehicle types, and roadway characteristics. Emissions will be greater during dry periods and in areas of fine-textured soils subject to surface activity.<br>The GHG impacts will be outlined in the ESA submitted with the NEB Facilities Application. A carbon management plan will be developed to mitigate (reduce) emissions as much as possible. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Birds | Impact on forested area birds | Trans Mountain will work with Environment Canada and comply with the *Migratory Birds Convention Act* and Migratory Birds Sanctuary Regulations, as well as any provincial and territorial wildlife agencies related to the Project components and impacts. Clearing and preconstruction activities will be conducted outside minimum migratory bird RAP of May 1 to July 31, where practical. In the event the schedule changes and clearing activities are planned during the migratory bird RAP, a migratory bird nest sweep will be conducted. In the event an active nest is found, a protective buffer will be established around the nest. The size of the buffer will be influenced by the status of the bird. Typically a 30 m buffer is applied to a songbird nest and a 100 m buffer around waterfowl or raptor nests.<br><br>If a bird species with a provincially or federally recommended setback distance is found, then that buffer will be applied around the nest, unless otherwise authorized by the appropriate regulatory authority.<br><br>Trans Mountain is aware that small amounts of residual petroleum products found floating on the surface of ponds can pose a threat to the waterfowl landing on the pond. Ponds are settling basins that enable water to be separated, recycled and used over and over. Trans Mountain has such ponds as emergency catchment at its terminals (Edmonton, Sumas and Burnaby). Several mechanisms are in place to deter birds from landing, including cannons and radar/laser deterrent systems. | Volume 5A - ESA - Biophysical |
| Cumulative Effects | Overlap with other Projects | Trans Mountain is committed to determine the Project's contribution to cumulative effects and to develop technically and economically feasible mitigative measures. The main sources of cumulative ecological effects are: direct habitat loss; indirect habitat loss adjacent to facilities, clearings, and corridors; and increased mortality from altered inter-species relationships (such as: predation and invasive species) and human activities (such as hunting, road kill). The main sources of cumulative social effects are short- or long-term changes in population size, particularly from in-migration; associated demand for goods and services; and indirect effects on community quality of life. | Volume 5A - ESA - Biophysical |
| Freshwater Fish | Water crossing and wetland disturbances | Special precautions, such as completing construction through wetlands and watercourses during the winter months when the ground is frozen, will be conducted at river and stream crossings along the pipeline route, where practical. Additionally, water quality will be monitored during all instream activity. Each watercourse will be approached correctly, so the cumulative impact of changes to all the crossings and the surrounding watershed would be limited. | Volume 5A - ESA Biophysical<br><br>Volume 6 - Project Execution |
| | Impact from bitumen sinking in water | Bitumen is a heavier, thicker form of petroleum and contains fewer of the lighter hydrocarbon molecules found in conventional crude. In order to make bitumen flow through a pipeline, natural gas liquids or condensate (diluents) are added. This substance is referred to as "dilbit" and it is made up of both light and heavy hydrocarbon molecules. The resulting density is the average of the materials blended.<br><br>Some people think dilbit sinks in water. With a maximum density of 0.94, dilbit is lighter than water (density 1.00) and seawater (density 1.03). Additional research is taking place to quantify how the dilbit reacts over time in water, with wave action, with fast-moving currents, with different sediment levels and with various other factors. Other studies have recently been conducted or are underway including the SL Ross Study (Meso-scale Weathering of Cold Lake Bitumen/Condensate Blend). The SL Ross Study was prepared for a Joint Review Panel submission by Enbridge Northern Gateway Project in anticipation of Natural Resources Canada requesting information on the weathering effects of dilbit on water.<br><br>No scientific basis has been found to claims that dilbit causes greater internal corrosion in oil pipelines than other crude oil sources.<br><br>Research is taking place to quantify how the dilbit reacts over time in water, with wave action, with fast-moving currents, with different sediment levels and with various other factors.<br><br>Other recent studies include:<br>· Crude Quality Inc.;<br>· Alberta Innovates; and<br>· Transportation Research Board. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Noise | Noise during construction and noise pollution<br><br>Increase in noise from new Pump Stations | The potential effects on human receptors are not anticipated to extend beyond the Acoustic Environment local study area. Trans Mountain will use well-maintained equipment to reduce air pollution and unnecessary noise.<br><br>Additionally, Trans Mountain will restrict the duration that vehicles and equipment are allowed to sit and idle to less than one hour unless air temperatures are less than 0°C.<br><br>Ambient sound survey representative of sound levels at noise receptors and existing facilities will be conducted and, all noise level results will be compared to Alberta Energy Resource Conservation Board's Directive 038 Noise Control) and the BC Oil and Gas Commission's Noise Control Best Practices Guideline.<br><br>Standard mitigation plus noise-specific mitigation measures will be implemented along with compliance with local noise by-laws. | Volume 5A - ESA - Biophysical |
| | Vibrations, dust caused during pipeline construction | From the commencement of staking to final cleanup, a particular parcel of land could be disrupted for three to 12 months. This timing could be affected by variables such as winter construction, where Trans Mountain cannot complete final clean-up until summer. Noise, dust and other disturbances will be mitigated to avoid the impact on people near the construction. | Volume 5A - ESA - Biophysical |
| Reclamation | Concerns for reclamation and restoration | Trans Mountain is committed to best practices in reclamation, always striving for opportunities leading to advancement. As with all of its construction Projects, Trans Mountain will reclaim any areas that are affected by the proposed pipeline Project.<br><br>The topography will be reclaimed to the pre-construction contour and access. Where the proposed right-of-way encounters roads, trails or topographic features that impeded ATV access, these areas will be reclaimed to match the pre-construction conditions that limited access or will establish barriers (boulders, fencing, etc.) to access. | Volume 6 - Project Execution |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | Trans Mountain is committed to full reclamation of the pipeline right-of-way and surrounding areas following construction. This could include adding new footpaths, developing new habitats, improving water crossings or bettering migration corridors.<br>Reclamation efforts could include the planting of native plant and grass species, riparian and wetland areas, wildlife habitats and any other areas disturbed during construction.<br>Post-construction monitoring and ongoing right-of-way maintenance will continue following construction. | |
| Soils | Disturbance to crop growth from construction activities | Agricultural land uses such as grazing pastures, field crops, organic and specialty crops (*e.g.,* blueberries, raspberries, nurseries) and livestock facilities are located along the proposed pipeline corridor. Trans Mountain is working with landowners to reduce the potential disturbance to agricultural lands and disruption of agricultural practices during construction. Appropriate mitigation (*e.g.*, soil handling, erosion control) and monitoring activities will be implemented during construction to maximize reclamation success. Additional special reclamation measures will be applied, as required, to return the disturbed areas to a stable and maintenance-free condition. As part of the proposed PCEM program, Trans Mountain will monitor revegetation growth on the construction right-of-way and implement remedial measures, where necessary.<br>An Agricultural Management Plan has been developed to particularly reduce effects on agriculture, which includes measures related to weed management, re-seeding, soil compaction, livestock access, drainage and irrigation lines, management of crop disruption, and crop and productivity loss. | Volume 5A - ESA - Biophysical |
| | Soil stability along the right-of-way | Appropriate procedures will be implemented to maintain soil stability and control soil erosion during construction. Similar procedures will be followed during the operational phase. Although not exhaustive, examples of control options to be implemented as soon as practical include:<br>· installation of temporary berms of subsoil, logs, timbers, sandbags or bales during construction activities;<br>· installation of silt fences near the base of slopes;<br>· construct cross ditches and berms decreasing the spacing on steeper slopes or on more erodible soils;<br>· apply netting, mulch or tackifier to hold soil;<br>· armour the upslope face of berms with geotextile, logs or sandbags;<br>· transplant native shrubs, plant willow stakes or use other bioengineering techniques; and<br>· install slope indicators at locations where the risk of slope failure, or creep exists; consult a geotechnical engineer. | Volume 5A - ESA - Biophysical |
| Spills | Freshwater spills-environmental impact | Trans Mountain is committed to environmental stewardship. Detailed EPPs will be developed for the Project. Trans Mountain owns, maintains and operates dedicated spill response equipment at strategic points along the existing TMPL system. | Volume 5A - ESA - Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Freshwater spills - safety | In the event of a release, and in addition to prevention measures, steps would be taken to minimize the consequence of a release by quickly shutting down and isolating the damaged section of the pipeline or facility. Trans Mountain has developed comprehensive emergency response procedures that the control centre and local operators must follow. These procedures, together with aerial and ground patrols, calls from the public to Trans Mountain's toll-free emergency number, and continuous SCADA monitoring and leak detection systems combine to form the first line of defense in reducing the consequences of a spill.<br>The SCADA and leak detection systems continuously monitor the pipeline for changes in operating parameters that would indicate a possible leak. Trans Mountain owns, maintains and operates dedicated spill response equipment at strategic points along the existing TMPL system. Oil spill containment and recovery (OSCAR) units are located at Trans Mountain facilities in Edmonton and Jasper, AB, and in Blue River, Kamloops, Hope and Burnaby, BC. Each OSCAR unit contains about 300 m of oil recovery boom and support equipment, including a river jet boat for deployment. All equipment is helicopter transportable for delivery to remote locations not accessible by road. Specialized equipment has been developed in-house by Trans Mountain employees for intercepting and recovering oil, if required, from beneath the ice on frozen rivers and lakes. This equipment is stored in the Jasper and Edmonton OSCAR units. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Fear of spills in residential/school neighbourhoods | Through many conversations in the community, Trans Mountain knows that pipeline safety is a common interest and a value shared by Trans Mountain. Trans Mountain has heard some specific questions about our pipeline and its safe operation near homes and schools and welcomes any opportunity to provide information and respond to questions.<br>Since the TMPL began operating in 1953, many communities have grown and developed around the pipeline right-of-way. It is important to understand that while the pipeline may be near homes and schools, it does not run under any buildings. Living or being active near our pipeline does not pose a health risk. In fact, there are community trails, sporting events, community gardens and all kinds of businesses and agricultural activities safely co-existing near the TMPL.<br>Safety is the top priority and at the core of who Trans Mountain is as company. Dedicated staff work to maintain the integrity of the pipeline through our maintenance, inspection and awareness programs. While no spill is acceptable to us, accidents can happen.<br>Trans Mountain has a comprehensive response plan that includes working with local authorities to make sure the public and the environment are kept safe. Where the pipeline runs near schools, Trans Mountain is open to working with individual schools or districts to fully support their safety efforts and ensure their ERPs and ours are coordinated. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Terrain | Geotechnical Concerns | The pipeline's registered easement (or operational corridor) is typically 18 m wide. The assessment study area for rural and Crown Lands areas is 150 m wide along the existing pipeline, but will vary along the proposed route based on local constraints. This assessment corridor is required to help identify potential environmental impacts, geotechnical conditions, and constructability to ensure the Project can be built and operated safely.<br>The focus of these assessment studies is to find the best route for the Project so it can be built next to the existing pipeline to minimize construction in any new and undeveloped areas, and to minimize impact to properties. It is important to note that the assessment corridor is for the purposes of environmental and engineering studies and does not reflect the ultimate width or footprint of the proposed construction or new line. | Volume 5A - ESA - Biophysical |
| Water | Groundwater - Hydrology Water Quality/Quantity | Trans Mountain will assess water quality and/or quantity changes to nearby groundwater that may result in adverse effects for other stakeholder or environmental receptors. Trans Mountain will review existing geological, hydrogeological, and other information to determine potential hydrogeological conditions along the pipeline right-of-way and proposed facilities. GIS mapping and assessment strategies will be applied. Trans Mountain will develop site-specific hydrogeological investigation activities that may include field verified surveys, hydraulic response testing, monitoring requirements, and water quality parameter surveys. | Volume 5A - ESA - Biophysical |
| | Potential effects of spills on freshwater environments | Trans Mountain has comprehensive spill response plans in place for the TMPL system and facilities. These plans are constantly being updated to keep them current and are regularly practiced through deployment exercises. While the specific strategies used in response to a spill will vary depending on the circumstances, the primary objectives in all cases is to ensure safety and to minimize environmental damage. There are a range of strategies available to achieve these objectives including: mechanical recovery (using skimmers), in-situ burning (controlled burning the oil), and dispersion (use of dispersing agents to dilute and disperse the oil reducing its concentration). To ensure there are sufficient funds to remediate a spill, Trans Mountain is covered by insurance necessary to respond to all spills or releases from our pipelines and facilities. Trans Mountain monitors the insurance program continuously, and makes annual adjustments as necessary to ensure adequate coverage. | Volume 5A - ESA - Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Precautions taken to protect streams and lakes (*e.g.*, valves) | The number of ESVs for the proposed line has not yet been determined. The number and locations of ESVs will be guided by modelling studies that factor in local conditions and potential consequences. As Trans Mountain develops detailed design and engineering work, the final locations of the valves will be chosen. Their design will consider the protection of sensitive areas and minimize impacts identified during the routing and design process. | Volume 4B - Project Design and Execution - Construction<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Horizontal Direction Drill (HDD) Process | HDD is a successful and proven technology commonly used to install pipelines under watercourses, roads, and other existing infrastructure to reduce or eliminate impacts. HDD will be evaluated for water crossings where certain criteria are met. For example for a water body, a borehole is drilled under the water body and the pipeline is pulled back through the borehole to the other side. The drill does not come into contact with a riverbed, banks of the river or river water. | Volume 6 – Project Execution |
| | Impact to private wells and potable water supplies | Trans Mountain will review existing geological, hydrogeological, and other information to determine potential hydrogeological conditions along the pipeline right-of-way and proposed facilities; GIS mapping and assessment strategies will be applied. Trans Mountain will develop site-specific hydrogeological investigation activities that may include field verified surveys, hydraulic response testing, monitoring requirements and water quality parameter surveys.<br>Trans Mountain also has an excellent safety record and the Project must pass a number of environmental and socioeconomic assessments that will be submitted to the NEB for approval.<br>A horizontal directional drill technique will be used to bore under water ways like the Fraser River in preference to instream work. Trans Mountain has a well-established pipeline integrity management program to ensure a quick response to a spill and public safety. | Volume 5A - ESA - Biophysical |
| Vegetation | Physical and visual disturbance to grasslands in the vicinity of the pipeline | Trans Mountain is fully committed to environmental management, protection and stewardship of the land during the construction and operation of all its facilities.<br>A comprehensive ESA will be completed for the Project. There will be over 30 environmental surveys completed by local and regional biologists and resource specialists. The results of the surveys will be incorporated into an application to be submitted to the NEB for review and approval. Species of special status and their habitats will be identified and assessed as part of this Project.<br>Through the development of thousands of kilometres of pipelines, there has been a number of mitigation strategies developed that can be employed to minimize impacts to wildlife and wildlife habitat. These can range from avoiding important wildlife periods through the timing of construction to conducting detailed surveys immediately prior to construction.<br>Pipeline construction is a sequential series of activities, which do not remain in one area for an extended period of time. A detailed EPP will be submitted to the NEB as part of the Application, which will document every linear metre of the construction right-of-way and mitigation strategies to help avoid or minimize environmental impacts from construction.<br>Where practical, the route will remain within the existing TMPL right-of-way, which will minimize new disturbances to ecological communities.<br>Trans Mountain is committed to best practices in reclamation, always striving for opportunities leading to advancement. As with all of its construction projects, Trans Mountain will reclaim any areas that are affected by the Project.<br>The topography will be reclaimed to the pre-construction contour and access. Where the proposed right-of-way encounters roads, trails or topographic features that impeded ATV access, these areas will be reclaimed to match the pre-construction | Volume 5A - ESA - Biophysical |
| | Disturbance to ecosystems surrounding the pipeline | | Volume 5A - ESA - Biophysical |
| | Protection of parks and ecologically sensitive areas | | Volume 5A - ESA - Biophysical |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | conditions that limited access or will establish barriers (boulders, fencing, etc.) to access.<br>Trans Mountain is committed to full reclamation of the pipeline right-of-way and surrounding areas following construction. This could include adding new footpaths, developing new habitats, improving water crossings or bettering migration corridors.<br>Reclamation efforts could include the planting of native plant and grass species, riparian and wetland areas, wildlife habitats and any other areas disturbed during construction.<br>Post-construction monitoring and ongoing right-of-way maintenance will continue following construction. | |
| | Identification and preservation of rare plant communities, species at risk, and the prevention of invasive species | A comprehensive ESA will be completed for the Project. There will be over 30 environmental surveys completed by local and regional biologists and resource specialists. Trans Mountain is committed to best practices in reclamation, always striving for opportunities leading to advancement. As with all of its construction projects, Trans Mountain will reclaim any areas that are affected by the proposed pipeline Project. Reclamation efforts could include the planting of native plant and grass species, riparian and wetland areas, wildlife habitats and any other areas disturbed during construction.<br>Post-construction monitoring and ongoing right-of-way maintenance will continue following construction.<br>The following indicators for vegetation are proposed to comply with filing requirements in the NEB Filing Manual:<br>· vegetation communities of concern;<br>· plant and lichen species of concern;<br>· presence of infestations of Provincial weed species and other invasive non-native species identified as a concern; and<br>· proper timely reclamation with proper seed mix will reduce change for infestation. | Volume 5A - ESA - Biophysical |
| Wetlands | Protection of water bodies/wetlands | Precautions, such as completing construction through wetlands and watercourses, during the winter months when the ground is frozen or during dry periods, will be assessed and the most appropriate method will be chosen for each of the river and stream crossings along the pipeline route. Additionally, water quality will be monitored during all instream activity. Each watercourse will be approached correctly, so the cumulative impact of changes to all the crossings and the surrounding watershed will be limited. | Volume 5A - ESA - Biophysical |
| **Land - Public/Private access** | | | |
| Land Access | Specific landowner interests regarding routing on their properties, including use of right-of-way | Trans Mountain works with landowners along its pipeline network. A key objective is to treat each landowner fairly and equitably. For those who may be directly affected by the Project. Trans Mountain will identify and address landowners' concerns and questions about the Project. These landowners will then work with the Lands Teams to reach jointly equitable solutions.<br>The NEB has produced a guide for landowners and the public that provides details about the regulatory process governing pipeline projects. This information is available on the NEB website. | Volume 3C – Landowner Relations |
| | Increased access for mechanized vehicles (ATVs) | Temporary access roads will be decommissioned following construction and the topography reclaimed to the pre-construction contour and access. Where the proposed right-of-way encounters roads, trails or topographic features that impeded ATV access, these areas will be reclaimed to match the pre-construction conditions that limited access or will establish barriers (boulders, fencing, etc.) to access. Trans Mountain is open to discussing recreational use of the right-of-way and opportunities to leave infrastructure post construction to benefit recreational users. | Volume 4B - Project Design and Execution - Construction |
| | Landowner satisfaction process so far | Trans Mountain has begun and will continue to engage in meaningful consultation with affected stakeholders regarding socio-economic impacts and benefits. Through respectful dialogue, our goal is to negotiate mutually-agreeable arrangements with each landowner who may be impacted by the Project. In cases where Trans Mountain is unable to reach a mutually-agreeable arrangement, the NEB has a multi-step process that Trans Mountain will follow to address differences of opinions as part of the routing review and approval process. More information about the process from the NEB is available here: www.neb-one.gc.ca/clf-nsi/rthnb/pblcprtcptn/pplnrgltncnd/pplnrgltncnd_ndx-eng.html> Pipeline Regulation in Canada: A Guide for Landowners and the Public. | Volume 3 - Consultation |
| | Impacts to community recreation areas on existing TMPL right-of-way | Trans Mountain is open to discussing recreational use of the right-of-way. Walking, hiking and biking are all great activities for the right-of-way. Trans Mountain does restrict motorized vehicle access like snowmobiles and ATVs because they can cause disturbance to the ground. Trans Mountain is open to discussing opportunities to leave infrastructure post construction to benefit recreational users | Volume 5B - ESA - Socio-Economic |
| | Restoration of agricultural lands | Soils studies have been completed to determine the type and condition of soils along the proposed pipeline corridor. The studies for the Project will mostly involve a ground-based agricultural soil survey program. The surveys are designed to meet NEB requirements – the federal agency responsible for regulating and approving pipeline Projects that cross provincial boundaries, and to assist in Project design, construction, and restoration. | Volume 6 - Project Execution |
| | Raft River crossings and impact to traditional lands and disruption of pristine forests | As a long-time industry and community member, Trans Mountain is committed to working with residents, regulatory authorities and other stakeholders on environmental initiatives. Trans Mountain helped stabilize the Raft River near the pipeline right-of-way in Clearwater, BC. This enhancement Project involved stabilizing more than 700 m of river bank to prevent erosion, improving the local fish habitat, as well as planting native trees and shrubs. When Trans Mountain was seeking certification through Wildlife Habitat Council, work began with a landowner on the right-of-way who was interested in being involved. Trans Mountain determined ways to improve the landowner's land to provide a more hospitable environment for local species. | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Land Access | Proportion of existing line on Crown land | Land ownership along the existing TMPL system corridor is a mixture of privately owned lands held in fee simple (*i.e.*, the owner has absolute ownership of the land), Provincial Crown lands (including provincial parks) and federal Crown lands (including national parks and Indian Reserves [IRs]). In total, the existing TMPL system passes through 15 IRs, 12 provincial parks, including Mount Robson Provincial Park, and one federal park (*i.e.*, Jasper National Park). | n/a |
| | Future land use | The primary design objective is to construct the Project within the existing pipeline right-of-way, and where this is not possible, minimize any new linear disturbance. The proposed pipeline corridor will be selected to minimize impacts on the environment, maximize worker and public safety, and minimize other social impacts. Appropriate mitigation (*e.g.*, soil handling, erosion control) and monitoring activities will be implemented during construction to maximize reclamation success. Additional special reclamation measures will be applied, as required, to return the disturbed areas to a stable and maintenance-free condition. Primary road and railway crossings will be bored to minimize interference with existing activities and usage. | Volume 4B - Project Design and Execution - Construction |
| Forestry Rights | Mineral and forestry rights on lands crossed by pipeline | Timber and brush disposal options will be subject to agreements with landowners and appropriate government authorities. | Volume 6 - Project Execution |
| | Right-of-Way width and tree removal | Snow, trees, stumps, brush and other vegetation will be cleared from the construction right-of-way, temporary work sites and permanent facilities that are not located on existing, previously cleared easements. Timber and brush disposal options will be subject to agreements with landowners and appropriate government authorities. | Volume 6 - Project Execution |
| **Operations and Maintenance** | | | |
| Operations and Maintenance | Who owns and maintains the Right-of-Way? | Trans Mountain does not own the Trans Mountain right-of-way. Rather, Trans Mountain holds easements (rights-of-way) on land owned by a variety of landowners. These easements have been in place along the existing TMPL right-of-way since the pipeline was originally constructed in 1953. They allow Trans Mountain to have the pipeline there, as well as to access, monitor, operate, and service it.<br>Trans Mountain is responsible for maintaining the right-of-way to such a degree that it remains visible and accessible for Trans Mountain safety patrol teams. Trans Mountain is also responsible for the pipeline remaining safe from damage and hazards. The activities that landowners along the pipeline are allowed to undertake on the right-of-way are regulated by the NEB. The NEB has a good online resource for landowners: http://www.neb-one.gc.ca/clf-nsi/rthnb/pblcprtcptn/pplnrgltncnd/pplnrgltncnd_ndx-eng.html.<br>Trans Mountain takes responsibility for returning any lands disrupted during construction to the same, or better condition than existed before construction (within the confines of safe right-of-way management). Trans Mountain would work with each landowner on this and could involve such things as replanting appropriate vegetation, landscaping and monitoring for weed invasion. However, Trans Mountain does not take responsibility for private landscaping needs unrelated to construction. | n/a |
| | Age and quality of existing pipeline | The existing TMPL system has been successfully operating for almost 60 years as a result of continuing proactive maintenance and integrity programs. The pipeline steel does not look any different today than when it was put in the ground. | n/a |
| | Pipeline flow pressures | Pressure and flow in the pipeline are controlled through valves, pumps and tanks at pump stations and terminals. The centralized control centre monitors flow rates, pressures and fluid characteristics 24 hours a day, seven days a week. Fluctuations can be quickly detected, alerting operators to potential leaks, and allowing them to shutdown lines and dispatch crews. | n/a |
| **Routing** | | | |
| Routing | Location of existing line and proposed line | The route of the proposed Trans Mountain expansion essentially follows the existing 1,150-km pipeline between Strathcona County, AB, and Burnaby, BC. Along this distance, approximately 980 km of new pipeline construction is being proposed.<br>As proposed, the Trans Mountain would parallel the existing pipeline route wherever practical. This is known as a “Brownfield” Project — whereas completely new pipelines are known as “Greenfield” Projects.<br>Where practical, the route for the proposed expanded pipeline will remain along the existing TMPL right-of-way. Where land use has changed since the pipeline went into operation in 1953, there may be a need to route parts of the new line away from the existing TMPL right-of-way. In these cases, Trans Mountain will look at alternatives through comprehensive routing studies in combination with its engagement process. | Volume 4B - Project Design and Execution - Construction |
| | Disruption to residential areas and business | It is Trans Mountain’s intention to find a route for the proposed pipeline, which minimizes impact to residences and communities. Where privately-held land is needed for the proposed new route, land agents from Trans Mountain will discuss proposed locations of the pipeline with landowners. Our goal is to reach mutually-acceptable agreements with landowners to allow Trans Mountain to build and maintain the Project. | Volume 3C - Landowner Relations<br>Volume 5B - ESA - Socio-Economic |
| | Impacts to landscaping along edge of right-of-way | Trans Mountain is responsible for maintaining the right-of-way to such a degree that it remains visible and accessible for Trans Mountain safety patrol teams. Trans Mountain is also responsible for the pipeline remaining safe from damage and hazards. Trans Mountain takes responsibility for returning any lands disrupted during construction to the same, or better condition than existed before construction (within the confines of safe right-of-way management). To minimize impacts to the urban landscape and landowners, the proposed route of the new pipeline would follow existing linear infrastructure, such as municipal streets or highway, railway or utility corridors, or in some cases parklands. The proposed pipeline corridor will be selected to minimize impacts to the environment, maximize worker and public safety, and minimize other social impacts. | Volume 4B - Project Design and Execution - Construction<br>Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Potential to route new line along existing utility and infrastructure corridors | The selection of the Trans Mountain corridor included both field and desktop assessments of the existing TMPL right-of-way and alternative routing locations and resulted in a preferred route. The preferred route meets all requirements of the NEB, the CSA, and all applicable regulatory authorities and was chosen on the basis of minimal new disturbance and public impact. Where practical, the route for the proposed expanded pipeline will remain along the existing TMPL right-of-way. Where land use has changed since the pipeline went into operation in 1953, there may be a need to route parts of the new line away from the existing TMPL right-of-way. In these cases, Trans Mountain will look at alternatives through comprehensive routing studies in combination with its consultation process. | Volume 4B - Project Design and Execution - Construction |
| Routing | Routing near Jacko Lake and proposed Ajax Mine | Trans Mountain is aware of the proposed Ajax Mine Project and the proximity of the Project footprint to the existing pipeline. Trans Mountain has been in discussions with KGHM International Ltd. to more fully understand the scope and extent of the mine development and mine site operations, and to ensure the continued integrity of the existing pipeline operation as well as the Project.<br><br>In the area close to the proposed Ajax Mine, the study corridor follows the existing right-of-way to a point just north of Jacko Lake. It then deviates to the west of the lake to avoid interference with that water body. The study corridor then rejoins the existing TMPL right-of-way a few kilometres south of Jacko Lake.<br><br>At the time of this application, the Ajax Mine proponent had not confirmed their project plan or mine footprint. We will continue to closely monitor the development of the Ajax Mine project and continue to re-assess the proposed and existing routing pending finalization of the mine plans. Revisions to the TMEP preferred study corridor may be required once that information is available. | Volume 4B - Project Design and Execution - Construction |
| | Routing and access road locations relative to the grasslands park expansion in Kamloops | Temporary access roads will be decommissioned following construction and the topography reclaimed to the pre-construction contour and access. Where the proposed right-of-way encounters roads, trails or topographic features that impeded ATV access, these areas will be reclaimed to match the pre-construction conditions that limited access or will establish barriers (boulders, fencing, etc.) to | Volume 4B - Project Design and Execution - Construction |
| | Rerouting in Hope | Pipelines are installed within a strip of land known as the right-of-way. Before the right-of-way is selected, an assessment corridor (or study corridor) is determined, and studies are undertaken to identify potential routes.<br><br>There are a number of geographic features and changes in land use that require the identification of a new right-of-way in some locations through Hope. A number of route alternatives are currently under assessment. The goal is to minimize disruption to landowners and the environment and to take advantage of any existing linear disturbances. | Volume 4B - Project Design and Execution - Construction |
| | What is the Proposed routing in Blue River? | In the Blue River area, Trans Mountain has determined that following the existing route is the best option for these reasons (see community map to see the route and study corridor):<br><br>· avoids disruption to new landowners;<br><br>· the existing TMPL right-of-way links the pipeline to Trans Mountain's Blue River pump station; and<br><br>· a HDD could be completed under the Blue River (subject to geotechnical assessment.<br><br>Trans Mountain is looking forward to continued conversation about the study corridor identified for Blue River. | Volume 4B - Project Design and Execution - Construction |
| Routing | Routing through the North Thompson Provincial Park and other provincial parks | Routing studies and environmental field programs are currently underway for the Project; consequently, specific parks crossed by the proposed pipeline have not yet been identified. In the event any provincial parks are crossed by the selected route, a Boundary Adjustment application will be prepared and submitted to BC Parks, and any other necessary regulatory approvals, permits and/or authorizations will be sought. | Volume 4B - Project Design and Execution - Construction |
| | Routing through Weyerhaeuser subdivision in Clearwater | The selection of the proposed pipeline corridor included both field and desktop assessments of the existing TMPL right-of-way and alternative routing locations. In the Clearwater area, Trans Mountain has determined that following the existing route is the best option for these reasons:<br><br>· avoids disruption to new landowners;<br><br>· avoids additional rights-of-way within the community;<br><br>· rivers and other water bodies can be protected through HDD (subject to geotechnical assessment); and<br><br>· by-passes North Thompson Provincial Park. | Volume 4B - Project Design and Execution - Construction |
| | Geology at Hope-Bridal Falls | Detailed routing and engineering design has not yet begun. In due course, each segment of the route will be carefully assessed by appropriate professionals for potential instability and hazards, which may affect the construction and operation of the pipeline. Where necessary, steps will be taken to mitigate the effects of potential hazards. Where possible, steps to mitigate disturbances will be applied depending on circumstances of individual owners. | Volume 4B - Project Design and Execution - Construction |
| | Concern about the Coquihalla Canyon | The new pipeline may pass through the Coquihalla Canyon. However, exact routing options through the area are still being examined and alternate routes are being considered.<br><br>Overall, Project-related impacts on recreation use are being addressed in the ESA. This will include development of mitigation plans to reduce impacts and optimize opportunities to enhance recreational use.<br><br>Proposed mitigation/enhancement measures will be part of the final ESA. The ESA is anticipated to be complete in late 2013, and then will be carried forward into the planning and design of the Project. | Volume 4B - Project Design and Execution - Construction |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| **Safety** | | | |
| Emergency Planning/ Response | Risk of large spills | Once the Project has been commissioned, it will be fully integrated into the existing TMPL system operation. The elements that are central to the operation and maintenance of the TMPL system include an:<br>· EHS policy;<br>· integrity management program, that includes risk assessments, corrosion control, inspection and preventative maintenance, hydrostatic testing and damage prevention; and<br>· emergency preparedness and response program, that includes an ERP and spill response resources for spills on land and water (*e.g.*, at the Westridge Marine Terminal). | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Emergency response capacity of WCMRC and Trans Mountain | As required by Transport Canada, Trans Mountain has an arrangement with WCMRC for marine spill response services. WCMRC has spill response equipment staged on water in Vancouver Harbour and a main base of operations nearby in Burnaby. Similarly WCMRC maintains caches equipment on Vancouver Island for response in the Salish Sea. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A – Marine Transportation |
| | Timeframe for leak detection (especially for small leaks below pressure detection) | In the event of a release, and in addition to prevention measures, steps would be taken to minimize the consequence of a release by quickly shutting down and isolating the damaged section of the pipeline or facility. Trans Mountain has developed comprehensive emergency response procedures that the control centre and local operators must follow. These procedures, together with aerial and ground patrols, calls from the public to Trans Mountain's toll-free emergency number, and continuous SCADA monitoring and leak detection systems combine to form the first line of defense in reducing the consequences of a spill. In addition to this, all Trans Mountain pump stations and terminals have automated leak detection and containment systems that are monitored continuously in the control centre. In the event of a facility leak, automatic emergency shutdown protection will immediately isolate the facility and trigger a call out of local personnel to investigate further.<br>The existing TMPL system is remotely controlled and monitored from a control centre located at the Edmonton Terminal using a SCADA system. The SCADA system provides continuous operating information to control centre operators who are responsible for operating the TMPL system. The SCADA system contains a real-time transient leak detection system that monitors flow metering and other instrumentation across the pipeline. This information provides input to a hydraulic model that simulates pipeline operating conditions and compares the simulated result to the actual operating conditions along the pipeline. Through this analysis, the SCADA system will generate alarms if flow imbalances exceed threshold levels. Control centre operators are responsible for shutting down the pipeline if the SCADA system analysis indicates that a leak might have occurred. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Emergency Planning/ Response | Planning for earthquakes and seismic events | As with all organizations with infrastructure susceptible to seismically triggered geohazards, the commitment of Trans Mountain to reduce the earthquake risks to the existing Pipeline is on-going and includes several investigations and major construction mitigation measures including:<br>· A system-wide qualitative assessment of earthquake hazards along the pipeline from Hope to the Burnaby terminal;<br>· A system-wide qualitative assessment of earthquake hazards along the pipeline from Hope to the Burnaby terminal;<br>· Replacement of the Fraser River crossing by horizontal directional drilling to minimize exposure of the pipeline to seismically triggered lateral spreading;<br>· Characterization of potential earthquake triggered landslides at select locations along the pipeline; and<br>· Preparation of an Earthquake Action Protocol to rapidly prioritize locations for pipeline inspection following an earthquake. This also includes procedures for shutting down and isolating the pipeline in the event of a serious earthquake.<br>Further seismic assessments along the proposed pipeline corridor and existing pipeline will include:<br>· Site specific assessment of seismically induced ground deformation;<br>· Site specific evaluations for seismically induced landslide potential; and<br>· Site specific assessment of seismically induced ground shaking. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Valve locations | Approximately 92 automated MLBVs will be installed along the pipeline for emergency shutdown and isolation of pipeline segments. Automated MLBVs will be constructed within the operating pipeline right-of-way and most will be sited adjacent to existing TMPL valves. Many automated MLBVs will be accessed by existing access roads; however, permanent access roads may be required at yet unspecified locations. Automated MLBVs will require a permanent power source. Typically, new power lines will only be used when there is a source nearby, thereby reducing any additional disturbance. Otherwise, alternative power sources such as solar panels, battery banks and/or nitrogen bottles will be used. Each automated MLBV installation will require a fenced and gravelled operating area of approximately 5 m × 12 m (60 $m^2$). The exact location of MLBVs and power sources utilized will be determined during detailed engineering design.<br>The number of ESVs for the proposed line has not yet been determined. The number and locations of ESVs will be guided by modelling studies that factor in local conditions and potential consequences. As Trans Mountain develops detailed design and engineering work, the final locations of the valves will be chosen. Their design will consider the protection of sensitive areas and minimize impacts identified during the routing and design process. | n/a |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Valve operation process and closure timeframe | There are generally two types of valves used: check valves and block valves.<br>· Check valves are mechanical devices, which only permit flow in one direction. If upstream pipeline pressure reduces, the valve closes and stops the flow.<br>· Block valves are typically automated and can be controlled remotely. They feature an electric actuator that is connected via satellite or other communications system. If a problem is detected and sent to the control centre as an alarm, the operator will follow written procedures, which may include stopping the pipeline and closing the Block Valves to isolate the area until the condition can be investigated and resolved.<br>The expanded pipeline design will include remotely operated mainline block valves (MLBVs) for emergency shutdown and isolation of pipeline segments. New MLBVs will be installed on Line 2 with automation or check valves as required. Reactivated segments of Line 1 will include automation of MLBV's. Sections of Line 1 in current operation will be subject to a technical review with supplemental automation of MLBV's addressed either as part of ongoing operations, or inclusion within Trans Mountain. The scope of this reactivation will include installing automated MLBVs in Jasper National Park and Mount Robson Provincial Park in accordance with commitments Trans Mountain made to Parks Canada and BC Parks during the Anchor Loop Project. There is also a potential for valve optimization in North Thompson River Provincial Park and Rearguard Falls Provincial Park. | n/a |
| Emergency Planning/ Response | Properties of bitumen and dilbit | Bitumen is a thick, molasses-type product that is found in regions around the world, but more locally in the oil sands regions of northern Alberta, Canada. Sometimes, it is found near the surface mixed in with sand and other debris, while in other instances, it can be found deep in the ground under several layers of rock.<br>Diluent is typically either light crude, such as 'synthetic crude' or 'condensate', which is extracted from the ground along with natural gas. Synthetic crude and condensate on their own have been produced and transported by pipeline for decades. Pipelines transporting dilbit are not at any greater risk of corrosion than pipelines carrying other types of petroleum products, such as conventional crude. For further reference Trans Mountain has published a review of dilbit here; http://www.transmountain.com/uploads/papers/1349933515-alberta-innovates-dilbit-versus-conventional-crude.pdf | n/a |
| | Cleanup process for bitumen | TMPL has been transporting bitumen since the mid-1980s. No scientific basis has been found to claims that dilbit causes greater internal corrosion in oil pipelines than other crude oil sources. In the event that dilbit were to be spilled, the procedures for cleaning up the spill would be similar to cleaning up a conventional crude spill. Environmental and site-specific conditions will also determine the type of procedures and equipment used during a spill. | n/a |
| | Countering misinformation about the risks of heavy oils | One of the goals of the first phase of the Project's engagement was to provide accurate information and correct any misinformation about the Project. Trans Mountain worked very hard to counter misinformation, including commencing most presentations with standard myths, posting accurate information to the Project website and letters to the editor. During Phase 2, Trans Mountain joined social media networks with the launch of a Project Twitter channel. One of the goals of the Twitter channel was to correct misinformation about the Project. | |
| | Emergency access during construction in remote areas and/or during winter | Trans Mountain has a team dedicated to preventing damage to our pipelines. During construction, they ensure the right-of-way is clearly marked, free of encroachments, and accessible for surveillance, maintenance and emergency response. Vegetation management on the right-of-way is an integral part of our comprehensive approach to pipeline safety. It allows us to protect the pipeline, ensure public safety, and provide access for maintenance, inspections and emergency response. Trans Mountain supervises ground disturbance activities near the pipeline and reports of unauthorized activity on the right-of-way, and administers our public awareness program. | Volume 6 - Project Execution |
| Pipeline Integrity | Lifespan of a pipe and integrity of the existing pipeline | With a strong focus on inspection and proper maintenance, pipelines can safely operate indefinitely. | n/a |
| | Adherence of existing pipe to modern specifications<br>Thickness and strength of pipe walls | Oil pipelines are generally constructed from steel with an inner diameter typically ranging from 100 to 1,200 mm (4 to 48 inches). The steel used is of the highest quality and manufactured to stringent CSA specifications, which include chemistry and material properties. Through production, transportation to the job site, and installation, quality management processes are in place to ensure the pipe fully meets the requirements.<br>Coating on the outside of the pipeline is used to prevent it from corrosion or rusting. The new pipe (and any repairs to the existing pipe) will typically be coated with fusion bond epoxy. In rockier areas, enhanced external coatings such as concrete, abrasive resistant fusion bond epoxy or polyethylene will be used to mitigate the impact from abrasives or stress-concentrating conditions (such as rocks or backfill) and to provide additional mechanical protection. Prior to lowering the pipe section into the trench, the integrity of the coating is checked by means of a high voltage tool that will detect even the smallest defect in the coating. If a defect is noted, an epoxy repair coating is applied.<br>Early small-diameter pipelines have long since been decommissioned, and modern-day pipelines benefit from some of the most advanced and environmentally-conscious technology available. Internal inspection tools called Smart Pigs are sent down the pipeline with the product. Carrying onboard computers and sensors, they measure the diameter of the pipe and the thickness of the pipe wall and can detect dents, gouges or other damage to pipeline. Ultrasonic or EMAT testing further detects signs of any corrosion or cracks that have initiated in the pipe.<br>Pipeline operations include multiple controls and monitoring systems to ensure it operates safely. The latest technological advancements are incorporated, along with trained personnel, to ensure that the pipeline is operated safely. With a strong focus on regular maintenance, the application of the latest technology, and sound operating practices, pipelines could have an indefinite lifespan — as safe in the future as the day they were installed. | Volume 4B - Project Design and Execution - Construction |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Origin of pipeline and associated materials (*i.e.*, preference for local products) | Pipeline integrity begins with sourcing the materials. The steel used is of the highest quality and manufactured to stringent CSA specifications, which include chemistry and material properties. Through production, transportation to the job site, and installation, quality management processes are in place to ensure the pipe fully meets the requirements. | Volume 4B - Project Design and Execution - Construction |
| | Operating and maximum pressure of the pipeline | At this time, while the pressure of the existing line may be considered representative of the possible pressure for the proposed Trans Mountain expansion, the final range of pressure for the proposed pipeline is as of yet unknown.<br><br>Normal operating pressure in the existing Trans Mountain pipeline at the Fraser River crossing just south of Coquitlam is 2,000 to 3,000 kPa. The pressure changes with product type (refined products, light crude, heavy crude) and destination (Burnaby, Suncor Refined Products Terminal).<br><br>The pipeline is pressure tested to 125 per cent of its anticipated maximum operating pressure for a minimum of eight hours. This process tests the integrity of the complete system of the pipe, welds, fittings and all other appurtenances such as valves. A successful test is required to obtain certification for the pipeline to operate. | n/a |
| | Pipeline inspection frequency | Trans Mountain uses its natural hazards management program to monitor and protect against damage to the pipeline from unstable slopes, stream crossings and seismic events. Established in 1998, this program uses a custom database to document inspections and preventive maintenance work at more than 600 sites along the pipeline right-of-way and to schedule future inspection frequency based on risk. | n/a |
| Pipeline Integrity | Cleaning the inside of the pipeline - use of smart pigs | Internal inspection tools called Smart Pigs are sent down the pipeline with the product. Carrying onboard computers and sensors, they measure the diameter of the pipe and the thickness of the pipe wall and can detect dents, gouges or other damage to pipeline. Ultrasonic or EMAT testing further detects signs of any corrosion or cracks that have initiated in the pipe.<br><br>In general, cleaning pigs are run on mainline sections of the TMPL monthly. The use of cleaning pigs is a preventive maintenance practice to help mitigate internal corrosion by cleaning deposits from the internal surface of the pipe, such as paraffins, asphaltenes, sand, scale and free water.<br><br>Pigs will also be used upon successful completion of hydrostatic testing. Tested sections will be dewatered using pigs (foam or rubber sealing plugs) propelled through the pipeline by compressed air. Testing programs will be subject to NEB approval. Appropriate designs and construction practices will be implemented to meet technical standards and protect the safety of workers and the public. | n/a |
| | Risks to pipeline integrity (*e.g.*, landslides, earthquakes, blasting at nearby quarries) | Seismic assessments along the proposed pipeline corridor and existing Pipeline will include:<br>· Site specific assessment of seismically induced ground deformation;<br>· Site specific evaluations for seismically induced landslide potential; and<br>· Site specific assessment of seismically induced ground shaking. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Seismic design criteria for the pipeline and facilities, maximum magnitude they are built to withstand | | Volume 4B - Project Design and Execution - Construction |
| | Containment measures at valve locations | All Trans Mountain pump stations and terminals have automated leak detection and containment systems that are monitored continuously in the control centre. In the event of a facility leak, automatic emergency shutdown protection will immediately isolate the facility and trigger a call out of local personnel to investigate further. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Prevention of incidents | Pipeline safety is our number one priority, and through the experience gained in 60 years of operation, Trans Mountain has developed a mature suite of programs to maximize the safety of the pipeline.<br><br>Pipeline safety practices that focus on preventing pipeline failures and minimizing their impact are all part of what is known as a Pipeline Integrity Management Program. This program identifies all of the hazards that have the potential to affect the safety of the pipeline system and ensures that control measures are implemented to prevent or mitigate the occurrence and potential impact of each hazard including third party activity.<br><br>Control Centre Operations staff operate and monitor the pipeline 24/7, 365 days a year. Pressure and flow in the pipeline are controlled through valves, pumps and tanks at pump stations and terminals. Whenever conditions change unexpectedly, operators are trained to investigate and respond immediately.<br><br>Trans Mountain is committed to being a good corporate citizen by incorporating responsible business practices and conducting our operations in an ethical manner. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Pipeline Integrity | Risks of transporting dilbit | For 60 years, the 1,150 km existing Trans Mountain system has been operating safely and efficiently providing the only West Coast access for Canadian oil products, including being the major transporter of gasoline to the interior and south coast of BC. Trans Mountain has been transporting bitumen since the mid-1980s.<br><br>A substantial amount of work has been carried out recently to demonstrate that dilbit is no more corrosive than conventional crudes. Pipelines transporting dilbit are not at any greater risk of corrosion than pipelines carrying other types of petroleum products, such as conventional crude.<br><br>Diluent is typically either light crude, such as 'synthetic crude' or 'condensate', which is extracted from the ground along with natural gas. Synthetic crude and condensate on their own have been produced and transported by pipeline for decades. Neither the properties of diluent or bitumen carry any characteristics that would cause more corrosion. There are two components in the dilbit that have raised concern, namely acid and sulphur. These components exist in varying degrees in all crude types. If crude is heated to a temperature higher than 200°C, corrosion to pipelines transporting dilbit may occur. However, Trans Mountain pipelines operate well below that temperature. For more information on corrosion, please visit www.aboutpipelines.com. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Spills | Potential for a “Kalamazoo” spill and Spill Response Process | The failure of the crude oil pipeline carrying dilbit at the Kalamazoo River was attributed to multiple factors including external fatigue cracking, deficiencies in leak detection systems and inadequate training of control center personnel (National Transportation and Safety Board [NTSB] Press Release, 2012). The fact that it was carrying dilbit at the time was incidental to the failure mechanism. Corrosion fatigue is not an issue for internal corrosion of operating oil transmission pipelines (CEPA State of the Art Report Dilbit Corrosivity, 2013). Any product moved in the pipeline must meet KMC’s tariff requirements, which include the following limitations on product qualities:<br>· a maximum temperature of 38 °C;<br>· a maximum density of 940 kg/$m^3$ (specific gravity of 0.94);<br>· a maximum viscosity of 350 cSt (centistokes) at Reference Temperature;<br>· maximum impurities (bottom sediments and water) of 0.5% of volume;<br>· maximum Reid Vapour Pressure of 103 kPa (kilopascals); and<br>· The dilbit shipped in our pipeline has a maximum specific gravity of 0.94, which is lighter than water (1.00) and seawater (1.03).<br>Two systems monitor the TMPL continuously for changes in operating parameters that would indicate a possible leak:<br>· SCADA System; and<br>· Leak Detection System.<br>The SCADA system monitors rate-of-flow in the pipeline, pressure, temperature, and density of product, among other things. The parameters are then compared to a theoretical flow model, identifying any differences outside of prescribed norms that might indicate a problem. If a variance is found, an alarm will sound that is received by the control centre operator in Edmonton, AB. In the centre, there are dedicated operators per shift, each responsible for a different section of the pipeline. Monitoring takes place 24/7, and is divided into 12-hour shifts.<br>All operators undergo rigorous training and simulator testing to determine if they are qualified to hold this critical position. Until operators are fully qualified and have passed all testing, they may not operate unsupervised.<br>The data and modelling for the Leak Detection System is maintained and verified by a separate group of employees. These employees have received specialized training on how to operate and support the leak detection models.<br>In the event that an alarm does go off, a prescribed series of procedures and actions immediately begins. There are various types of alarms that could result in different procedures, as well as different responses depending on the location, the terrain and the conditions surrounding the area in question. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Spills | Trans Mountain’s spill record (2009 and 2012 spills) | KMC as the operator of the TMPL, is committed to transparency involving any and all spills that have occurred along its lines, or on partner vessels carrying KMC transported product.<br>Trans Mountain has a comprehensive safety and preventative maintenance program that includes the protection of stream and river crossings. These spill prevention systems are fully documented and can be audited by the NEB, the federal regulator of pipelines in Canada that cross inter-provincial boundaries and available for public knowledge.<br>As a regulated company, Trans Mountain is currently responsible for reporting spills greater than 1.5 $m^3$ (roughly five times the volume of an average household bathtub) or releases having any significant adverse effect, such as any spill to water. In those 60 years, there have been 80 spills on the existing TMPL pipeline that have been reported to the NEB.<br>These reported incidents are broken down as follows:<br>· 65 incidents involving crude oil;<br>· 7 involving gasoline, jet fuel, diesel and other types of oil;<br>· 5 involving contaminated water such as hydro-test water;<br>· 2 involving other products not listed above; and<br>· 1 did not involve any product.<br>Sixty nine per cent of Trans Mountain’s past spills have occurred at pump stations or terminals. All of Trans Mountain’s pump stations and terminals are equipped with monitoring and spill containment systems to provide early detection and lessen impacts and ensure spilled volumes are contained on site. These facilities are rigorously maintained and inspected to meet NEB standards.<br>The remaining 31 per cent of Trans Mountain’s spills have occurred along the pipeline, with 20 incidents related to releases of crude oil from the pipeline. Of these spills, only twelve exceeded the reporting threshold of 1.5 $m^3$, and just three of those twelve occurred in the last 30 years. None of Trans Mountain’s past spills occurred in open water, or while entering or exiting the Burrard Inlet. In all of these circumstances, Trans Mountain deployed its emergency response and spill management procedures.<br>Following each spill, Trans Mountain conducts a thorough incident investigation that contributes to improved spill prevention and management initiatives. Trans Mountain recognizes the potential for pipeline spills. Trans Mountain safety programs aim to minimize the effects of spills. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Spill modelling | Two systems monitor the pipeline continuously for changes in operating parameters that would indicate a possible leak:<br>· SCADA System; and<br>· Leak Detection System.<br>The SCADA system monitors rate-of-flow in the pipeline, pressure, temperature, and density of product, among other things. The parameters are then compared to a theoretical flow model, identifying any differences outside of prescribed norms that might indicate a problem. If a variance is found, an alarm will sound that is received by the control centre operator in Edmonton, AB. In the centre, there are dedicated | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | operators per shift, each responsible for a different section of the pipeline. Monitoring takes place 24/7, and is divided into 12-hour shifts.<br>All operators undergo rigorous training and simulator testing to determine if they are qualified to hold this critical position. Until operators are fully qualified and have passed all testing, they may not operate unsupervised.<br>The data and modelling for the Leak Detection System is maintained and verified by a separate group of employees. These employees have received specialized training on how to operate and support the leak detection models.<br>In the event that an alarm does go off, a prescribed series of procedures and actions immediately begins. There are various types of alarms that could result in different procedures, as well as different responses depending on the location, the terrain and the conditions surrounding the area in question. | |
| | New improvements to Trans Mountain's spill response program | As a result of the Exxon Valdez crude oil spill in the Gulf of Alaska in 1989, the Government of Canada appointed the Public Review Panel on Tanker Safety and Marine Spill Response Capacity (Brander-Smith Panel) and adopted a large number of its recommendations. In the 24 years since the Exxon Valdez incident, many safety improvements have been undertaken by governments and the tanker industry.<br>Bills such as C-16 in Canada have given authorities the power to prosecute sub-standard persons/organizations (including CEOs), if found polluting Canadian waters.<br>All of the initiatives above have contributed to improved safety standards and a measureable reduction in tanker incidents and oil spills, including mystery spills. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Responsibility for cleanup costs in the event of a spill | Trans Mountain will take every possible action to prevent a spill and has developed a number of programs to protect and inspect the TMPL. No spill is acceptable, but Trans Mountain has plans to respond, clean up, remediate, and learn from every incident should one occur.<br>Although ultimately, liability for an oil spill depends on the cause of the spill, Trans Mountain will always initiate and cover costs for clean up and restoration. Depending on circumstances, Trans Mountain will then seek to recover costs from insurance or from a third party.<br>Trans Mountain is aware the public seems to have little confidence in the insurance sum available for spills and is working with all parties and agencies involved to address spill response capabilities. However, Trans Mountain also believes that this needs to be done in the context of a regulatory sanction, not independently by industry. Trans Mountain would be active at a community level and rely on its website to make information available. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Spills | Potential for bitumen to sink in water | Bitumen is a heavier, thicker form of petroleum and contains fewer of the lighter hydrocarbon molecules found in conventional crude. In order to make bitumen flow through a pipeline, natural gas liquids or condensate (diluents) are added. This substance is referred to as dilbit and is made up of both light and heavy hydrocarbon molecules. The resulting density is the average of the materials blended.<br>Some people think dilbit sinks in water. With a maximum density of 0.94, dilbit is lighter than water (density 1.00) and seawater (density 1.03). Additional research is taking place to quantify how the dilbit reacts over time in water, with wave action, with fast-moving currents, with different sediment levels and with various other factors. Other studies have recently been conducted or are underway including the SL Ross Study (Meso-scale Weathering of Cold Lake Bitumen/Condensate Blend), that was prepared for a Joint Review Panel submission by Enbridge Northern Gateway Project. The study was prepared in anticipation of Natural Resources Canada requesting information on the weathering effects of dilbit on water.<br>No scientific basis has been found to claims that dilbit causes greater internal corrosion in oil pipelines than other crude oil sources.<br>Research is taking place to quantify how the dilbit reacts over time in water, with wave action, with fast-moving currents, with different sediment levels and with various other factors.<br>Other recent studies include:<br>• Crude Quality Inc.;<br>• Alberta Innovates; and<br>· Transportation Research Board. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Leakage from tankers | Tanker construction has evolved rapidly to meet the strictest of building standards, which meet IMO, Flag State and Class Society requirements; including double hulls. Tankers are the most scrutinized vessels in the shipping industry. The international tanker inspection regime includes both mandatory regulatory inspections, as well as regular inspections by private customers like Trans Mountain, who are all united in their efforts to ensure the safety of marine transportation of oil cargoes. All tankers are now expected to have two radar systems in working order — one of which must be a specialized collision-avoidance radar. Additionally, ships are equipped with an AIS, which broadcasts ships coordinates and other information for use by traffic services and other vessels to help avoid collisions. The proposed expansion at the Westridge Terminal is based on the loading of Aframax tankers, the same tankers currently being loaded at Westridge. Find out more on our website at www.transmountain.com | Volume 8A – Marine Transporation |
| **Socio-Economic** | | | |
| Economic Impact/ Benefit | Availability of insurance for Landowners against an oil spill | Trans Mountain is aware the public seems to have little confidence in the insurance sum available for spills and is working with all agencies and parties involved to address spill response capabilities. However, Trans Mountain also believes that this needs to be done in the context of a regulatory sanction, not independently by industry. Trans Mountain would be active at a community level and rely on its website to make information available.<br>Trans Mountain carries liability insurance to provide coverage for all aspects of spill management, including compensation and remediation. To ensure there are sufficient funds to remediate a spill, Trans Mountain is covered by insurance necessary to respond to all spills or releases from our pipelines and facilities. Trans | Volume 5B - ESA - Socio-Economic<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | Mountain monitors the insurance program continuously, and makes annual adjustments as necessary to ensure adequate coverage.<br>As part of an ongoing commitment to safety and environmental protection, Trans Mountain takes responsibility for the cleanup and remediation of spills by responding immediately to any release from the pipeline system. Trans Mountain works with pre-qualified and trained consultants and contractors to ensure any spill is cleaned up as quickly as possible, while ensuring the safety of the public and minimizing impacts to the environment.<br>Although ultimately, liability for an oil spill depends on the cause of the spill, Trans Mountain will always initiate and cover costs for cleanup and restoration. Depending on circumstances, Trans Mountain will then seek to recover costs from insurance or from a third party. | |
| | Agricultural and resource extraction land uses | One of the key routing principles of the Project is to use the existing TMPL right-of-way that has been in existence for 60 years to the greatest extent possible to minimize new land disturbance. Trans Mountain recognizes that land use patterns have changed since the original pipeline was built and there are many different resource uses proximate to the proposed pipeline corridor. A range of mitigation measure will be implemented to reduce effects on land and resource uses crossed by the Project. This will include: avoiding disturbance to valued natural and built features to the extent practical during right-of-way finalization, narrowing the construction right-of-way at key locations, on-going consultation with land and resource users, and negotiating access/use agreements with directly affected property owners and tenure holders.<br>An Agricultural Management Plan has been developed to particularly reduce effects on agriculture, which includes measures related to weed management, re-seeding, soil compaction, livestock access, drainage and irrigation lines, management of crop disruption, and crop and productivity loss. | Volume 5B - ESA - Socio-Economic |
| | Landowner compensation | Trans Mountain works with landowners along its pipeline network. A key objective is to treat each landowner fairly and equitably. For those who may be directly affected by the Project, Trans Mountain will identify and address landowners' concerns and questions about the Project. These landowners will then work with the Lands Teams to reach jointly equitable solutions.<br>The NEB has produced a guide for landowners and the public that provides details about the regulatory process governing pipeline projects. This information is available on the NEB website. | Volume 5B - ESA - Socio-Economic |
| | Impacts to local business activity | Expanding the TMPL system will create both short- and long-term job opportunities in BC communities along the pipeline route and an increase in tax revenue for the BC and local governments.<br>Of the total construction and long-term operating expenditures related to the Project, about 63 per cent (or $7.0 billion) is to be spent in BC. The estimated job impact is 32,000 person-years (full-time equivalents) of employment in BC during construction and operations. For example, during the peak construction period of the TMEP and associated facilities, construction hubs are to be established along the route hubs will be filled with construction workers who will spend money on accommodation, meals and other local goods and services.<br>The Project is also anticipated to generate substantial provincial and municipal tax revenue for BC. Over the life of the Project (based on an assumption of 6 years of design and construction and 30 years of operations), approximately $355 million in increased provincial tax revenues are anticipated in BC, as well as additional municipal tax revenues of about $600 million ($22 million annually).<br>The proposed expanded operations are anticipated to create 50 new full-time permanent positions in BC.<br>*Note: All figures are based on the proposed expansion of the TMPL at a proposed capacity of 890,000 bbl/d. These estimates will change as economic impact figures are updated to reflect Project design changes and economic conditions.* | Volume 5B - ESA - Socio-Economic |
| Economic Impact/ Benefit | Private Land - Loss of property value | Operating and building pipeline infrastructure affects many along the route, and Trans Mountain recognizes the potential impact to its neighbours and communities in proximity to operating areas.<br>Trans Mountain works with landowners along its pipeline network. A key objective is to treat each landowner fairly and equitably. For those who may be directly affected by the Project, Trans Mountain will identify and address landowners' concerns and questions about the Project. These landowners will then work with the Lands Teams to reach jointly equitable solutions. | Volume 5B - ESA - Socio-Economic |
| | Awareness of positive benefits of the Project | As the world's third-largest oil producer, Canada benefits greatly from the export of national resources. Twinning the TMPL will increase Canada's capacity to export these resources by facilitating the movement of oil to the West Coast for marine transport to market. It will further secure the supply of oil products to the Lower Mainland for use by BC's residents and businesses. The Project will also lead to new jobs in the short and long term, job-related training opportunities, and increases in taxes collected through all three levels of government.<br>Overall, the proposed expansion will enhance Canada's ability to reach diversified markets with its oil, while also increasing tax revenues that can be used to fund government projects and services Canadians depend on such as health care, education, roads and infrastructure.<br>Trans Mountain plans to spend $5.4 billion by the end of 2017 to construct the line and associated facilities, and a further $2.4 billion to operate it for the first 20 years. British Columbia's economy is forecasted to grow by $2.8 billion (GDP) through construction-related spending, and up to $11.3 billion including Project operations through to 2037.<br>The Project is also anticipated to generate substantial provincial and municipal tax revenue. Provincial governments revenues associated with the Project are anticipated to be in the order of $1.7 billion, with BC provincial government receiving $1 billion in provincial taxes and Alberta receiving over $0.4 billion in provincial taxes. Municipal tax revenues which can support community services and infrastructure are estimated to increase approximately $23 million annually, or $460 million over 20 years of operations. In Alberta, municipal property taxes are | Volume 5B - ESA - Socio-Economic |

**TABLE 1.7.2**

**INTEREST OR CONCERN – BC INTERIOR (continued)**

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | estimated to increase approximately $3.4 million annually, or $68 million over 20 years of operations. In communities along the pipeline route annual property tax payments to more than 20 local governments and more than 24 Aboriginal communities would jump to $52.4 million from $25.9 million per year at present.<br><br>The estimated tax revenues to the Government of Canada are $2.1 billion over the life of the proposed project.<br><br>Expanding the TMPL system will create both short- and long- term job opportunities in BC communities along the pipeline route. Construction is scheduled in 2016 and 2017 with an estimated 4,500 workers at peak manpower. Trans Mountain expects to create 108,000 person years of employment, from construction and the first 20 years of operations across Canada. Of this, 66,000 person years of employment will be in BC and 25,000 will be in AB (related to direct project spending as well as supply chain effects and spending of wages). In communities where construction activities concentrate, the economic impacts will be significant. During the peak construction period of the TMEP and associated facilities, construction hubs will be established along the route for the staging of work and accommodation of workers. Construction workers residing in construction hub communities will spend money on accommodation, meals and other goods and services, which will create spin-off benefits for local businesses and economies. A large number of the total construction workforce will come from the communities directly along the route, including nine in BC. In larger communities it is estimated up to 30 per cent of the workforce will be local hires.<br><br>The proposed expanded operations are anticipated to create 40 new full-time permanent positions in Alberta and 50 new full-time permanent positions in BC. | |
| | Implications of expansion for Chevron refinery | Trans Mountain views Chevron as a long standing and important customer and has a continuing interest in supplying not only Chevron but all existing customers on TMPL. A full list of the customers that have contracted to ship on the TMEP can be found on our website. Each customer name is linked to their website where you can find out more about their company. In addition the pipeline directly serves other customers including Chevron in BC and Shell and Phillips 66 in Washington State.<br><br>Expansion of TMPL will ensure ample supply for the Lower mainland of BC. Chevron will have sufficient spot market access to the pipeline to supply the Burnaby refinery. A capacity of 708,000 bbl/d would serve the 13 customers who signed up for fixed 15 and 20-year contracts. The remaining, approximately 180,000 bbl/d, will be available for customers, who chose not to enter into long-term contracts and want to access the spot market.<br><br>The Project will alleviate the oversubscription issues currently being experienced by existing customers and will enable all existing and new customers to get the capacity that each requires to carry on with their business, including Chevron. | n/a |
| | Support for Chevron refinery and for refining oil products in Canada | | n/a |
| Economic Impact/ Benefit | Potential decreases in property values and marketability of houses near the right-of-way | Treating landowners – the people who have land agreements with Trans Mountain – and neighbours fairly and equitably is a cornerstone of the relationships Trans Mountain has developed and maintained in communities along the TMPL system.<br><br>Through respectful dialogue, Trans Mountain's goal is to negotiate mutually-agreeable arrangements with each landowner who may be impacted by the Project.<br><br>In cases where Trans Mountain is unable to reach a mutually-agreeable arrangement, the NEB has a multi-step process that the Company will follow to address differences of opinions as part of the routing review and approval process.<br><br>More information about the process from the NEB is available here: www.neb-one.gc.ca/clf-nsi/rthnb/pblcprtcptn/pplnrgltncnd/pplnrgltncnd_ndx-eng.html> Pipeline Regulation in Canada: A Guide for Landowners and the Public | Volume 5B - ESA - Socio-Economic |
| | Increases in municipal taxes | The Project is anticipated to generate substantial provincial and municipal tax revenue. Provincial governments revenues associated with the Project are anticipated to be in the order of $1.7 billion, with BC provincial government receiving $1 billion in provincial taxes and Alberta receiving over $0.4 billion in provincial taxes. Municipal tax revenues which can support community services and infrastructure, are estimated to increase approximately $23 million annually, or $460 million over 20 years of operations. In Alberta, municipal property taxes are estimated to increase approximately $3.4 million annually, or $68 million over 20 years of operations. In communities along the pipeline route, annual property tax payments to more than 20 local governments and more than 24 Aboriginal communities would jump to $52.4 million from $25.9 million per year at present. | Volume 5B - ESA - Socio-Economic |
| | Benefits to Canada as a whole and to communities/municipalities along the route (*e.g.*, Hope) | As the world's third-largest oil producer, Canada benefits greatly from the export of national resources. Twinning the TMPL will increase Canada's capacity to export these resources by facilitating the movement of oil to the West Coast for marine transport to market. It will further secure the supply of oil products to the Lower Mainland for use by BC's residents and businesses. The Project will also lead to new jobs in the short and long term, job-related training opportunities, and increases in taxes collected through all three levels of government.<br><br>Overall, the proposed expansion will enhance Canada's ability to reach diversified markets with its oil, while also increasing tax revenues that can be used to fund government projects and services Canadians depend on, such as health care, education, roads and infrastructure.<br><br>Trans Mountain plans to spend $5.4 billion by the end of 2017 to construct the line and associated facilities, and a further $2.4 billion to operate it for the first 20 years. British Columbia's economy is forecasted to grow by $2.8 billion (GDP) through construction-related spending, and up to $11.3 billion including Project operations through to 2037.<br><br>The Project is also anticipated to generate substantial provincial and municipal tax revenues. Provincial governments revenues associated with the Project are anticipated to be in the order of $1.7 billion, with BC provincial government receiving $1 billion in provincial taxes and Alberta receiving over $0.4 billion in provincial taxes. Municipal tax revenues which can support community services and infrastructure are estimated to increase approximately $23 million annually, or $460 million over 20 years of operations. In Alberta, municipal property taxes are estimated to increase approximately $3.4 million annually, or $68 million over 20 years of operations. In communities along the pipeline route annual property tax payments to more than 20 local governments and more than 24 Aboriginal | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | communities would jump to $52.4 million from $25.9 million per year at present.<br>The estimated tax revenues to the Government of Canada are $2.1 billion over the life of the proposed project.<br>Expanding the TMPL system will create both short- and long- term job opportunities in BC communities along the pipeline route. Construction is scheduled in 2016 and 2017 with an estimated 4,500 workers at peak manpower. Trans Mountain expects to create 108,000 person years of employment, from construction and the first 20 years of operations across Canada; of this 66,000 person years of employment will be in BC and 25,000 will be in Alberta (related to direct Project spending as well as supply chain effects and spending of wages). In communities where construction activities concentrate, the economic impacts will be significant. During the peak construction period of the TMEP and associated facilities, construction hubs will be established along the route for the staging of work and accommodation of workers. Construction workers residing in construction hub communities will spend money on accommodation, meals and other goods and services which will create spin-off benefits for local businesses and economies. A large number of the total construction workforce will come from the communities directly along the route, including nine in BC. In larger communities it is estimated up to 30 per cent of the workforce will be local hires.<br>The proposed expanded operations are anticipated to create 40 new full-time permanent positions in Alberta and 50 new full-time permanent positions in BC. | |
| | Trans Mountain investment in community infrastructure and facilities | Trans Mountain is developing a community investment strategy. Trans Mountain recognizes the importance of local community benefits as part of this Project, and continues to define benefits through stakeholder input. | Volume 5B - ESA - Socio-Economic |
| | Concern about inadequate power supply in North Thompson Valley | From initial discussions with BC Hydro, Trans Mountain understands that additional power infrastructure will be required in the North Thompson Valley. Trans Mountain is also aware some community residents have expressed concerns about the power supply in the North Thompson Valley and that BC Hydro has addressed the issue with local governments.<br>By the end of 2013, BC Hydro will inform Trans Mountain what infrastructure is required in the North Thompson Valley to supply the additional power while maintaining the public utility's existing customer service standards and commitments. It is anticipated the required infrastructure will be a combination of additions and upgrades to the current BC Hydro system, primarily within BC Hydro's existing rights-of-way. Trans Mountain is not participating directly in any major new power infrastructure projects in the North Thompson Valley. | Volume 5B - ESA - Socio-Economic |
| | Impact to the enjoyment of existing TMPL right-of-way as recreational green space | Trans Mountain is aware that people use the right-of-way for recreational purposes. This could be challenging as the communities believe it is a part of the open space and park system, when in reality it is a major utility corridor and Trans Mountain is only there as a secondary land user. Trans Mountain is open to discussing recreational use of the right-of-way. Walking, hiking and biking are all great activities for the right-of-way. | |
| | Use of local materials during construction | The NEB OPR (NEB 1999) and the CSA Z662, Oil and Gas Pipeline Systems code, ensure that pipelines are designed and operated to prescriptive requirements. These requirements include design, quality of materials, construction, and operations and maintenance. Due to industry specifications, pipe and facilities will be sourced from certified sources. Where there is an option to source local materials for other aspects of construction (*e.g.*, roads) this will be examined. | Volume 4B - Project Design and Execution - Construction |
| | Lack of long-term jobs as a result of this Project | Expanding the TMPL system will create both short- and long-term job opportunities in BC communities along the pipeline route. Construction is scheduled in 2016 and 2017 with an estimated 4,500 workers at peak manpower. Trans Mountain expects to create 108,000 person years of employment, from construction and the first 20 years of operations across Canada; of this 66,000 person years of employment will be in BC and 25,000 will be in Alberta (related to direct project spending as well as supply chain effects and spending of wages). In communities where construction activities concentrate, the economic impacts will be significant. During the peak construction period of the TMEP and associated facilities, construction hubs will be established along the route for the staging of work and accommodation of workers. Construction workers residing in construction hub communities will spend money on accommodation, meals, and other goods and services, which will create spin-off benefits for local businesses and economies. A large number of the total construction workforce will come from the communities directly along the route, including nine in B.C. In larger communities it is estimated up to 30 per cent of the workforce will be local hires.<br>The proposed expanded operations are anticipated to create 40 new full-time permanent positions in Alberta and 50 new full-time permanent positions in BC.<br>*Note: All figures are based on the proposed expansion of the TMPL at a proposed capacity of 890,000 bbl/d. These estimates will change as economic impact figures are updated to reflect Project design changes and economic conditions.* | Volume 5B - ESA - Socio-Economic |
| | Effect of proposed expansion on local gas prices | Gasoline prices are affected by a large number of global factors. The prices of crude oil are neither controlled nor directly influenced by the development of any specific pipeline. There are some valuable resources online that explain the factors that influence gas prices, including the following links:<br>- http://www.neb.gc.ca/clf-nsi/rcmmn/hm-eng.html<br>- http://www.capp.ca/Pages/default.aspx | Volume 5B - ESA - Socio-Economic |
| | Economic impact and opportunity related to construction crew hosting | Preliminary planning is underway to determine the location of host communities and the anticipated size of construction crews. Once that work has been completed, economic information from the Statistics Canada modelling will be used to generate more detailed information of the potential economic impact of construction crew hosting. It is anticipated that the Trans Mountain team will be ready to share this information with communities by the end of 2013. | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.2

## INTEREST OR CONCERN – BC INTERIOR (continued)

| Key Topic | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Potential negative impacts to lakes, rivers, fish-bearing streams, groundwater and drinking water sources (*e.g.,* Kakawa Lake and the natural spring nearby) | Trans Mountain owns, maintains, and operates dedicated spill response equipment at strategic points along the TMPL system corridor. OSCAR units are located at Trans Mountain facilities in Edmonton and Jasper, AB, and in Blue River, Kamloops, Hope and Burnaby, BC. Each OSCAR unit contains about 300 m of oil recovery boom and support equipment, including a river jet boat for deployment. All equipment is helicopter transportable for delivery to remote locations not accessible by road. A separate OSCAR unit containing 1,524 m of river boom is also located at the Kamloops Terminal. Specialized equipment has been developed in-house by Trans Mountain employees for intercepting and recovering oil, if required, from beneath the ice on frozen rivers and lakes. This equipment is stored in the Jasper and Edmonton OSCAR units. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Employment and Training Opportunities | Training opportunities - operations and marine | Trans Mountain is exploring opportunities to provide and support education and training initiatives along the pipeline route, and has begun dialogue with local training institutions. Education and training in areas such as trades, maintenance, operations and environmental management will enhance the capacity of the local labour force to participate in Project opportunities. This will also build transferrable skills that can be used across other industries, and enhance the overall community capacity. Trans Mountain has a history of supporting education and training. One example is Trans Mountain's Skill Builder program, which offers condensed utility classes for Aboriginal workers. | Volume 5B - ESA - Socio-Economic<br>Volume 8A – Marine Transportation |
| | Employment and procurement during construction | In many locations, this Project would provide a much-needed boost to struggling local economies. The Trans Mountain database is tagging the job/vendor emails accordingly and interested parties are encouraged to sign up for the latest updates on the website. At the appropriate time, these stakeholders will be notified of opportunities. | Volume 5B - ESA - Socio-Economic |
| | Timing of construction activities | Construction of the pipeline will be completed in construction spreads. Segmentation of the pipeline construction will divide the work into manageable portions based on length and expected construction challenges, with a work schedule that alternates between winter and summer construction periods based on regional conditions, and will provide for a continuous construction schedule. It is expected that construction will take place in four or five pipeline construction spreads in each of the three construction seasons (two in summer and one in winter) during 2016/2017, for a total of 15 spreads. Each construction spread is expected to range from 30 to 100 km in length. The number of construction spreads might change based on more detailed engineering and environmental studies, and construction planning. Large mainline work crews will construct most of the pipeline within each construction spread. Smaller specialty work crews will work in parallel with the mainline work crews to complete construction of non-standard pipeline sections, such as at road, rail, utility and watercourse crossings. Specialty contractors will be used for construction in urban or industrial areas to ensure safe pipeline and facilities installation.<br>The Trans Mountain Environmental Inspector will ensure construction activities follow the EPP including the daily timing of activities through residential areas. | Volume 6 - Project Execution |
| | Long-term employment opportunities | Expanding the TMPL system will create both short- and long-term job opportunities in BC communities along the pipeline route. Construction is scheduled in 2016 and 2017 with an estimated 4,500 workers at peak manpower. Trans Mountain expects to create 108,000 person years of employment, from construction and the first 20 years of operations across Canada; of this 66,000 person years of employment will be in BC and 25,000 will be in AB (related to direct project spending as well as supply chain effects and spending of wages). In communities where construction activities concentrate, the economic impacts will be significant. During the peak construction period of the TMEP and associated facilities, construction hubs will be established along the route for the staging of work and accommodation of workers. Construction workers residing in construction hub communities will spend money on accommodation, meals and other goods and services which will create spin-off benefits for local businesses and economies. A large number of the total construction workforce will come from the communities directly along the route, including nine in BC. In larger communities it is estimated up to 30 per cent of the workforce will be local hires.<br>The proposed expanded operations are anticipated to create 40 new full-time permanent positions in Alberta and 50 new full-time permanent positions in BC. | Volume 5B - ESA - Socio-Economic |
| Human and Environmental Health | Risk of carcinogenic effects from products in pipeline | There are no known carcinogenic health related risks related to products within the pipeline. In support of the ESA for the Project, a HHRA was commissioned, the principal aim of which was to identify and understand the potential short- and long-term health risks, including carcinogenic risks, to people exposed to the chemicals that could be released to the environment from the pipeline and associated facilities. | Volume 5B - ESA - Socio-Economic |
| | Health impacts of airborne chemicals | Trans Mountain is committed to minimizing impacts to the local environment, health, and community by working openly and co-operatively with all levels of government, Aboriginal groups, and stakeholders,. | Volume 5B - ESA - Socio-Economic |

### *1.7.3 Key Topics of Interest or Concern- Lower Mainland/Fraser Valley (Chilliwack to Burnaby)*

Figure 1.7.3 displays the key topics of interest or concern in Lower Mainland/Fraser Valley. This includes all comments from all engagement activities including public information sessions, ESA Workshops, community workshops and online engagement.

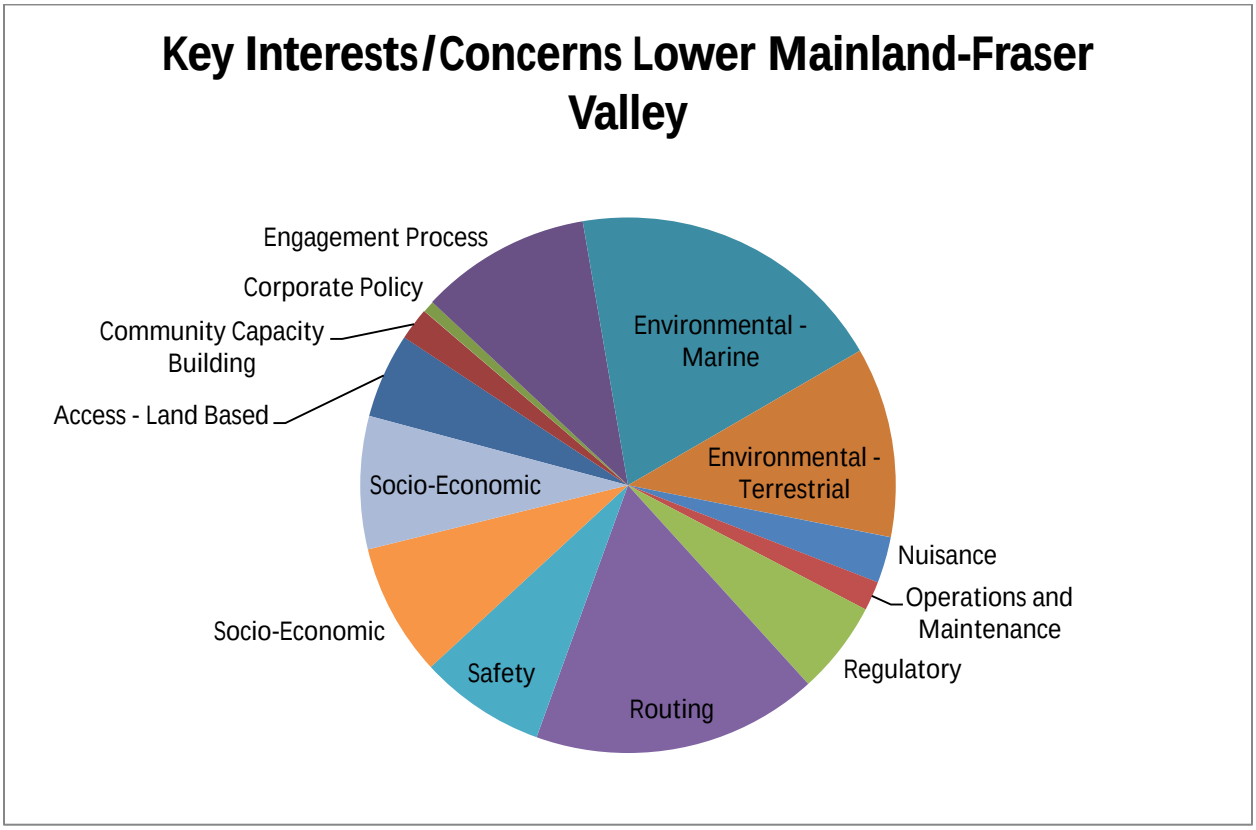


**Figure 1.7.3 Key Topics of Interest or Concern in Lower Mainland/Fraser Valley**

Table 1.7.3 provides information on the key topics of interest for Lower Mainland/Fraser Valley and the response to the interest or concern. The Application volume provides information as to where the key interest or concern is addressed.

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| **Corporate Policy** | | | |
| Community Capacity Building | How will Trans Mountain work with trade schools on skills development? | Trans Mountain is exploring opportunities to provide and support education and training initiatives along the pipeline route, and has begun dialogue with local training institutions. Education and training in areas such as trades, maintenance, operations and environmental management will enhance the capacity of the local labour force to participate in Project opportunities. This will also build transferrable skills that can be used across other industries, and enhance the overall community capacity. Trans Mountain has a history of supporting education and training. One example is Trans Mountain's Skill Builder program, which offers condensed utility classes for Aboriginal workers.<br><br>Trans Mountain is also committed to working with the marine industry to ensure the safe movement of vessels that travel in BC waters and call on the Westridge Marine Terminal in Burnaby.<br><br>Trans Mountain joined the Government of Canada, Transport Canada and various local West Coast marine entities in 2011 to upgrade the multi-million dollar marine simulation centre at the British Columbia Institute of Technology (BCIT) Marine Campus in North Vancouver, BC. The centre offers a variety of navigation training and safety programs. The simulation training takes place on all vessel types from tug boats to large cargo ships and oil tankers. The centre includes a ship's main bridge simulator which duplicates many scenarios a ship's crew and captain would encounter, such as rolling seas and high winds.<br><br>Although Trans Mountain is not directly involved in marine shipping, our support of the centre helps train crews who ensure vessels move safely along our coast. | Volume 5B - ESA - Biophysical |
| Clean Technology | Does Trans Mountain invest in clean technology? | Trans Mountain is assessing the carbon impact of constructing and operating the proposed expansion of the TMPL and its related facilities. The GHG impacts will be outlined the ESA submitted with the NEB facilities application and a carbon management plan will be developed to mitigate (reduce) emissions as much as possible.<br><br>For upstream or downstream impacts outside of Trans Mountain's jurisdiction or control, we will also describe how Trans Mountain is acting as a catalyst to influence the industry to help address issues upstream and downstream from the pipeline. Examples include: climate change; oil sands development; shipping practices; emergency spill response; and protecting the ecological integrity of BC and Alberta.<br><br>Transitioning to a clean energy future takes time, financial investment and a shared commitment between government, industry and British Columbians. It requires us to think beyond traditional methods and attitudes and accept that changes are necessary if Canada is to remain a reliable, global energy provider.<br><br>TMPL has a 60 year history of safe and responsible operations. Trans Mountain is designing a Project that will account for our impact on communities, our environment and our economy. A comprehensive assessment of our work will be available in the ESA when Trans Mountain files the Facilities Application to the NEB.<br><br>The Conference Board of Canada states that over the next five years, more money ($6.1 billion) will be invested in climate friendly technology in Alberta than all the other Canadian provinces combined. More than $312 million has been collected for a clean energy technology fund, which will be invested to find better ways to cleanly develop resources.<br><br>Funds are administered through the Climate Change and Emissions Management Corporation and awarded to Projects within the province. The Alberta government is investing $25 million into Carbon Management Canada, a national, university-led research network.<br><br>Climate change and water use are an important issues which Canada's oil industry have addressed through many activities. A lot has changed in the last fifty years and there are some great resources on the CAPP website about climate and water. As well as on the Canadian Energy Pipeline Association website. | n/a |
| Climate Change | What is the impact of the Project on climate change? | Trans Mountain is assessing the carbon impact of constructing and operating the proposed expansion of the TMPL and its related facilities. The GHG impacts will be outlined the ESA submitted with the NEB facilities application and a carbon management plan will be developed to mitigate (reduce) emissions as much as possible.<br><br>For upstream or downstream impacts outside of Trans Mountain's jurisdiction or control, we will also describe how Trans Mountain is acting as a catalyst to influence the industry to help address issues upstream and downstream from the pipeline. Examples include: shipping practices; emergency spill response; and protecting the ecological integrity of BC and Alberta.<br><br>Climate change and water use are an important issues which Canada's oil industry have addressed through many activities. A lot has changed in the last fifty years and there are some great resources on the CAPP website about climate and water. As well as on the Canadian Energy Pipeline Association website. | n/a |
| Liability | Liability and compensation | In Canada, liability and compensation for ship source oil spill pollution is governed by the *Canada Shipping Act* and *Marine Liability Act* that reflects Canada's commitment to international conventions administered by the IMO.<br><br>Conventions limit the liability of the Responsible Party (ship owner) and establish sources of funding for cleanup and compensation for damages. Up to $1.312 billion is available. Trans Mountain carries liability insurance to provide coverage for all aspects of spill management, including compensation and remediation. To ensure there are sufficient funds to remediate a spill, Trans Mountain is covered by insurance necessary to respond to all spills or releases from our pipelines and facilities. Trans Mountain monitors the insurance program continuously, and makes annual adjustments as necessary to ensure adequate coverage.<br><br>As part of an ongoing commitment to safety and environmental protection, Trans Mountain takes responsibility for the cleanup and remediation of spills by responding immediately to any release from the pipeline system. Trans Mountain works with pre-qualified and trained consultants and contractors to ensure any spill is cleaned up as quickly as possible while ensuring the safety of the public and minimizing impacts to the environment.<br><br>Although ultimately, liability for an oil spill depends on the cause of the spill, Trans Mountain will always initiate and cover costs for cleanup and restoration. Depending on circumstances, Trans Mountain will then seek to recover costs from insurance or from a third party.<br><br>Trans Mountain is aware the public seems to have little confidence in the insurance sum available for spills and is working with all agencies and parties involved to address spill response capabilities. However, Trans Mountain also believes that this needs to be done in the context of a regulatory sanction, not independently by industry. Trans Mountain would be active at a community level and rely on its website to make information available. | n/a |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| **Engagement Process** | | | |
| Engagement | The messaging around toxicity and bitumen is unclear | One of the goals of Engagement Phase 1 was to provide accurate information about the Project. During Phase 2, Trans Mountain joined social media networks with the launch of a Project Twitter channel. One of the goals of the Twitter channel was to provide accurate information about the Project. | Volume 3 - Consultation |
| | Will there be consultation within 150m corridor after the October 2013 Application is submitted? | Engagement activities will continue to take place along the pipeline route throughout the lifetime of the Project. This is an important part of the process to determine the proposed route of the proposed Project. | Volume 3 - Consultation |
| | Landowner satisfaction process so far | Trans Mountain has begun and will continue to engage in meaningful consultation with affected stakeholders regarding socio-economic impacts and benefits. Through respectful dialogue, our goal is to negotiate mutually-agreeable arrangements with each landowner who may be impacted by the Project. In cases where Trans Mountain is unable to reach a mutually-agreeable arrangement, the NEB has a multi-step process that Trans Mountain will follow to address differences of opinions as part of the routing review and approval process. More information about the process from the NEB is available here: www.neb-one.gc.ca/clf-nsi/rthnb/pblcprtcptn/pplnrgltncnd/pplnrgltncnd_ndx-eng.html> Pipeline Regulation in Canada: A Guide for Landowners and the Public | Volume 3 - Consultation |
| **Environment - Marine** | | | |
| Birds; Species at Risk | Concern for migratory birds and watersheds; frogs | Trans Mountain will work with Environment Canada and comply with the Migratory Birds Convention Act Migratory Birds Sanctuary Regulations related to the Project components and impacts. Trans Mountain will conduct clearing and preconstruction activities outside the minimum migratory bird RAP of May 1 to July 31 where practical. In the event the schedule changes and clearing activities are planned during the migratory bird RAP, a migratory bird nest sweep will be conducted. In the event an active nest is found, a protective buffer will be established around the nest. The size of the buffer will be influenced by the status of the bird. Typically a 30 m buffer is applied to a songbird nest and a 100 m buffer around waterfowl or raptor nests.<br>If a bird species with a provincially or federally recommended setback distance is found, then that buffer will be applied around the nest, unless otherwise authorized by the appropriate regulatory authority.<br>To protect riparian habitat and watersheds, special precautions, such as completing construction through wetlands and watercourses during the winter months when the ground is frozen, will be conducted on each of the river and stream crossings along the pipeline route. Additionally, water quality will be monitored during all instream activity. Each watercourse will be approached correctly so the cumulative impact of changes to all the crossings and the surrounding watershed would be limited. | Volume 4B – Project Design and Execution - Construction<br>Volume 5A – Biophysical |
| Dock Site | Concern for size of footprint at Westridge Marine Terminal | Consultation for the Project has included the expansion to the Westridge Marine Terminal. In consultation with stakeholders, the design continues to be refined as it takes into consideration concerns and interests from stakeholders.<br>As a long-time industry and community member, Trans Mountain has joined Green Marine in order to benchmark and commit to continuous improvement in the terminal's environmental performance. Green Marine is a transparent and inclusive program that addresses nine key environmental issues including air emissions, community impacts (noise, dust, light) and environmental leadership. The program encourages its participants: ship owners, ports, terminals and shipyards; to reduce their environmental footprint by taking concrete actions and reporting on their performance. Green Marine has grown to more than 40 environmental groups and government departments/agencies who have endorsed and helped shape the environmental program, along with representatives from the academic sector and the marine industry. | Volume 3 – Consultation<br>Volume 8A – Marine Transportation |
| | Concern with route selection | The selection of the proposed pipeline corridor included both field and desktop assessments of the existing TMPL right-of-way and alternative routing locations and resulted in a preferred route. Where practical, the route for the proposed expanded pipeline will remain along the existing TMPL right-of-way. Where land use has changed since the pipeline went into operation in 1953, there may be a need to route parts of the new line away from the existing TMPL right-of-way. In these cases, Trans Mountain will look at alternatives through comprehensive routing studies in combination with its consultation process. | Volume 4B - Project Design and Execution - Construction |
| Environmental Risk Assessment | How far out will the marine studies extend from Vancouver? | Marine environmental studies will focus on the area surrounding the Burnaby Westridge Marine Terminal. These studies will include, but are not limited to, marine sediments, invertebrates, vegetation, mammals, birds and fish species. Marine field surveys were completed in summer/fall 2012 and will continue on a more limited basis through the winter and into spring/summer 2013. An environmental assessment of the marine transportation and the incremental effects of the increased tanker traffic will be completed. | Volume 8A – Marine Transportation |
| Liability | Custody of the oil at the dock – who is responsible for an oil spill? When does that change hands? | Trans Mountain takes responsibility for first preventing land based spills and for cleaning up and restoring the environment if there is a spill. While Trans Mountain takes responsibility, ultimate liability for an oil spill depends on the cause of the spill. Trans Mountain would cover the costs of land based spill clean-up and restoration and depending on the circumstances seek to recover them from insurance or a third party if they were responsible for the spill.<br>Trans Mountain carries liability insurance to provide coverage for all aspects of spill management, including compensation and remediation. To ensure there are sufficient funds to remediate a spill, Trans Mountain is covered by insurance necessary to respond to all spills or releases from our pipelines and facilities. Trans Mountain monitors the insurance program continuously, and makes annual adjustments as necessary to ensure adequate coverage.<br>In Canada, liability and compensation for ship-source oil spill pollution are governed by the *Canada Shipping Act* and *Marine Liability Act*. Both acts reflect Canada's commitment to international conventions administered by the IMO, such as those regarding the (IOPC Funds.Conventions limit the liability of the Responsible Party (ship owner) and establish sources of funding for cleanup and compensation for damages. Up to $1.312 billion is available for an individual spill. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A – Marine Transportation |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | Trans Mountain will take every possible action to prevent a spill and has developed a number of programs to protect and inspect the TMPL. No spill is acceptable, but we have plans to respond, clean up, remediate, and learn from every incident should one occur.<br><br>Remediation cleanup criteria have been established by both federal and provincial agencies. As a federally regulated pipeline system, Trans Mountain is required to conduct any cleanup to satisfy both the regulations and the NEB. More information on Canadian regulations is provided on the Project website: http://www.transmountain.com/Canadian-regulations-and-spill. | |
| Tankers | Concern that spill will negatively impact fish-bearing streams | Special precautions, such as completing construction through wetlands and watercourses during winter months when the ground is frozen will be conducted on of the river and stream crossings along the pipeline route where practical. Additionally, water quality will be monitored during instream activity. Each watercourse will be approached correctly, so the cumulative impact of changes to all the crossings and surrounding watershed would be limited. | Volume 8A – Marine Transportation |
| | Impact from leakage to marine environment | Tanker construction has evolved rapidly to meet the strictest of building standards, which meet IMO, Flag State and Class Society requirements. Tankers are the most scrutinized vessels in the shipping industry. The international tanker inspection regime includes both mandatory regulatory inspections, as well as regular inspections by private customers like Trans Mountain, who are all united in their efforts to ensure the safety of marine transportation of oil cargoes. All tankers are now expected to have two radar systems in working order — one of which must be specialized collision-avoidance radar. Additionally, ships are equipped with AIS, which broadcasts ships coordinates and other information for use by traffic services and other vessels to help avoid collisions. The proposed expansion at the Westridge Marine Terminal is based on the loading of Aframax tankers, the same tankers currently being loaded at Westridge. | Volume 8A – Marine Transportation |
| | New improvements to Trans Mountain's spill response program | As a result of the Exxon Valdez crude oil spill in the Gulf of Alaska in 1989, the Government of Canada appointed the Public Review Panel on Tanker Safety and Marine Spill Response Capacity (Brander-Smith Panel) and adopted a large number of its recommendations. In the 24 years since the Exxon Valdez incident, many safety improvements have been undertaken by government and the tanker industry.<br><br>Bills such as C-16 in Canada have given authorities the power to prosecute sub-standard persons/organizations (including CEOs), if found polluting Canadian waters.<br><br>All of the initiatives above have contributed to improved safety standards, a measureable reduction in tanker incidents and oil spills, including mystery spills.<br><br>Find out more about tanker construction and safety standards here: http://www.transmountain.com/tanker-facts | Volume 8A – Marine Transportation |
| | Concerns for tanker size | The largest vessels calling at the Trans Mountain Westridge Marine Terminal are Aframax tankers – due to harbour restrictions, they are loaded only to 80 to 90 per cent of their 650,000-barrel capacity. Aframax tankers are considered mid-size range of tankers that operate globally. The proposed expansion at the Westridge Terminal is based on the loading of Aframax tankers, the same tankers currently being loaded at Westridge. | Volume 8A – Marine Transportation |
| | Concerns for increase in tanker traffic and liability | The marine component of the Project is also being developed. Every month, PMV currently handles 250 vessels of all types. At present, the Westridge Marine Terminal handles approximately eight vessels per month (five of which are tankers) — representing less than three per cent of the total traffic in PMV. Should the proposed expansion be approved, the number of vessels, including tankers and barges, being loaded at the Westridge Marine Terminal could increase up to approximately 37 per month (34 of which could be tankers) in 2017, or about 14 per cent of today's total PMV vessel traffic.<br><br>In Canada, liability and compensation for ship-source oil spill pollution are governed by the *Canada Shipping Act* and *Marine Liability Act*. Both acts reflect Canada's commitment to international conventions administered by the IMO, such as those regarding IOPC Funds.Conventions limit the liability of the Responsible Party (ship owner) and establish sources of funding for cleanup and compensation for damages. Up to $1.312 billion is available for an individual spill.Trans Mountain carries liability insurance to provide coverage for all aspects of spill management, including compensation and remediation. To ensure there are sufficient funds to remediate a spill, Trans Mountain is covered by insurance necessary to respond to all spills or releases from our pipelines and facilities. Trans Mountain monitors the insurance program continuously, and makes annual adjustments as necessary to ensure adequate coverage.<br><br>Trans Mountain will take every possible action to prevent a spill and has developed a number of programs to protect and inspect the TMPL. No spill is acceptable, but we have plans to respond, clean up, remediate and learn from every incident should one occur.<br><br>Although ultimately, liability for an oil spill depends on the cause of the spill, Trans Mountain will always initiate and cover costs for cleanup and restoration. Depending on circumstances, Trans Mountain will then seek to recover costs from insurance or from a third party. | Volume 8A – Marine Transportation |
| | Concern for dredging in the Second Narrows | The Project does not require dredging of second narrows.<br><br>The exact configuration of the new docks has yet to be determined and depending on their location some near shore dredging might be necessary to accommodate construction of the new docks. Piles will be driven to support the new dock structures. Once the docks are constructed, berthing and mooring structures will be constructed. In addition, top-side equipment will be installed, such as piping systems, loading arms, vapour control systems and fire protection systems. The number of piles and other structures will depend on the results of ongoing planning and engineering. | Volume 8A – Marine Transportation |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| **Environmental - Terrestrial** | | | |
| Air - Emissions | What are the $CO_2$ emissions of the Project and how will TMEP reduce emissions from tankers? | Trans Mountain is assessing the carbon impact of constructing and operating the proposed expansion of the TMPL and its related facilities. The GHG impacts will be outlined in the ESA submitted with the NEB facilities application and a carbon management plan will be developed to mitigate (reduce) emissions as much as possible. KMC's Westridge Marine Terminal in Burnaby has joined Green Marine's voluntary Environmental Program in order to benchmark and commit to continuous improvement in the terminal's environmental performance.<br><br>For upstream or downstream impacts outside of Trans Mountain's jurisdiction or control, we will also describe how Trans Mountain is acting as a catalyst to influence the industry to help address issues upstream and downstream from the pipeline. Examples include: climate change; oil sands development; shipping practices; emergency spill response; and protecting the ecological integrity of BC and Alberta.<br><br>Although shipping is the greenest, safest mode of transport (compared to road and rail), it produces pollutant air emissions through the combustion of fossil fuels. Sulphur oxide (SOx), particulate matter (PM), and nitrogen oxide (NOx) emissions are the most worrisome for the marine industry. These pollutants disperse, helping to form smog and acid rain. The resulting deterioration in air quality is of particular concern for urban ports, where intense shipping activity can negatively impact the health and quality of life of waterfront community residents. Green Marine has developed two separate performance indicators for this issue, one gathers the SOx and PM while the second affects NOx.<br><br>Most ships have diesel engines that consume heavy oil, characterized by high sulphur content and impurities. SOx and PM emissions are directly related to fuel quality. In addition to practices to reduce fuel consumption, Green Marine encourages the use of higher quality fuel and technologies permitting an equivalent emission reduction. NOx emissions depend more on engine design than fuel quality. The performance indicator's criteria are based on IMO standards not yet in effect. However, participants wishing to reduce their NOx emissions face difficult choices, given that most technologies used or available have side effects, including greater fuel consumption and GHG emissions.<br><br>The SOx emissions indicator will be revised once the new North American Emissions Control Area (ECA) regulations are in force (*i.e.*, August 1, 2012). This new regulation requires ship owners operating within 200 nm of US and Canadian coasts to use maximum 1 per cent sulphur content fuel or technologies permitting an equivalent emission reduction. However, the scarcity of such fuel and tested reduction technologies makes it difficult for ship owners wishing to improve their performance above and beyond regulatory requirements. | Volume 3 - Consultation |
| Air - Emissions | Concern that residents are dealing with ongoing residual effects of 2012 spill (odours) re: Sumas Terminal | When crude oil arrives at the Sumas terminal through the TMPL, it is held temporarily in storage tanks before being shipped to its next destination. Since the crude contains sulphur compounds, often described as having a rotten-egg smell, moving oil into and out of the tanks can cause nuisance odours near the terminal.<br><br>Petroleum odours can be a nuisance for neighbours, and sometimes they can also signal a problem with Trans Mountain operations. Because safe operations and protection of the environment are always top of mind in Trans Mountain's line of work, we investigate and follow up on all odour reports related to our operations<br><br>Continuous air monitoring equipment has been installed at the Sumas tank facility and a new air monitoring program has been implemented for monitoring petroleum vapour concentrations in local neighbourhoods in the event of an incident. Additionally, the drain system – found to be the cause of the spill – has been repaired and tested. Procedures have been put in place to prevent a similar incident. These include:<br><br>· the installation of a heating system on the external roof drain system valves to prevent potential freezing; and<br><br>· all drainage valves are now maintained in the closed position when the drainage system is not in use.<br><br>Finally, changes were made in the control centre process to initiate immediate field response for any observed deviations in tank volume. Additionally, a tank level monitoring device has been designed to improve the accuracy of tank level changes and minimize false alarms. | Volume 5B - ESA - Socio-Economic |
| Cumulative Effects | How will the Project assess cumulative effects on a wider scale? (Strategic Environmental Assessment – federal government is more active in assessment of cumulative effects) What environmental protection measures will be taken? | Trans Mountain is committed to determine the significance of the Project's contribution to cumulative effects and to develop technically and economically feasible mitigative measures. The main sources of cumulative ecological effects are: direct habitat loss; indirect habitat loss adjacent to facilities, clearings, and corridors; and increased mortality from altered inter-species relationships (such as: predation and invasive species) and human activities (such as hunting, roadkill). The main sources of cumulative social effects are short or long-term changes in population size, particularly from in-migration; associated demand for goods and services; and indirect effects on community quality of life. Trans Mountain will consider any cumulative environmental effects that are likely to result from the Project.<br><br>· primary emissions associated with storage tanks of volatile organic compounds (VOCs), benzene, toluene, ethylbenzene and xylene (BTEX) and combustion products like criteria air contaminants (e.g., sulphur dioxide [SO2], oxides of nitrogen [NOx], carbon monoxide [CO], particulate matter [such as PM2.5, PM10]);<br><br>· secondary smog-related products, like ozone and PM2.5 that can form in the atmosphere from Project emissions of NOx and VOCs;<br><br>· hydrogen sulphide (H2S) and mercaptans emissions which have the potential to cause nuisance odours; and<br><br>· fugitive emissions from pump stations. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Concerns for adequacy of contractors to meet Trans Mountain commitments | The engrained philosophy behind all activities on the TMPL system is KMC's EHS policy. The EHS policy is a formalization of KMC's commitment to conducting business in a safe and environmentally responsible manner. In addition to the KMC commitment, contractors are required and joint ventures under Trans Mountain's operational control are expected to apply this policy.<br>To ensure safe pipeline and facilities installation, specialty contractors will also be used for construction in urban or industrial areas to ensure safe pipeline and facilities installation. | Volume 6 - Project Execution |
| Terrain | Geotechnical Concerns | The pipeline's registered easement (or operational corridor) is typically 18 m wide. The assessment study area for rural and Crown Lands areas is 150 m wide along the existing pipeline, but will vary along the proposed route based on local constraints. This assessment corridor is required to help identify potential environmental impacts, geotechnical conditions, and constructability to ensure the Project can be built and operated safely. The focus of these assessment studies is to find the best route for the Project so it can be built next to the existing pipeline to minimize construction in any new and undeveloped areas, and to minimize impact to properties. It is important to note that the assessment corridor is for the purposes of environmental and engineering studies and does not reflect the ultimate width or footprint of the proposed construction or new line. | Volume 5A - ESA - Biophysical |
| Water | Wetland reclamation concerns | As part of Trans Mountain commitment to environmental protection, some wetlands will be removed but, where possible, wetlands will be restored to their original configurations and contours. Trans Mountain will comply with the applicable permit conditions issued by federal, provincial and local permitting agencies to restore baseline wetland function. | Volume 5A - ESA - Biophysical |
| | Groundwater/Hydrology; Water quality/Quantity | Trans Mountain will assess water quality and/or quantity changes to nearby groundwater which may result in adverse effects for other stakeholder or environmental receptors. Trans Mountain will review existing geological, hydrogeological, and other information to determine potential hydrogeological conditions along the pipeline right-of-way and proposed facilities; GIS mapping and assessment strategies will be applied. Trans Mountain will develop site-specific hydrogeological investigation activities that may include field verified surveys, hydraulic response testing, monitoring requirements, and water quality parameter surveys. | Volume 5A - ESA - Biophysical |
| | Spill modelling | Two systems monitor the pipeline continuously for changes in operating parameters that would indicate a possible leak:<br>• SCADA System; and<br>• Leak Detection System.<br>The SCADA system monitors rate-of-flow in the pipeline, pressure, temperature, and density of product, among other things. The parameters are then compared to a theoretical flow model, identifying any differences outside of prescribed norms that might indicate a problem. If a variance is found, an alarm will sound that is received by the control centre operator in Edmonton, AB. In the centre, there are dedicated operators per shift, each responsible for a different section of the pipeline. Monitoring takes place 24/7, and is divided into 12-hour shifts. All operators undergo rigorous training and simulator testing to determine if they are qualified to hold this critical position. Until operators are fully qualified and have passed all testing, they may not operate unsupervised.The data and modelling for the Leak Detection System is maintained and verified by a separate group of employees. These employees have received specialized training on how to operate and support the leak detection models.In the event that an alarm does go off, a prescribed series of procedures and actions immediately begins. There are various types of alarms that could result in different procedures, as well as different responses depending on the location, the terrain and the conditions surrounding the area in question. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Concerns about Fraser Valley aquifer | Trans Mountain will assess water quality and/or quantity changes to nearby groundwater which may result in adverse effects for other stakeholder or environmental receptors. Trans Mountain will review existing geological, hydrogeological and other information to determine potential hydrogeological conditions along the pipeline right-of-way and proposed facilities; GIS mapping and assessment strategies will be applied. Trans Mountain will develop site-specific hydrogeological investigation activities that may include field verified surveys, hydraulic response testing, monitoring requirements and water quality parameter surveys. | Volume 5A - ESA - Biophysical |
| | Personal wells (Mt. Lehman, Sumas Prairie, Bradner) | Trans Mountain will assess water quality and/or quantity changes to nearby groundwater which may result in adverse effects for other stakeholder or environmental receptors. Trans Mountain will review existing geological, hydrogeological, and other information to determine potential hydrogeological conditions along the pipeline right-of-way and proposed facilities; GIS mapping and assessment strategies will be applied. Trans Mountain will develop site-specific hydrogeological investigation activities that may include field verified surveys, hydraulic response testing, monitoring requirements and water quality parameter surveys. | Volume 5A - ESA - Biophysical |
| Wetlands | Water bodies/Wetlands | Trans Mountain will minimize potential adverse impacts to wetlands by expediting construction in and around wetlands, by restoring wetlands to their original configurations and contours, by segregating topsoil during excavation, by permanently stabilizing upland areas near wetlands as soon as possible after backfilling, by inspecting the right-of-way periodically during and after construction, and by repairing any erosion control or restoration features until permanent revegetation is successful. Trans Mountain will comply with the applicable permit conditions issued by federal, provincial and local permitting agencies to restore baseline wetland function. Crossing methods specific to each watercourse will be determined in consultation with engineering and environmental specialists, as well as applicable regulatory authorities. | Volume 5A - ESA - Biophysical |
| Wildlife | Potential for habitat fragmentation: linear construction across multiple watercourses | Where practical, the route will remain within the existing TMPL right-of-way or parallel existing roads, which will minimize new disturbances to ecological communities. Every effort is made to minimize impact to wildlife, watercourses and key wildlife biodiversity zones. A detailed EPP will be submitted to the NEB as part of the Application which will document every linear metre of the construction right-of-way and mitigation strategies to help avoid or minimize environmental impacts from construction. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Disruption to birds and animals in Surrey Bend Park<br><br>Consider Wildlife impact - Pacific Water Shrew (Surrey Bend and east of Port Mann Bridge) | Through the development of thousands of kilometres of pipelines, there have been a number of mitigation strategies developed that can be employed to minimize impacts to wildlife and wildlife habitat. These can range from avoiding important wildlife periods through the timing of construction to conducting detailed surveys immediately prior to construction.<br><br>Pipeline construction is a sequential series of activities which do not remain in one area for an extended period of time. A detailed EPP will be submitted to the NEB as part of the Application which will document every linear metre of the construction right-of-way and mitigation strategies to help avoid or minimize environmental impacts from construction.<br><br>Where practical, the route will remain within the existing TMPL right-of-way, which will minimize new disturbances to ecological communities. | Volume 5A - ESA - Biophysical |
| | Reclamation the construction areas | Trans Mountain is committed to best practices in reclamation, always striving for opportunities leading to advancement. As with all of its construction Projects, Trans Mountain will reclaim any areas that are affected by the Project.<br><br>Trans Mountain is committed to full reclamation of the pipeline right-of-way and surrounding areas following construction. This could include adding new footpaths, developing new habitats, improving water crossings or bettering migration corridors.<br><br>Reclamation efforts could include the planting of native plant and grass species, riparian and wetland areas, wildlife habitats and any other areas disturbed during construction.<br><br>Post-construction monitoring and ongoing right-of-way maintenance will continue following construction. | Volume 6 - Project Execution |
| | Freshwater Spills-Environmental impact | Trans Mountain owns, maintains and operates dedicated spill response equipment at strategic points along the existing TMPL corridor. Detailed EPPs will be developed for the Project. Trans Mountain is committed to environmental stewardship. Trans Mountain owns, maintains and operates dedicated spill response equipment at strategic points along the existing TMPL system. In the event of a release, and in addition to prevention measures, steps would be taken to minimize the consequence of a release by quickly shutting down and isolating the damaged section of the pipeline or facility. Trans Mountain has developed comprehensive emergency response procedures that control centre and local operators must follow. These procedures, together with aerial and ground patrols, calls from the public to Trans Mountain's toll-free emergency number, and continuous SCADA monitoring and leak detection systems combine to form the first line of defense in reducing the consequences of a spill. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Vegetation | Clubroot | Generally, the best available mitigation is to clean equipment involved in topsoil handling so that topsoil is not carried from landowner to landowner and/or from county to county. As presented in the Clubroot Management Plan (Alberta Agriculture and Food 2008), and the CAPP clubroot disease prevention involves a phased approach, with progressively more aggressive cleaning activities. In order, cleaning activities include:<br><br>1. removing most or all soil from equipment (*i.e.*, basic shovel cleaning and/or shovel and compressed air cleaning);<br><br>2. washing equipment with a power washer (preferably with hot water or steam); and<br><br>3. misting equipment with a weak disinfectant (one to two per cent a.i. bleach solution).<br><br>4. Basic shovel and sweep cleaning stations are recommended between cultivated fields (*i.e.*, at changes in land use, landowner and/or road crossings) along the right-of-way as a relatively inexpensive way to reduce the potential to spread of clubroot disease and weeds.<br><br>Power wash and misting, are used together to prevent the spread of clubroot disease where risk is high or clubroot exists within the quarter section. Any site that warrants a power wash is considered worthwhile of cleaning with a bleach solution as well.<br><br>There is less risk of spreading the disease when working on subsoil. Full right-of-way stripping has been used as a method of prevention.<br><br>There is an expectation from some regulators that when landowners request special mitigation on their land that they be conducting the same practices on their land with their own equipment or the equipment they hire. Details for specific clubroot mitigation will be outlined in the environmental management plan | Volume 5A - ESA - Biophysical |
| | Disturbance to soils and crops | Where present in non-forested areas, topsoil or strippings will be salvaged to ensure that soil productivity is maintained. The width and depth of topsoil or strippings salvage will depend on the land use, soil conditions, microtopography, regulatory agency requests and grading requirements. Any salvaged topsoil or strippings will be segregated and stockpiled along the construction right-of-way and at facility sites in low-profile berms or in piles adjacent to the site perimeter. Equipment used during topsoil or strippings handling activities will include bulldozers, graders and backhoes. | Volume 5A - ESA - Biophysical |
| | Invasive Species, Rare Plants and communities, species at risk | Environmental studies are being conducted to assess existing conditions and types of land use in the Project area, as well as possible socio-economic impacts.<br><br>During the 2012 and 2013 field seasons, a number of environmental and engineering field programs were conducted for the Project. These programs took place in both Alberta and BC, and involved the work of a number of teams in various disciplines.<br><br>In forested areas where erosion is not expected, natural revegetation or seeding using a native seed mix will be the preferred methods of reclamation. In agricultural areas, an appropriate seed mix will be planted in consultation with the landowner and regulatory authority.<br><br>An assessment of the following indicators for vegetation were conducted to fulfills filing requirements in the NEB Filing Manual (NEB 2013):<br><br>• vegetation communities of concern;<br><br>• plant and lichen species of concern; and<br><br>• presence of infestations of Provincial weed species and other invasive non-native species identified as a concern. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| **Land - Public/Private access** | | | |
| Land Access | Security concerns around Sumas border trap from potential vandalism | Trans Mountain is prepared not only for oil releases, but a variety of other emergencies as well, such as fire, security breaches and natural disasters including earthquakes, floods, lightning strikes and avalanches. ERPs are constantly being updated to keep them current. Teams prepare for these worst-case scenarios using the Trans Mountain ERP and the ICS. From alert to isolation, this procedure takes about 15 minutes or less. Control Centre Operations staff operate and monitor the pipeline 24/7, 365 days a year. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Is there potential for shared use (recreational) around the Sumas Terminal? | Trans Mountain is open to discussing recreational use of the right-of-way. Walking, hiking and biking are all great activities for the right-of-way. Trans Mountain does restrict motorized vehicle access like snowmobiles and ATVs because they can disturb the ground. | Volume 5B - ESA - Socio-Economic |
| **Nuisance** | | | |
| Noise | How noisy will construction be, how long, and what type of equipment will be used? | From the commencement of staking to final cleanup, a particular parcel of land could be disrupted for one to two months. This timing is affected by many variables; however, every effort is made to minimize impact to landowners. In areas where there may be a concern regarding the safety of the public, restricted areas are established. Noise, dust and other disturbances are mitigated to avoid the impact on people near the construction. The potential effects on human receptors are not anticipated to extend beyond the Acoustic Environment local study area. Trans Mountain will use well maintained equipment to reduce air pollution and unnecessary noise and restrict the duration that vehicles and equipment are allowed to sit and idle to less than one hour unless air temperatures are less than 0°C.<br>Ambient sound survey representative of sound levels at noise receptors and existing facilities will be conducted and, all noise level results will be compared to Alberta Energy Resource Conservation Board's Directive 038 Noise Control and the BC Oil and Gas Commission's Noise Control Best Practices Guideline.<br>Standard mitigation plus noise-specific mitigation measures will be implemented along with compliance with local noise by-laws. | Volume 4B - Construction |
| | Vibrations caused during pipeline construction | From the commencement of staking to final cleanup, a particular parcel of land could be disrupted for one to two months. This timing is affected by many variables; however, every effort is made to minimize impact to landowners. In areas where there may be a concern regarding the safety of the public, restricted areas are established. Noise, dust and other disturbances are mitigated to avoid the impact on people near the construction. | Volume 5A - ESA - Biophysical |
| | Lights from tankers at anchorage | Tankers bound for Westridge Marine Terminal are not the only vessels that call in the Port of Vancouver or anchor in Burrard Inlet near Westridge. Therefore we shall work with the Port and the Chamber of Shipping of BC to develop common guidelines for all vessels that may use the anchorages near Westridge. This will also address any cases of excessive illumination of vessels at anchor. We believe the effects of lights from ships can be mitigated to a large extent by such guidelines and shall make adherence a requirement for acceptance to call the Westridge marine facility in future.<br>At the same time we will be planning the port turnaround of the tankers carefully in order to minimize the time tankers spend at anchor. | Volume 3 - Consultation |
| Odours | Potential increase in odours with increase in tankers and/or tank farms | Petroleum odours can be a nuisance for our neighbours, and sometimes they can also signal a problem with our operations. Because safe operations and protection of the environment are always top of mind in our line of work, Trans Mountain investigates and follows up on all odour reports.<br>Trans Mountain strives to minimize the impact of our operations on our neighbours by incorporating odour mitigation measures in our day-to-day activities and Project work. In addition, Trans Mountain is taking steps to enhance our early leak detection system and air monitoring/sampling protocol. Trans Mountain is also looking into procuring technology to facilitate automated calls to residents in the area in the event of an emergency and will provide more information on this initiative to local area residents in the coming months. | Volume 5A - ESA - Biophysical |
| Visual | Aesthetic impacts around Westridge Terminal | The Trans Mountain project team has worked extensively with PMV, the PPA and the BCCPA to determine a preferred dock layout. We have also incorporated feedback from the City of Burnaby and our community discussions in the planning.<br>The team considered approximately 20 layouts during the evaluation and study process. The one shown is considered the most optimal.<br>The team's technical goal was to develop a layout that would provide:<br>· Three Aframax-capable berths, reducing the percentage of time that tankers visiting Westridge use anchorages west of the Second Narrows;<br>· The highest level of navigational safety (for berthing, for other vessel traffic in the inlet and considering the existing anchorages);<br>· The ability to keep the existing dock in service during construction of the new dock;<br>· Ways to minimize the overall footprint to provide the least impact to community views;<br>· Opportunities to minimize or eliminate dredging in order to provide the least impact to the marine environment; and<br>· Ways to minimize noise disturbances.<br>A conceptual design for Westridge Marine Terminal, based on preliminary engineering is available on the Trans Mountain website (http://www.transmountain.com/marine-westridge-terminal ). The design may change after further developmental and detailed engineering. | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| **Operations and Maintenance** | | | |
| Operations and Maintenance | Is the 2007 Westridge spill Long Term Management Plan public? | A long-term monitoring program was developed after the July 2007 spill to monitor recovery of impacted areas, assess changes in levels of contaminants from the spilled oil in the marine environment, and evaluate potential effects on marine organisms. The long-term monitoring program that was approved by the NEB with input from stakeholders, began in 2008 and will continue each year until all recovery endpoints in the marine environment are reached and stakeholders have signed off on the program. A summary report, Clean up and Effects of the 2007 Spill of Oil from Trans Mountain Pipeline to Burrard Inlet, was released in July 2012.<br><br>The monitoring results are evaluated each year to identify whether further remediation is needed. To date, five of the six components have met the recovery endpoints. The components that have been met are: water, intertidal sediment, crabs, subtidal sediment, and fucus; there are residual levels of contamination in mussels that have not yet met the agreed upon endpoint levels. Monitoring continues on all components at the present time.<br><br>In 2007, two areas at Westridge and Barnet Marine Park were remediated by removal of oiled *Fucus* and associated biota (collection of organisms). Since 2008, re-colonization has occurred. In 2009, 2010 and 2011, *Fucus* coverage at impacted sites has increased, and abundance and diversity of green and red algae, and invertebrates (barnacles, mussels, grazing molluscs, shoreline crabs) were greater at the impacted sites than at reference sites.<br><br>Trans Mountain maintains an Emergency Preparedness and Response Plan for the Westridge Marine Terminal that would be used to manage the response to a spill. This plan will be evaluated for its suitability to the expanded operation and will be revised as necessary to ensure the safety of people and the environment. This plan forms the basis for regular emergency response training and exercises that are conducted with terminal staff and other agencies.<br><br>Trans Mountain works closely with the PMV, Transport Canada, the PPA and other agencies to ensure the safety and efficiency of vessels calling at the Westridge Marine Terminal. In 1976, Trans Mountain was a founding member of the spill response cooperative that has become the WCMRC, and continues to be a part owner of the organization. | n/a |
| | Burnaby Terminal expansion: Will you need more land? How many extra tanks are needed at Burnaby Terminal? | The Project will increase the capacity of the TMPL from 300,000 to 890,000 bbl/d, and includes a new dock complex with three berths, additional delivery pipelines, an extension of the marine foreshore, an odour abatement system, a storm water treatment system, and a fire protection system. The Project will meet all applicable federal, provincial, and local regulatory and permit requirements.<br><br>All new storage tanks for the Project are expected to be built within existing Burnaby Terminal footprint. The Burnaby terminal currently has 13 storage tanks with an overall volume of 250 000 $m^3$ (1.6 million bbl). To meet the increased capacity, Trans Mountain proposes 14 new storage tanks at the Burnaby Terminal. | n/a |
| | What happens in event of power loss at pump stations? Do they shut down? Is there back-up power? | On loss of utility power, the pump station shuts down and an uninterruptible power supply (UPS) provides power to station isolation valves to isolate the station from the main line (the oil bypasses the station). The UPS is sized to provide power to isolate the station and to provide essential power for a minimum of six hours. Essential power means power for protection and data communications allowing operations time to attend the site. Provision is also provided to allow connection of a portable generator should the utility indicate an extended power outage. | n/a |
| | Concerned about bringing major construction equipment into residential neighbourhood | For equipment use in residential areas for the purposes of pipeline construction, Trans Mountain will isolate work sites as possible and where necessary to prevent inadvertent access to work sites by the public and where heavy equipment is working. Additionally, Trans Mountain will ensure that all heavy equipment has glass in good condition so the operator has proper visibility. Trans Mountain will equip all heavy equipment with a back-up alarm to alert workers and potential public in the area of equipment moving in reverse and use spotters when in congested areas.<br><br>For movement of equipment into the facilities areas through residential areas, equipment will be transported using properly licensed and insured transport trucks that are equipped appropriately for transporting loads, including wide loads, as per the British Columbia Ministry of Transportation and Infrastructure and Alberta TRANS requirements. Pilot cars will be used as necessary. | Volume 6 - Project Execution |
| | What happens if pipe is abandoned? | At the end of the pipeline system's useful or economic life, the system will be abandoned in accordance with the legislation and regulations in place at that time. At the time of abandonment, Trans Mountain expects that all aboveground equipment and structures will be removed and the sites reclaimed to an appropriate land use. | n/a |
| **Regulatory** | | | |
| Regulatory | What is the Application approval process for an expanded pipeline? What gets submitted to the NEB? | As TMPL crosses provincial boundaries, Trans Mountain must seek permission from the NEB, the federal regulator for pipelines, for its proposed expansion plans. Given the scope and magnitude of the Project, the NEB's comprehensive regulatory review could take place over two years, from late 2013 to mid-2015.<br><br>Trans Mountain filed a Toll Application in June 2012 and received a decision from the NEB in February 2013 after a seven-day public hearing. The NEB news release and associated Toll Application decision document can be found on the NEB website.<br><br>Trans Mountain expects to advance an application for approval of the Project ("Facilities Application") with the NEB in late 2013, which will ask for authorization to build and operate the necessary facilities for the Project. The Facilities Application will include the environmental, socio-economic, Aboriginal, landowner and stakeholder engagement, and engineering components of the Project. Filing the Facilities Application will initiate a comprehensive regulatory and stakeholder review.<br><br>For more information on the NEB, the assessment process for projects and opportunities for public involvement, visit the NEB website.<br><br>If the NEB makes a recommendation to approve the Project and if the federal cabinet gives the final go-ahead, the NEB's involvement with the Project and engagement with stakeholders will continue.<br><br>With all such pipeline projects; the NEB takes a life cycle approach to regulation. This | n/a |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | means that the NEB does not just make a decision and move on to the next Application. For the most part, the NEB is involved in Projects from start to finish – from the Application process to the construction phase to the long-term operations and ultimately to the abandonment of a pipeline.<br>With any Project approval, the NEB sets forth conditions that must be followed by the company. The NEB follows up with inspections to ensure the company is meeting the conditions and to ensure that the Project is constructed and continues to operate in a safe manner for the benefit of Canadians.<br>If inspectors find that the company is not meeting the conditions, the NEB can take action to enforce these conditions. This may include talking to the company, issuing a written request to correct the problem, or, in certain circumstances, ordering the company to stop construction or operation. | |
| | Issues regarding jurisdiction –over the right-of-way (Municipal/provincial) | Trans Mountain is aware that people often use the right-of-way for recreational purposes. This can make it a real challenge as the community believes it is a part of the open space and park system when it is in actuality a major utility corridor and Trans Mountain is only there as a secondary land use. In the lower mainland area Trans Mountain has large commercial complexes that follow the right-of- way. All setbacks are presented by the City. Anything that is off the right-of-way is controlled by the municipality. | n/a |
| **Routing** | | | |
| Routing | Location of existing line and proposed line | The selection of the proposed pipeline corridor included both field and desktop assessments of the existing TMPL right-of-way and alternative routing locations and resulted in a preferred route. The preferred route meets all requirements of the NEB, the CSA and all applicable regulatory authorities and was chosen on the basis of minimal new disturbance and public impact. Where practical, the route for the proposed expanded pipeline will remain along the existing TMPL right-of-way. Where land use has changed since the pipeline went into operation in 1953, there may be a need to route parts of the new line away from the existing TMPL right-of-way. In these cases, Trans Mountain will look at alternatives through comprehensive routing studies in combination with its consultation process. | Volume 4B - Project Design and Execution - Construction |
| | Potential to route new line along existing utility and infrastructure corridors (*e.g.,* Lougheed Highway, sanitary line along King Road) | | Volume 4B - Project Design and Execution - Construction |
| | Impact to property values along the pipeline route | Trans Mountain is searching for feasible route alternatives in order to reduce impacts to residential areas.<br>Trans Mountain appreciates that land devaluation is a concern, and Trans Mountain has been investigating potential impacts upon properties for sale – both with easements and without easements. To date, our investigations have not shown a measurable effect; however, Trans Mountain will continue to monitor this situation. | Volume 5B - ESA - Socio-Economic |
| | Concerns that construction will impact road crossings or traffic flow (*e.g.*, Barnet Highway, Duthie Avenue) | Where practical, the route will remain within the existing right-of-way. Socio-economic studies have been undertaken to assess existing conditions and types of land use in the Project area, as well as possible impacts. Mitigation strategies and management plans will be developed through discussions with regulators, Aboriginal communities and stakeholders to help minimize the potential effects of the Project on biophysical and human environments. All of these reports will be posted on this website and the NEB website once Trans Mountain's Facilities Application is submitted in late 2013.<br>During construction, significant additional daily light vehicle traffic is expected in the Project area due to workers coming to and from the site. There will be some heavy equipment vehicle traffic for a short number of days at several points during the construction phase. As part of the comprehensive environmental assessment of the project, a traffic management plan during construction will be incorporated into the construction program and schedule. No significant additional traffic will result from operations. | Volume 4B - Project Design and Execution - Construction |
| | Related particularly to the Fraser River crossing, will the pipeline be drilled in the bedrock or in the silt-layer under the Fraser, and if not in the bedrock, how will the pipeline be protected from scouring in massive flood events, or from massive shifts in bottom ground in the event of sloughing or earthquake. | Trans Mountain Geohazard Management Program is one of the key tools for managing the risk to our pipeline infrastructure. The Program includes regular site inspections, detailed site studies, monitoring, and mitigation, and involves close work with specialized professional geoscience, engineering, and environmental consultants, who are experts in geohazards such as river erosion, landslides and earthquakes.<br>Our commitment to reduce earthquake risks to the TMPL is on-going and includes several investigations and major construction mitigation measures including a system-wide qualitative assessment of earthquake hazards along the pipeline from Hope to the Burnaby terminal and replacement of the Fraser River crossing by horizontal directional drilling to minimize exposure of the pipeline to seismically triggered lateral spreading.<br>If the Project proceeds, the intent is to protect the second pipe from earthquakes and river scouring by completing a drill under the Fraser River. A drilled crossing was completed on the existing pipeline in the mid-2000s to replace the original crossing to protect it. | Volume 5A - ESA - Biophysical Volume 4B - Project Design and Execution - Construction |
| | Look at Routing alternatives in Chilliwack | Trans Mountain is currently pursuing the feasibility of an alternative route using part of the BC Hydro right-of-way north of Montcalm Road.<br>Studies are being conducted into the impact of pipeline placement in proximity to the power lines to assure BC Hydro of the safety of the operation. If BC Hydro were to grant their consent to such joint occupation, Trans Mountain would also need to negotiate right-of-way agreements with landowners along this proposed route.<br>Should the alternative route not receive the necessary approvals, Trans Mountain is also investigating the feasibility of installing the pipeline using trenchless drilling methods, such as HDD, which would result in reduced disturbance to the surface of the land within the right-of-way.<br>Operating and building a pipeline infrastructure affects many along the route corridor and we respect our neighbours and the communities where we operate. We are here for open and meaningful dialogue and throughout all phases of this Project, Trans Mountain will continue to engage with landowners, Aboriginal groups, communities, and stakeholders. | Volume 4B - Project Design and Execution - Construction |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Where will the new pipeline be routed? When will landowners be able to see route options? | The primary design objective is to construct the Project within the TMPL right-of-way, and where this is not possible, minimize any new linear disturbance. It is Trans Mountain's intention to find a route for the proposed pipeline which minimizes impact to residences and communities. Landowner concerns will be considered during design and routing activities. Where privately-held land is needed for the proposed new route, land agents from Trans Mountain will discuss proposed locations of the pipeline with landowners. Trans Mountain's goal is to reach mutually-acceptable agreements with landowners to allow Trans Mountain to build and maintain the TMEP. | Volume 4B - Project Design and Execution - Construction |
| | What are the implications for road crossings, right-of-ways, construction equipment in the city of Coquitlam? | In urban areas, Trans Mountain's registered easement (or operational corridor) for the pipeline is typically 18 m wide. For the most part, this operational corridor, as well as temporary working space, is the width of the area that would be studied.<br>In some areas, it may be necessary to look for options that go beyond the current operational corridor. Alternate routes for the proposed expanded pipeline may be necessary — especially in areas where land use has changed since the pipeline was built nearly 60 years ago. To minimize impacts to the urban landscape and landowners, the proposed route of the new pipeline would follow existing linear infrastructure, such as municipal streets or highway, railway or utility corridors, or in some cases parklands. | Volume 4B - Project Design and Execution - Construction |
| | Concern for routing near schools | Pipeline safety is a common interest and a value shared by Trans Mountain. Since the TMPL began operating in 1953, many communities have grown and developed around the pipeline right-of-way. It is important to understand that while the pipeline may be near homes and schools, it does not run under any buildings. Living or being active near our pipeline does not pose a health risk. In fact, there are community trails, sporting events, community gardens and all kinds of businesses and agricultural activities safely co-existing near the TMPL.<br>Safety is our top priority and is at the core of who Trans Mountain is as a company. Dedicated staff work to maintain the integrity of the pipeline through our maintenance, inspection and awareness programs. While no spill is acceptable to us, accidents can happen.<br>Trans Mountain has a comprehensive response plan that includes working with local authorities to make sure the public and the environment are kept safe. Where the pipeline runs near schools, Trans Mountain is open to working with individual schools or districts to fully support their safety efforts and ensure their ERPs and ours are coordinated. In response to publically circulated misinformation Trans Mountain offered a video regarding the Kinder Morgan Pipeline and Stoney Creek Elementary School which is available on you-tube (http://www.youtube.com/watch?v=R95tyo0ZiUo). | Volume 5B - ESA - Socio-Economic<br>Volume 4B - Project Design and Execution - Construction |
| | Concerns about impacts to community recreation grounds on existing TMPL right-of-way | The proposed pipeline corridor of the BC segment might cross eight provincial parks and one designated recreation area. The Government of BC has in place several provincial land use management plans for parks and protected areas along the TMPL system.<br>Trans Mountain is committed to best practices in reclamation, always striving for opportunities leading to advancement. As with all of its construction Projects, Trans Mountain will reclaim any areas that are affected by the Project. Trans Mountain is committed to full reclamation of the pipeline right-of-way and surrounding areas following construction. Following construction, Trans Mountain aims to return the right-of-way to preconstruction conditions, to the extent possible. This could include adding new footpaths, developing new habitats, improving water crossings or bettering migration corridors. Reclamation efforts could include the planting of native plant and grass species, riparian and wetland areas, wildlife habitats and any other areas disturbed during construction. Post-construction monitoring and ongoing right-of-way maintenance will continue following construction. | Volume 5B - ESA - Socio-Economic |
| | Concerns about impacts to landscaping on border of right-of-way | To minimize impacts to the urban landscape and landowners, the proposed route of the new pipeline would follow existing linear infrastructure, such as municipal streets or highway, railway or utility corridors, or in some cases parklands. The Project corridor will be selected to minimize impacts on the environment, maximize worker and public safety, and minimize other social impacts.<br>Trans Mountain is committed to best practices in reclamation, always striving for opportunities leading to advancement. As with all of its construction Projects, Trans Mountain will reclaim any areas that are affected by the proposed pipeline Project. Trans Mountain is committed to full reclamation of the pipeline right-of-way and surrounding areas following construction. Following construction, Trans Mountain aims to return the right-of-way to preconstruction conditions, to the extent possible. This could include adding new footpaths, developing new habitats, improving water crossings or bettering migration corridors. Reclamation efforts could include the planting of native plant and grass species, riparian and wetland areas, wildlife habitats and any other areas disturbed during construction. Post-construction monitoring and ongoing right-of-way maintenance will continue following construction. | Volume 5B - ESA - Socio-Economic |
| **Safety** | | | |
| Earthquakes/Seismic | How do pipelines perform in earthquakes?<br>Liquefaction during an earthquake – movement of pipe & soil resolidification | As with all organizations with infrastructure susceptible to seismically triggered geohazards, the commitment of Trans Mountain to reduce the earthquake risks to the TMPL is on-going and includes several investigations and major construction mitigation measures including:<br>• A system-wide qualitative assessment of earthquake hazards along the pipeline from Hope to the Burnaby terminal.<br>• Replacement of the Fraser River crossing by horizontal directional drilling to minimize exposure of the pipeline to seismically triggered lateral spreading.<br>• Characterization of potential earthquake triggered landslides at select locations along the pipeline.<br>• Preparation of an Earthquake Action Protocol to rapidly prioritize locations for pipeline inspection following an earthquake. This also includes procedures for shutting down and isolating the pipeline in the event of a serious earthquake.<br>Further seismic assessments along the TMEP corridor and TMPL will include:<br>• Site specific assessment of seismically induced ground deformation;<br>• Site specific evaluations for seismically induced landslide potential; and<br>• Site specific assessment of seismically induced ground shaking. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | What are seismic design criteria for pipeline? Can tanks withstand seismic events? | Seismic assessments along the proposed TMEP corridor and TMPL will include:<br>• Site specific assessment of seismically induced ground deformation. The seismic ground deformation hazards will be assessed at susceptible locations along the proposed pipeline corridor and the pipeline and infrastructure will either avoid the geohazard or be designed to accommodate these potential ground movements.<br>• Site specific evaluations for seismically induced landslide potential. The potential for seismically triggered landslides will be assessed along the proposed corridor and the results will be incorporated in the pipeline design and emergency response program.<br>• Site specific assessment of seismically induced ground shaking. An assessment of the predicted motion and additional strains that could be applied to the proposed expanded pipeline will be conducted and the results incorporated into the pipeline design and emergency response program. | Volume 4B - Project Design and Execution - Construction<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Faults/Seismicity (assessment of Sumas Mountain facilities; | Through its experience with managing pipelines in the varied terrain of North America, Trans Mountain is very aware of the effect of the geologic environment on its pipeline infrastructure. Trans Mountain's Geohazard Management Program is one of the key tools for managing the risk to pipeline infrastructure.<br>This Program has helped define the current state of practice and includes annual field assessments along each of Trans Mountain's pipeline systems at locations where river erosion or ground movement, such as landslides, are active or potentially active. The Program includes regular site inspections, detailed site studies, monitoring, and mitigation, and involves close work with specialized professional geoscience, engineering, and environmental consultants, who are experts in geohazards such as river erosion, landslides, and earthquakes. | Volume 4B - Project Design and Execution - Construction |
| Emergency Response | How will TMEP prevent future incidents? | Pipeline safety is our number one priority, and through the experience gained in 60 years of operation, Trans Mountain has developed a mature suite of programs to maximize the safety of the pipeline.<br>Pipeline safety practices that focus on preventing pipeline failures and minimizing their impact, are all part of what is known as a Pipeline Integrity Management program. This program identifies all of the hazards that have the potential to affect the safety of the pipeline system and ensures that control measures are implemented to prevent or mitigate the occurrence and potential impact of each hazard.<br>Trans Mountain conducts routine annual quantitative pipeline risk assessments as part of a comprehensive Integrity Management Program. The risk assessment process assesses the likelihood of failure for all identified potential hazards based on pipeline industry statistical data, pipeline assessment data, pipeline attributes, and algorithms developed by our risk assessment program. It also assesses possible consequences using quantitative measures for ranking potential failure scenarios. The results of these assessments are used to guide the further development of the Integrity Management Program under a goal of continuous improvement. Risk assessments in this context are a mandatory requirement of Safety Management Systems.<br>Control Centre Operations staff operates and monitor the pipeline 24/7, 365 days a year. Pressure and flow in the pipeline are controlled through valves, pumps and tanks at pump stations and terminals. Whenever conditions change unexpectedly, operators are trained to investigate and respond immediately.<br>Trans Mountain is committed to being a good corporate citizen by incorporating responsible business practices and conducting our operations in an ethical manner. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Kalamazoo spill, can that happen here? | The failure of the crude oil pipeline carrying dilbit at the Kalamazoo River was attributed to multiple factors including external fatigue cracking, deficiencies in leak detection systems and inadequate training of control center personnel (National Transportation and Safety Board [NTSB] Press Release, 2012). The fact that it was carrying Dilbit at the time was incidental to the failure mechanism. Corrosion fatigue is not an issue for internal corrosion of operating oil transmission pipelines (CEPA State of the Art Report Dilbit Corrosivity, 2013). Any product moved in the pipeline must meet KMC's tariff requirements which include the following limitations on product qualities:<br>· a maximum temperature of 38 °C;<br>· a maximum density of 940 kg/$m^3$ (specific gravity of 0.94);<br>· a maximum viscosity of 350 cSt at Reference Temperature;<br>· maximum impurities (bottom sediments and water) of 0.5% of volume;<br>· maximum Reid Vapour Pressure of 103 kPa; and<br>· The dilbit shipped in our pipeline has a maximum specific gravity of 0.94, which is lighter than water (1.00) and seawater (1.03).<br>Additional research is taking place to quantify how the dilbit reacts over time in water, with wave action, with fast-moving currents, with different sediment levels and with various other factors. Other studies have recently been conducted or are underway including the SL Ross Study (Meso-scale Weathering of Cold Lake Bitumen/Condensate Blend), that was prepared for a Joint Review Panel submission by Enbridge Northern Gateway Project and the anticipated Natural Resources Canada look into the weathering effects of dilbit on water.<br>Two systems monitor the TMPL continuously for changes in operating parameters that would indicate a possible leak:<br>· SCADA System; and<br>· Leak Detection System.<br>The SCADA system monitors rate-of-flow in the pipeline, pressure, temperature, and density of product, among other things. The parameters are then compared to a theoretical flow model, identifying any differences outside of prescribed norms that might indicate a problem. If a variance is found, an alarm will sound that is received by the control centre operator in Edmonton, AB. In the centre, there are dedicated operators per shift, each responsible for a different section of the pipeline. Monitoring takes place 24/7, and is divided into 12-hour shifts.<br>All operators undergo rigorous training and simulator testing to determine if they are qualified to hold this critical position. Until operators are fully qualified and have passed all testing, they may not operate unsupervised.<br>The data and modelling for the Leak Detection System is maintained and verified by a separate group of employees. These employees have received specialized training on | n/a |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
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| | | how to operate and support the leak detection models.<br>In the event that an alarm does go off, a prescribed series of procedures and actions immediately begins. There are various types of alarms that could result in different procedures, as well as different responses depending on the location, the terrain and the conditions surrounding the area in question. | |
| | Cleanup process for bitumen | In the event that dilbit were to be spilled, the procedures for cleaning up the spill would be similar to cleaning up a conventional crude spill. Environmental and site-specific conditions will also determine the type of procedures and equipment used during the emergency | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Potential for bitumen to sink in water | Some people think dilbit sinks in water. The fact is that with a maximum density of 0.94, dilbit is lighter than water (density 1.00) and seawater (density 1.03). Additional research is taking place to quantify how the dilbit reacts over time in water, with wave action, with fast-moving currents, with different sediment levels and with various other factors. Other studies have recently been conducted or are underway including the SL Ross Study (Meso-scale Weathering of Cold Lake Bitumen/Condensate Blend), that was prepared for a Joint Review Panel submission by Enbridge Northern Gateway Project and the anticipated Natural Resources Canada look into the weathering effects of dilbit on water. No scientific basis has been found to claims that dilbit causes greater internal corrosion in oil pipelines than other crude oil sources. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Slow spill response after Westridge incident | The July 24, 2007, Westridge rupture was caused by a third party excavator striking the Westridge delivery line. It occurred at 12:31 pm and an emergency call was made to the KMC Control Centre at 12:33 pm. The line was shut down immediately after the call, and 24 minutes after the rupture the Westridge delivery line was fully isolated and drain down initiated. KMC staff, along with WCMRC and others, worked diligently until the spill was remediated.<br>Trans Mountain maintains an Emergency Preparedness and Response Plan for Westridge that would be used to manage response to a spill. This plan will be evaluated for its suitability to the expanded operation and will be revised accordingly to ensure the safety of people and the environment. This plan forms the basis for regular emergency response training and exercises that are conducted with terminal staff and other agencies. Trans Mountain works closely with PMV, Transport Canada, the PPA and other agencies to ensure the safety and efficiency of vessels calling at the Westridge Marine Terminal. In 1976, Trans Mountain was a founding member of the spill response cooperative that has become the WCMRC, and continues to be a part owner of the organization. | n/a |
| | What plans are in place if there is an explosion at the tank farm? | ERPs are constantly being updated to keep them current. The plans are location specific, identify locations of emergency response materials and equipment, and are regularly practiced through field deployment exercises. Trans Mountain is prepared not only for oil releases, but a variety of other emergencies as well, such as fire, security breaches and natural disasters including earthquakes, floods, lightning strikes and avalanches. Teams prepare for these worst-case scenarios using the Trans Mountain ERP and the ICS. From alert to isolation, this procedure takes about 15 minutes or less. As part of an ongoing commitment to safety and environmental protection, Trans Mountain takes responsibility for the cleanup and remediation of spills by responding immediately to any release from the pipeline system. Trans Mountain works with pre-qualified and trained consultants and contractors to ensure any spill is cleaned up as quickly as possible while ensuring the safety of the public and minimizing impacts to the environment. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | How long does it take to shutdown the pipeline? (Two-minute valve) | In the event of a release, and in addition to prevention measures, steps would be taken to minimize the consequence of a release by quickly shutting down and isolating the damaged section of the pipeline or facility.<br>Trans Mountain has developed comprehensive emergency response procedures that control centre and local operators must follow. These procedures, together with aerial and ground patrols, calls from the public to Trans Mountain's toll-free emergency number, and continuous SCADA monitoring and leak detection systems combine to form the first line of defense in reducing the consequences of a spill. In addition to this, all Trans Mountain pump stations and terminals have automated leak detection and containment systems that are monitored continuously in the control centre.<br>In the event of a facility leak, automatic emergency shutdown protection will immediately isolate the facility and trigger a call out of local personnel to investigate further.The TMPL system is remotely controlled and monitored from a control centre located at the Edmonton Terminal using a SCADA system. The SCADA system provides continuous operating information to control centre operators who are responsible for operating the TMPL system. The SCADA system contains a real-time transient leak detection system that monitors flow metering and other instrumentation across the pipeline. This information provides input to a hydraulic model that simulates pipeline operating conditions and compares the simulated result to the actual operating conditions along the pipeline. Through this analysis, the SCADA system will generate alarms if flow imbalances exceed threshold levels. Control centre operators are responsible for shutting down the pipeline if the SCADA system analysis indicates that a leak might have occurred. | n/a |
| | Does Trans Mountain have enough insurance in the event of oil spill? | The NEB has most recently issued a draft Financial Viability and Financial Responsibility Guideline. The key features of the guideline are that the pipeline should have sufficient insurance, letter of credit, corporate guarantees, and/or other financial instruments to mitigate, remediate, and compensate affected parties related to the worst case spill. Secondly, the pipeline should have a dedicated letter of credit that is within the control of the NEB and is sufficient to stop and contain a worst case spill.<br>There are two areas of potential spill – land and ocean. The accountabilities and financial capacity for Ocean borne tanker spills is not the accountability of Trans Mountain but the accountability of the tankers as governed by the federal department of Transportation.<br>Trans Mountain has modelled worst case events and concluded that a spill exceeding $500M in costs is unlikely. Trans Mountain currently has $750M of spill liability insurance per event. At the end of the expansion Trans Mountain assets will have grown from approximately $1B to over $7B. Trans Mountain is confident that between the large availability of spill liability insurance and the large asset value, that it will have sufficient | n/a |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | cash to fund a $500M event, including the capacity to borrow cash as needed to fund expenditures prior to insurance recoveries. In addition, in the unlikely event that the $500M event is exceeded, it is logical to assume that Trans Mountain would continue to fund these amounts given that its shareholder equity exceeds this amount by a significant margin. | |
| | Emergency response capacity of WCMRC | As required by Transport Canada, Trans Mountain has an arrangement with WCMRC for marine spill response services. WCMRC has spill response equipment staged on water in Vancouver Harbour and a main base of operations nearby in Burnaby. Similarly WCMRC maintains caches equipment on Vancouver Island for response in the Salish Sea. | n/a |
| | Evacuation plan for Forest Grove (school) | In the event of a spill on land, several different groups co-ordinate efforts to react quickly and effectively. Trans Mountain uses the ICS. This system allows for seamless coordinated action with government agencies and Aboriginal communities. From alert to isolation, this procedure takes about 15 minutes or less. Trans Mountain would then activate response personnel and procedures and notify regulatory agencies. Trans Mountain has backup power supplies at all of our stations that can safely perform the shutdown functions, including in the event of a power failure. If the potential exists for hydrocarbon vapours to reach unsafe concentrations in the community, local police will be advised to initiate evacuation. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Pipeline Integrity | What is the lifespan of a pipe? | With a strong focus on inspection and proper maintenance, pipelines can be safely operated indefinitely. | n/a |
| | Properties of bitumen and dilbit | Bitumen is a heavier, thicker form of petroleum and contains fewer of the lighter hydrocarbon molecules found in conventional crude. In order to make bitumen flow through a pipeline, natural gas liquids or condensate (diluents) are added. This substance is referred to as dilbit and is made up of both light and heavy hydrocarbon molecules. The resulting density is the average of the materials blended. There is no scientific basis to claims that dilbit causes greater internal corrosion in oil pipelines than other crude oil sources. For further reference Trans Mountain has published a review of dilbit here; http://www.transmountain.com/uploads/papers/1349933515-alberta-innovates-dilbit-versus-conventional-crude.pdf | n/a |
| | Risks of transporting dilbit | A substantial amount of work has been carried out recently to demonstrate that dilbit is no more corrosive than conventional crudes. Pipelines transporting dilbit are not at any greater risk of corrosion than pipelines carrying other types of petroleum products, such as conventional crude. The only difference between dilbit and conventional crude is that dilbit carries diluent. Diluent is typically either light crude, such as ‘synthetic crude’ or ‘condensate’, which is extracted from the ground along with natural gas. Synthetic crude and condensate on their own have been produced and transported by pipeline for decades. Neither the properties of diluent or bitumen carry any characteristics that would cause more corrosion. There are two components in the dilbit that have raised concern, namely acid and sulphur. These components exist in varying degrees in all crude types. If crude is heated to a temperature higher than 200°C, corrosion to pipelines transporting dilbit may occur. But, these pipelines do not operate anywhere near that temperature. The pipelines typically operate at much cooler temperatures. For more information on corrosion, please visit www.aboutpipelines.com. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Use of smart pigs | In general, cleaning pigs are run on mainline sections of the TMPL monthly. Trans Mountain’s integrity management program uses an integrated approach to ensure the long-term functional integrity of its pipeline system. The core of the program is the identification of hazards that are considered potential threats to safe and reliable pipeline operations, and the concept of tailoring the program to implement proactive measures to prevent such hazards from occurring. The integrity management program is continuously evolving in response to potential hazards to the safe operation of the system. Corrosion control for all pipelines will be provided by an impressed-current cathodic protection system. Pigs will be used upon successful completion of hydrostatic testing. Tested sections will be dewatered using pigs (foam or rubber sealing plugs) propelled through the pipeline by compressed air. Testing programs will be subject to NEB approval. Appropriate designs and construction practices will be implemented to meet technical standards and protect the safety of workers and the public. | n/a |
| | Inline inspections – what are they, how often do they occur? | Trans Mountain has a comprehensive integrity management program used to ensure the safety of people and to protect the environment. This program employs processes for the identification of all hazards that pose a threat to the safe operation of the pipeline system. Assessments are conducted for the monitoring of conditions specific to each hazard. The main approach for condition monitoring is through in-line inspection. Several different specialized tools are routinely run in the pipeline to monitor for external corrosion, internal corrosion, mechanical damage, seam weld anomalies, and for cases where these conditions may interact. Field inspections are performed when anomalies are identified that pose a potential threat to the integrity of the pipeline to excavate the pipeline and inspect the identified anomalies using non-destructive examination techniques. When defects are found they are repaired using standard procedures such as the installation of steel sleeves or the replacement of pipe. In all field inspections the pipe is recoated using high performance coatings before backfilling. Detailed records are maintained of pipeline assessment results and repair locations. These records and many other data sets are used to drive pipeline risk assessments which are performed annually. Besides assessments and repairs, many other preventive measures are used to control the development of integrity threats including the cathodic protection program, the damage prevention program, the natural hazard program, and the internal corrosion program. One of the fundamental goals of the Integrity Management Program is to achieve continuous improvement. Trans Mountain is presently completing a baseline assessment of the system with crack detection tools to continue to improve the integrity of the pipeline system. Another ongoing improvement initiative is to increase the level of integration of diverse data sets to consider the potential for features to interact.<br><br>Internal inspection tools called Smart Pigs are sent down the pipeline with the product. Carrying onboard computers and sensors, they measure the diameter of the pipe and the thickness of the pipe wall and can detect dents, gouges or other damage to pipeline. Ultrasonic or EMAT testing further detects signs of any corrosion or cracks that have initiated in the pipe. In general, cleaning pigs are run on mainline sections of the existing TMPL monthly. The use of cleaning pigs is a preventive maintenance practice to help mitigate internal corrosion by cleaning deposits from the internal surface of the pipe, such as paraffins, asphaltenes, sand, scale, and free water. | n/a |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Frequency of inspections | Trans Mountain uses its natural hazards management program to monitor and protect against damage to the pipeline from unstable slopes, stream crossings and seismic events. Established in 1998, this program uses a custom database to document inspections and preventive maintenance work at more than 600 sites along the pipeline right-of-way and to schedule future inspection frequency based on risk. | n/a |
| | Thickness and strength of pipe walls | Oil pipelines are generally constructed from steel with an inner diameter typically ranging from 100 to 1,200 mm (4 to 48 inches). The steel used is of the highest quality and manufactured to stringent CSA specifications, which include chemistry and material properties.<br>Coating on the outside of the pipeline is used to prevent it from corrosion or rusting. The new pipe (and any repairs to the existing pipe) will typically be coated with fusion bond epoxy. In rockier areas, enhanced external coatings such as concrete, abrasive resistant fusion bond epoxy or polyethylene will be used to mitigate the impact from abrasives or stress-concentrating conditions (such as rocks or backfill) and to provide additional mechanical protection. Prior to lowering the pipe section into the trench, the integrity of the coating is checked by means of a high voltage tool that will detect even the smallest defect in the coating. If a defect is noted, an epoxy repair coating is applied.<br>Early small-diameter pipelines have long since been decommissioned and modern-day pipelines benefit from some of the most advanced and environmentally-conscious technology available. Internal inspection tools called Smart Pigs are sent down the pipeline with the product. Carrying onboard computers and sensors, they measure the diameter of the pipe and the thickness of the pipe wall and can detect dents, gouges or other damage to pipeline. Ultrasonic or EMAT testing further detects signs of any corrosion or cracks that have initiated in the pipe. | Volume 4B - Project Design and Execution - Construction |
| | Adherence of existing pipe to modern specifications | Pipeline integrity begins with sourcing the materials – oil pipelines are generally constructed from steel with an inner diameter typically ranging from 100 to 1,200 mm (4 to 48 inches). The steel used is of the highest quality and manufactured to stringent CSA specifications, which include chemistry and material properties. Through production, transportation to the job site, and installation, quality management processes are in place to ensure the pipe fully meets the requirements.Pipeline operations include multiple controls and monitoring systems to ensure it operates safely. The latest technological advancements are incorporated, along with trained personnel, to ensure that the pipeline is operated safely. With a strong focus on regular maintenance, the Application of the latest technology and sound operating practices, the TMPL has an indefinite lifespan — as safe in the future as the day it is installed. | Volume 4B - Project Design and Execution - Construction |
| Pipeline Integrity | What is the maximum operating pressure of the pipeline? Has the maximum operating pressure increased with heavy oils? | Normal operating pressures range between 250 and 10,000 kPa. Maximum Operating Pressures on TMPL are typically in the 6,000 to 10,000 kPa range but can be as low as 4,000 kPa at high points on certain segments.<br>The MOP has not increased with increased movement of heavy oils. The increased density and viscosity of these liquids simply means that the pipeline flow rate is limited by the hydraulic bottleneck that a batch of heavy oil represents.<br>The pipeline is pressure tested to 125 per cent of its anticipated maximum operating pressure for a minimum of eight hours. This process tests the integrity of the complete system of the pipe, welds, fittings and all other appurtenances such as valves. A successful test is required to obtain certification for the pipeline to operate. | n/a |
| | Containment measures at valve locations | All Trans Mountain pump stations and terminals have automated leak detection and containment systems that are monitored continuously in the control centre. In the event of a facility leak, automatic emergency shutdown protection will immediately isolate the facility and trigger a call out of local personnel to investigate further. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Valve locations, spacing and risk of large spills | Approximately 92 automated MLBVs will be installed along the pipeline for emergency shutdown and isolation of pipeline segments. Automated MLBVs will be constructed within the operating pipeline right-of-way and most will be sited adjacent to existing TMPL valves. Many automated MLBVs will be accessed by existing access roads; however, permanent access roads may be required at yet unspecified locations. Automated MLBVs will require a permanent power source. Typically, new power lines will only be used when there is a source nearby, thereby reducing any additional disturbance. Otherwise, alternative power sources such as solar panels, battery banks and/or nitrogen bottles will be used. Each automated MLBV installation will require a fenced and gravelled operating area of approximately 5 m × 12 m (60 $m^2$). The exact location of MLBVs and power sources utilized will be determined during detailed engineering design.<br>The number of ESVs for the proposed line has not yet been determined. The number and locations of ESVs will be guided by modelling studies that factor in local conditions and potential consequences. As Trans Mountain develops detailed design and engineering work, the final locations of the valves will be chosen. Their design will consider the protection of sensitive areas and minimize impacts identified during the routing and design process. | Volume 4B - Project Design and Execution - Construction<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Valve operation process and closure timeframe | There are generally two types of valves used: Check Valves and Block Valves.<br>Check Valves are mechanical devices, which only permit flow in one direction. If upstream pipeline pressure reduces, the valve closes and stops the flow. Block Valves are typically automated and can be controlled remotely. They feature an electric actuator that is connected via satellite or other communications system. If a problem is detected and sent to the control centre as an alarm, the operator will follow written procedures, which may include stopping the pipeline and closing the Block Valves to isolate the area until the condition can be investigated and resolved. The expanded pipeline design will include remotely operated mainline block valves (MLBVs) for emergency shutdown and isolation of pipeline segments. New MLBVs will be installed on Line 2 with automation or check valves as required. Reactivated segments of Line 1 will include automation of MLBV's. Sections of Line 1 in current operation will be subject to a technical review with supplemental automation of MLBV's addressed either as part of ongoing operations, or inclusion within Trans Mountain. | n/a |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Spills | What is Trans Mountain's Spill Record? | Kinder Morgan Canada Inc., as the operator of TMPL, is committed to transparency involving any and all spills that have occurred along its lines, or on partner vessels carrying KMC transported product. Spills are reported, and available for public knowledge.<br>As a regulated company, Trans Mountain is currently responsible for reporting spills greater than 1.5 m3 (roughly five times the volume of an average household bathtub) or releases having any significant adverse effect, such as any spill to water. In those 53 years, there have been 80 spills on the existing TMPL pipeline that have been reported to the NEB.<br>These reported incidents are broken down as follows:<br>· 65 incidents involving crude oil;<br>· 7 involving gasoline, jet fuel, diesel and other types of oil;<br>· 5 involving contaminated water such as hydro-test water;<br>· 2 involving other products not listed above; and<br>· 1 did not involve any product.<br>Sixty nine per cent of Trans Mountain's past spills have occurred at pump stations or terminals. All of our pump stations and terminals are equipped with monitoring and spill containment systems to provide early detection and lessen impacts and ensure spilled volumes are contained on site. These facilities are rigorously maintained and inspected to meet NEB standards.<br>The remaining 31 per cent of Trans Mountain's spills have occurred along the pipeline, with 20 incidents related to releases of crude oil from the pipeline. Of these spills, only twelve exceeded the reporting threshold of 1.5 $m^3$, and just three of those twelve occurred in the last 30 years. None of Trans Mountain's past spills occurred in open water, or while entering or exiting the Burrard Inlet. In all of these circumstances, Trans Mountain deployed its emergency response and spill management procedures.<br>Following each spill, Trans Mountain conducts a thorough incident investigation that contributes to improved spill prevention and management initiatives. We recognize the potential for pipeline spills. Our safety programs aim to minimize the effects of spills. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Impacts from a potential spill in multiple spawning channels, Cheam Lake, the Salmon and Fraser Rivers | Determining the pipeline route involves a range of studies, including environmental and engineering studies, in conjunction with discussions with landowners, neighbours, Aboriginal Peoples, stakeholders and the community which are underway. To date, Trans Mountain has heard similar concerns around safe construction and operation of the pipeline through environmentally sensitive areas, such as the Salmon River Valley and close to river crossings, and this feedback will be included in our Facilities Application to the NEB later this year.<br>The TMPL has been operating responsibly since 1953 and Trans Mountain is committed to keeping pipelines safe and protecting our employees, the public and the environment. Pipelines are the safest, most efficient, and environmentally sound method of transporting crude oil and petroleum products over land. While no spill is acceptable to us, Trans Mountain works very hard to ensure the continued safe and reliable operation of our pipelines and use a multi-layered approach to pipeline safety. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Fear of spills in the Salmon River valley and the rail line which can also impact wetlands and subdivisions north of 96th Avenue | While no spill is acceptable to us, Trans Mountain works very hard to ensure the continued safe and reliable operation of our pipelines and use a multi-layered approach to pipeline safety. Our integrity management program led us to detect the small amounts of petroleum products in the soil along the right-of-way near Kingsvale and Hope recently and our response was immediate. The public can learn more about how Trans Mountain keeps the pipe safe and the programs that are in place to respond to an emergency here: http://www.transmountain.com/operating-our-pipeline.The primary focus for planning the new pipeline route will be safety to the environment and community. It is our intention to minimize impacts to residences and communities as much as possible and our Project will meet all requirements of the NEB, *Canadian Standards Act*, along with all applicable regulatory authorities.Through our studies to date, Trans Mountain has determined that deviating from the existing TMPL right-of-way through the Salmon River Valley to join the CN rail corridor is the best option for the new pipeline due to dense urban and industrial development in Walnut Grove and Port Kells. Trans Mountain is studying this corridor as it provides the least impact to residences and the community however there are many factors that contribute to the routing process of our expanded pipeline, including public input.At this point in our routing process, Trans Mountain is reviewing 'study corridors'. These are corridors where Trans Mountain will focus our engagement efforts; Trans Mountain will do environmental, engineering and other studies. At a point in the future as Trans Mountain will gather additional information from this work (likely one or two years from now where Trans Mountain will propose deviations from the original right-of-way), Trans Mountain will narrow down the corridor to a right-of-way and then a pipeline centre line. All of this assumes Project approval from the NEB. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Spills | Freshwater spills - safety | In the event of a release, and in addition to prevention measures, steps would be taken to minimize the consequence of a release by quickly shutting down and isolating the damaged section of the pipeline or facility. Trans Mountain has developed comprehensive emergency response procedures that control centre and local operators must follow. These procedures, together with aerial and ground patrols, calls from the public to Trans Mountain's toll-free emergency number, and continuous SCADA monitoring and leak detection systems combine to form the first line of defense in reducing the consequences of a spill.The SCADA and leak detection systems continuously monitor the pipeline for changes in operating parameters that would indicate a possible leak. Trans Mountain owns, maintains and operates dedicated spill response equipment at strategic points along the TMPL system corridor. OSCAR units are located at Trans Mountain facilities in Edmonton and Jasper, AB, and in Blue River, Kamloops, Hope and Burnaby, BC. Each OSCAR unit contains about 300 m of oil recovery boom and support equipment, including a river jet boat for deployment. All equipment is helicopter transportable for delivery to remote locations not accessible by road. Specialized equipment has been developed in-house by Trans Mountain employees for intercepting and recovering oil, if required, from beneath the ice on frozen rivers and lakes. This equipment is stored in the Jasper and Edmonton OSCAR units. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Liability: Who is responsible for spill clean-up? | Trans Mountain will take every possible action to prevent a spill and has developed a number of programs to protect and inspect the TMPL. No spill is acceptable, but we have plans to respond, clean up, remediate and learn from every incident should one occur.<br>Although ultimately, liability for an oil spill depends on the cause of the spill, Trans Mountain will always initiate and cover costs for cleanup and restoration. If oil were released from the TMPL, final responsibility for cleanup costs would depend on whether the spill was the fault of Trans Mountain or a third party. Depending on circumstances, Trans Mountain would then seek to recover costs from insurance or from a third party if applicable.<br>There are a variety of industry-funded sources available to cover the costs of cleaning up such a spill. Visit IOPC Funds to learn about the IOPC Funds, and SSOP Fund to learn about Canada's Ship-source Oil Pollution Fund. Trans Mountain carries liability insurance to provide coverage for all aspects of spill management, including compensation and remediation.<br>Remediation cleanup criteria have been established by both federal and provincial agencies. As a federally regulated pipeline system, Trans Mountain is required to conduct any cleanup to satisfy both the regulations and the NEB. Please visit transmountain.com/Canadian-regulations-and-spill for more information on Canadian regulations. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| **Socio-Economic** | | | |
| Economic Effects Benefit/Impact | Benefits to Canada as a whole and to communities/municipalities along the route (*e.g.*, Hope) | As the world's third-largest oil producer, Canada benefits greatly from the export of national resources. Twinning the TMPL will increase Canada's capacity to export these resources by facilitating the movement of oil to the West Coast for marine transport to market. It will further secure the supply of oil products to the Lower Mainland for use by BC's residents and businesses. The Project will also lead to new jobs in the short and long term, job-related training opportunities, and increases in taxes collected through all three levels of government. | Volume 5B - ESA - Socio-Economic |
| | Health impact from odours at Sumas Mountain Terminal | On January 24, 2012, oil from a storage tank at the Sumas Mountain Terminal spilled and was fully contained within an area on the property that was lined with an impermeable membrane. The containment worked as designed, and all of the oil was recovered on the same day as the release. It was later determined that damage caused by freezing of the internal roof drain system caused the spill.<br>No one was hurt and there was no threat to the public because of the spill. However, odours were reported in the area causing concern in the community. As a result, Trans Mountain has taken a number of steps to improve air quality monitoring and its process for communicating with local residents. Steps include:<br>· Early Notification for Residents - A free of charge, opt-in resident notification system will send an email or text message if there's an incident that requires notification to area residents. The system will be ready by the end of this year.<br>· Enhanced Odour Complaints and Investigation Process - Taking steps to minimize odours and investigate their cause is a top priority. Odours can be reported to 1.888.876.6711 around the clock. All odour reports will be thoroughly investigated and addressed. As a result of the January incident, additional measures will include notification of the local fire department dispatch.<br>· Air Quality Monitoring and Reporting - An air monitoring terminal will be installed at the Sumas Mountain Terminal by the end of this year and an independent, rapid response service provider will conduct air monitoring sampling and analysis if needed in the event of an incident.<br>In addition to the measures to improve air quality monitoring and notification processes, the drain system – found to be the cause of the incident – has been repaired and tested. Procedures have been put in place to prevent a similar incident. Later this fall, a heating system will be installed on the valves at each of the six tanks at the Sumas Mountain Terminal to prevent potential freezing during the winter.<br>The Terminal has been operating for more than 40 years. | Volume 5B - ESA - Socio-Economic |
| | Impacts of tanker traffic on pleasure craft use | At present, more than 250 deep draft vessels enter the port each month — about 3,000 per year. Of those 250 per month, only 8 are presently destined for Westridge terminal, 5 of which are tankers. This means traffic to Westridge currently represents less than three per cent of the total traffic of PMV.<br>With the proposed expansion of the TMPL and associated dock facilities, the Westridge Marine Terminal is forecast to serve 37 vessels per month, of which approximately 34 would be tankers. This increased total would then represent about 14 per cent of today's marine traffic in PMV. | Volume 3 - Consultation |
| | How will the expansion affect Chevron? | Trans Mountain views Chevron as a long standing and important customer and has a continuing interest in supplying not only Chevron but all existing customers on the TMPL system.<br>Expansion of TMPL ensures ample supply for the Lower mainland of BC. Chevron will have sufficient spot market access to the pipeline to supply the Burnaby refinery. A capacity of 708,000 bbl/d would serve the 13 customers who signed up for fixed 15 and 20-year contracts. The remaining, approximately 180,000 bbl/d, will be available for customers who chose not to enter into long-term contracts and want to access the spot market.<br>The Project will alleviate the oversubscription issues currently being experienced by existing customers and will enable all existing and new customers to get the capacity that each requires to carry on with their business, including Chevron. | n/a |
| | How will construction impact organic farming certification? | Mitigation that addresses equipment cleaning, the restriction of herbicides for weed management, the use of non-toxic hydraulic fluids and lubricants in equipment, disposal of construction materials and garbage and soil management considerations have been identified within the Agricultural Management Plan for construction on organic fields. | Volume 5B - ESA - Socio-Economic |
| | Golf course disruption, construction and remediation (Abbotsford) | Trans Mountain is currently evaluating ways to reduce the impact to the Ledgeview Golf Course. | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Concern about decreased property values near Terminals | Treating landowners – the people who have land agreements with Trans Mountain – and neighbours fairly and equitably is a cornerstone of the relationships Trans Mountain has developed and maintained in communities along the TMPL system.<br>Through respectful dialogue, Trans Mountain's goal is to negotiate mutually-agreeable arrangements with each landowner who may be impacted by the Project.<br>In cases where Trans Mountain is unable to reach a mutually-agreeable arrangement, the NEB has a multi-step process that the Company will follow to address differences of opinions as part of the routing review and approval process.<br>More information about the process is available on the NEB website. | Volume 5B - ESA - Socio-Economic |
| | Will the Project contribute to increased price at gas pump? | Gasoline prices are affected by a large number of global factors. The prices of crude oil are neither controlled nor directly influenced by the development of any specific pipeline.<br>There are some valuable resources online that explain the factors that influence gas prices, including the following links:<br>- NEB webpage; and<br>- CAPP webpage. | n/a |
| | Awareness of positive benefits of the Project | As the world's third-largest oil producer, Canada benefits greatly from the export of national resources. Twinning the TMPL will increase Canada's capacity to export these resources by facilitating the movement of oil to the West Coast for marine transport to market. It will further secure the supply of oil products to the Lower Mainland for use by BC's residents and businesses. The Project will also lead to new jobs in the short and long term, job-related training opportunities, and increases in taxes collected through all three levels of government.<br>Overall, the proposed expansion will enhance Canada's ability to reach diversified markets with its oil, while also increasing tax revenues that can be used to fund government projects and services Canadians depend on such as health care, education, roads and infrastructure.<br>Trans Mountain plans to spend $5.4 billion by the end of 2017 to construct the line and associated facilities, and a further $2.4 billion to operate it for the first 20 years. British Columbia's economy is forecasted to grow by $2.8 billion (GDP) through construction-related spending, and up to $11.3 billion including Project operations through to 2037.<br>The Project is also anticipated to generate substantial provincial and municipal tax revenue. Provincial governments revenues associated with the Project are anticipated to be in the order of $1.7 billion, with B.C. provincial government receiving $1 billion in provincial taxes and Alberta receiving over $0.4 billion in provincial taxes. Municipal tax revenues which can support community services and infrastructure are estimated to increase approximately $23 million annually, or $460 million over 20 years of operations. In Alberta, municipal property taxes are estimated to increase approximately $3.4 million annually, or $68 million over 20 years of operations. In communities along the pipeline route annual property tax payments to more than 20 local governments and more than 24 Aboriginal communities would jump to $52.4 million from $25.9 million per year at present.<br>The estimated tax revenues to the Government of Canada are $2.1 billion over the life of the proposed project.<br>Expanding the TMPL system will create both short- and long- term job opportunities in BC communities along the pipeline route. Construction is scheduled in 2016 and 2017 with an estimated 4,500 workers at peak manpower. Trans Mountain expects to create 108,000 person years of employment, from construction and the first 20 years of operations across Canada; of this 66,000 person years of employment will be in BC and 25,000 will be in Alberta (related to direct project spending as well as supply chain effects and spending of wages). In communities where construction activities concentrate, the economic impacts are significant. During the peak construction period of the TMEP and associated facilities, construction hubs are to be established along the route for the staging of work and accommodation of workers. Construction workers residing in construction hub communities will spend money on accommodation, meals and other goods and services which will create spin-off benefits for local businesses and economies. A large number of the total construction workforce will come from the communities directly along the route, including nine in BC. In larger communities it is estimated up to 30 per cent of the workforce will be local hires.<br>The proposed expanded operations are anticipated to create 40 new full-time permanent positions in Alberta and 50 new full-time permanent positions in BC. | Volume 5B - ESA - Socio-Economic |
| | Metro Vancouver sanitary line crosses the pipeline; they are looking at twinning in two to three years (crosses east to west at King Road). Are there opportunities to work together? | Trans Mountain has initiated discussions with Metro Vancouver. There are opportunities to work with Metro Vancouver. Once Metro Vancouver can provide Trans Mountain with their design elevations at the crossing point Trans Mountain will work with Metro Vancouver to ensure the designs provide for adequate clearance between the pipes. | Volume 6 - Project Execution |
| Economic Benefit/Impact | What municipal taxes will expanded pipeline pay to City of Coquitlam | With respect to the City of Coquitlam, Trans Mountain currently pays $200,000 (2013) in property taxes to the City of Coquitlam municipality. If the project is approved we anticipate the property taxes to the municipality could increase to over $400,000. In addition during construction there could be spin off opportunities for local businesses, local workforce spending, and employment in Coquitlam and the area.<br>Trans Mountain plans to spend $5.4 billion by the end of 2017 to construct the line and associated facilities, and a further $2.4 billion to operate it for the first 20 years. British Columbia's economy is forecasted to grow by $2.8 billion (GDP) through construction-related spending, and up to $11.3 billion including Project operations through to 2037.<br>Expanding the TMPL system will create both short- and long- term job opportunities in BC communities along the pipeline route. Construction is scheduled in 2016 and 2017 with an estimated 4,500 workers at peak manpower. During the peak construction period of the TMEP and associated facilities, construction hubs are to be established along the route for the staging of work and accommodation of workers. Construction workers residing in construction hub communities will spend money on accommodation, meals and other goods and services which will create spin-off benefits for local businesses and economies. A large number of the total construction workforce will | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.3

## INTERESTS OR CONCERNS - LOWER MAINLAND/FRASER VALLEY (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | come from the communities directly along the route, including nine in BC. In larger communities it is estimated up to 30 per cent of the workforce will be local hires. | |
| | Responsibility for cleanup costs in the event of a spill | As part of an ongoing commitment to safety and environmental protection, Trans Mountain takes responsibility for the cleanup and remediation of spills by responding immediately to any release from the pipeline system. Trans Mountain carries liability insurance to provide coverage for all aspects of spill management, including compensation and remediation. There are a variety of industry-funded sources available to cover the costs of cleaning up such a spill. Visit IOPC Funds to learn about the IOPC Funds, and SSOP Fund to learn about Canada's Ship-source Oil Pollution Fund.<br>In Canada, liability and compensation for ship-source oil spill pollution are governed by the Canada Shipping Act and Marine Liability Act. Both acts reflect Canada's commitment to international conventions administered by the IMO, such as those regarding the IOPC Funds. Up to $1.312 billion is available for an individual spill. Liability for an oil spill depends on the source of the spill. Trans Mountain would cover the costs of a spill cleanup and restoration and then recover them from insurance or third parties if applicable. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Concern for adequacy of landowner compensation | Trans Mountain works with landowners along its pipeline network. A key objective is to treat each landowner fairly and equitably. For those who may be directly affected by the Project, Trans Mountain will identify and address landowners' concerns and questions about the Project. These landowners will then work with the Lands Teams to reach jointly equitable solutions.<br>The NEB has produced a guide for landowners and the public that provides details about the regulatory process governing pipeline Projects. This information is available on the NEB website. | Volume 5B - ESA - Socio-Economic |
| | Crop insurance and compensation | Trans Mountain's compensation plan will provide for valid impacts, losses or damages to crops within the construction footprint and access routes as may be required. | Volume 5B - ESA - Socio-Economic |
| Human Health | What are the human health impacts from odours, and pipeline products? Is there a carcinogenic link? | Trans Mountain strives to minimize the impact of our operations on our neighbours by incorporating odour mitigation measures in our day-to-day activities and Project work. In addition, Trans Mountain is taking steps to enhance our early leak detection system and air monitoring/sampling protocol. Trans Mountain is also looking into procuring technology to facilitate automated calls to residents in the area in the event of an emergency and will provide more information on this initiative to local area residents in the coming months.<br>In support of the ESA for the Project, KMC has commissioned a HHRA, the principal aim of which is to identify and understand the potential short-term and long-term health risks, including carcinogenic risks, to people exposed to the chemicals that could be released to the environment from the pipeline and associated facilities. | Volume 5B - ESA - Socio-Economic |

### *1.7.4 Key Topics of Interest or Concern – Mainland Coastal*

Figure 1.7.4 displays the key topics of interest or concern in Mainland Coastal communities. This includes all comments from all engagement activities including public information sessions, ESA Workshops, community workshops and online engagement.

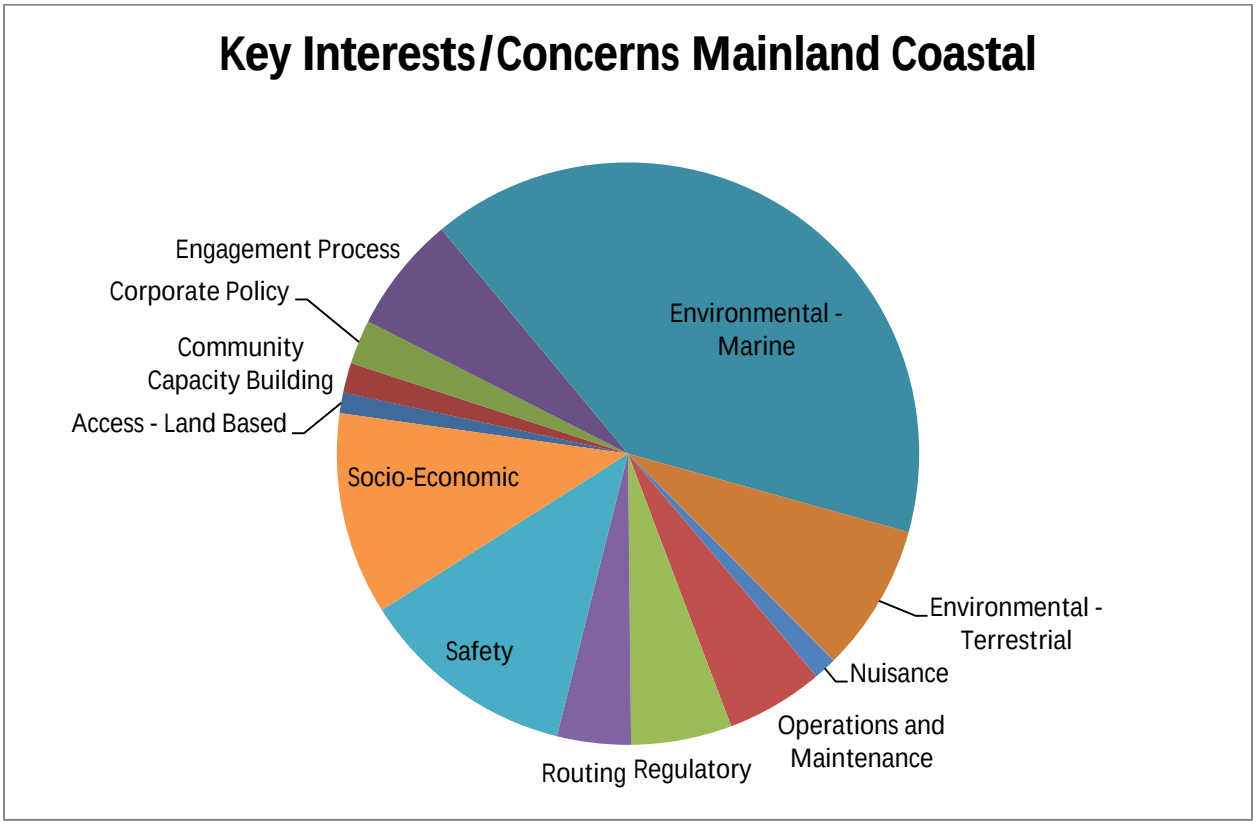


**Figure 1.7.4 Key Topics of Interest or Concern in the Mainland Coastal Region**

Table 1.7.4 provides information on the key topics of interest for Mainland Coastal and Island Coastal regions as well as the response to the interest or concern. The application section provides information as to where the information is addressed.

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Community Capacity Building | Trans Mountain Commitment to Communities | As a long-time industry and community member, Trans Mountain is committed to working with residents, regulatory authorities and other stakeholders on environmental initiatives. | Volume 5B - ESA - Socio-Economic |
| Corporate Policy | Who is responsible for breach in pipeline? | Trans Mountain is committed to keeping pipelines safe, and to protecting employees, the public and the environment. Trans Mountain has worked hard to develop a mature suite of programs focused on preventing pipeline failures, as well as minimizing their impact if they do happen. Trans Mountain has detailed ERPs for all of the facilities, and in the event of an emergency, Trans Mountain will immediately mobilize all of the necessary resources to minimize its impact on the public and the environment. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Interaction between PMV and WCMRC and response capacity | WCMRC is comprised of a team of spill response professionals (biologists, environmentalists, engineers, fire and police, and others trained specifically in the handling of oil products), and is funded through a tariff charged to every vessel entering PMV.<br>Their ability to effectively manage and direct spill response procedures within the first few hours after response activation reduces the negative impacts oil can have on the surrounding environment.<br>In the event of a spill, WCMRC personnel immediately respond with carefully designed strategies and countermeasures. WCMRC maintains various response-oriented warehouses and equipment caches that can be activated such as containment booms, skimmers and vessels. Incident Command team members, supervisors, vessel skippers and crew, technical assistance personnel, advisors and others, are pooled both from within WCMRC and from its network of partners across Canada, the USA and around the world. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A – Marine Transportation |
| | What is the percentage of heavy oil (dilbit) moving along the pipeline and across the dock (now and post-expansion) | Approximately 20% of the oil currently transported in the Trans Mountain pipeline can be considered heavy oil and most of that can be considered dilbit. Post-expansion, heavy oil is expected to comprise approximately 60% of the total volume shipped. However, the two pipelines that will make up the system post-expansion will be largely segregated by heavy and light streams so that Line 1 will move almost entirely light oil and Line 2 (comprised of more than 95% new pipeline segments) will move almost entirely heavy oil. The percentage of heavy oil shipped will depend to some extent on market demand. | n/a |
| | What are the economic drivers for expanding west coast access? | The Project is based on support from its customers — shippers who move products through the line to various markets. Thirteen participants in the Canadian producing and oil marketing business have signed binding 15- and 20-year contracts for additional capacity on the proposed expanded pipeline system to move their products, should the Project be approved. | n/a |
| | What is Trans Mountain's policy on climate change and how can Trans Mountain contribute to a green economy? | Trans Mountain is assessing the carbon impact of constructing and operating the TMEP and its related facilities. The GHG impacts will be outlined the ESA submitted with the NEB facilities application and a carbon management plan will be developed to mitigate (reduce) emissions as much as possible.<br>For upstream or downstream impacts outside of Trans Mountain's jurisdiction or control, we will also describe how Trans Mountain is acting as a catalyst to influence the industry to help address issues upstream and downstream from the pipeline. Examples include: climate change; oil sands development; shipping practices; emergency spill response; and protecting the ecological integrity of BC and Alberta.<br>Transitioning to a clean energy future takes time, financial investment and a shared commitment between government, industry and British Columbians. It requires us to think beyond traditional methods and attitudes and accept that changes are necessary if Canada is to remain a reliable, global energy provider.<br>TMPL has a 60 year history of safe and responsible operations. Trans Mountain is designing a Project that will account for our impact on communities, our environment and our economy. A comprehensive assessment of our work will be available in the ESA when Trans Mountain files the Facilities Application to the NEB.<br>The Conference Board of Canada states that over the next five years, more money ($6.1 billion) will be invested in climate friendly technology in Alberta than all the other Canadian provinces combined. More than $312 million has been collected for a clean energy technology fund, which will be invested to find better ways to cleanly develop resources.<br>Funds are administered through the Climate Change and Emissions Management Corporation and awarded to Projects within the province. The Alberta government is investing $25 million into Carbon Management Canada, a national, university-led research network.<br>Climate change and water use are an important issues which Canada's oil industry have addressed through many activities. A lot has changed in the last fifty years and there are some great resources on the CAPP website about climate and water. As well as on the Canadian Energy Pipeline Association website. | n/a |
| **Engagement Process** | | | |
| Engagement Process | Concern that engagement is really just PR (not meaningfully obtaining and using input) | A core value of Trans Mountain is respect for the people that our operations involve, which includes our personnel, our customers, stakeholders and Aboriginal communities impacted by or in contact with our operations. We recognize and respect the values that each of these constituents brings to our operations, and recognize fundamentally that our success is tied directly to how successfully we work cooperatively with these constituents.<br>Community engagement began in April 2012 and will continue through 2013 as part of the preparations for the Facilities Application to the NEB expected to be filed in late 2013. The Facilities Application asks the NEB for permission to build the necessary facilities associated with the Project. Engagement and consultation will continue through the lifetime of the Project.<br>Public input is an important part of any major pipeline Project, and will form a critical component of the application. Trans Mountain is reaching out to all landowners along the pipeline and meeting with community leaders, elected officials, environmental groups and Aboriginal Peoples to get their input, issues, and perspective. All input received through the Project stakeholder engagement program will be considered by the Project team in developing and designing the Project. To date Trans Mountain has received feedback that has been very helpful in the planning and will ensure we can make the Project better. | Volume 3 - Engagement |
| | Desire for meaningful engagement | Trans Mountain is encouraging participation and discussion. Stakeholder questions, concerns and comments can help Trans Mountain to develop and build a better pipeline. This process will result in a Project application which is reflective of the needs of the community that it most directly affects. | Volume 3 - Engagement |

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Engagement Process | Desire for a more detailed breakdown of economic figures, and a better explanation of what these numbers mean | As the world's third-largest oil producer, Canada benefits greatly from the export of national resources. Twinning the TMPL will increase Canada's capacity to export these resources by facilitating the movement of oil to the West Coast for marine transport to market. It will further secure the supply of oil products to the Lower Mainland for use by BC's residents and businesses. The Project will also lead to new jobs in the short and long term, job-related training opportunities, and increases in taxes collected through all three levels of government.<br><br>Overall, the proposed expansion will enhance Canada's ability to reach diversified markets with its oil, while also increasing tax revenues that can be used to fund government projects and services Canadians depend on such as health care, education, roads and infrastructure.<br><br>Trans Mountain plans to spend $5.4 billion by the end of 2017 to construct the line and associated facilities, and a further $2.4 billion to operate it for the first 20 years. British Columbia's economy is forecasted to grow by $2.8 billion (GDP) through construction-related spending, and up to $11.3 billion including Project operations through to 2037.<br><br>The Project is also anticipated to generate substantial provincial and municipal tax revenue. Provincial governments revenues associated with the Project are anticipated to be in the order of $1.7 billion, with B.C. provincial government receiving $1 billion in provincial taxes and Alberta receiving over $0.4 billion in provincial taxes. Municipal tax revenues which can support community services and infrastructure are estimated to increase approximately $23 million annually, or $460 million over 20 years of operations. In Alberta, municipal property taxes are estimated to increase approximately $3.4 million annually, or $68 million over 20 years of operations. In communities along the pipeline route annual property tax payments to more than 20 local governments and more than 24 Aboriginal communities would jump to $52.4 million from $25.9 million per year at present.<br><br>The estimated tax revenues to the Government of Canada are $2.1 billion over the life of the proposed project.<br><br>Expanding the TMPL system will create both short- and long- term job opportunities in BC communities along the pipeline route. Construction is scheduled in 2016 and 2017 with an estimated 4,500 workers at peak manpower. Trans Mountain expects to create 108,000 person years of employment, from construction and the first 20 years of operations across Canada; of this 66,000 person years of employment will be in BC and 25,000 will be in AB (related to direct project spending as well as supply chain effects and spending of wages). In communities where construction activities concentrate, the economic impacts are significant. During the peak construction period of the TMEP and associated facilities, construction hubs are to be established along the route for the staging of work and accommodation of workers. Construction workers residing in construction hub communities will spend money on accommodation, meals and other goods and services which will create spin-off benefits for local businesses and economies. A large number of the total construction workforce will come from the communities directly along the route, including nine in BC. In larger communities it is estimated up to 30 per cent of the workforce will be local hires.<br><br>The proposed expanded operations are anticipated to create 40 new full-time permanent positions in Alberta and 50 new full-time permanent positions in BC. | Volume 3 - Engagement<br><br>Volume 5B - ESA - Socio-Economic |
| | Preference for different engagement formats such as forums or panel discussions where attendees could ask questions in front of an audience | Other engagement methods for the Project included: direct one-on-one contact; open houses; environmental issue workshops; the establishment of a toll-free information line; and engagement initiatives by telephone and electronic means. Trans Mountain has a number of engagement activities that will remain available throughout the duration of the Project. | N/A |
| | Need to communicate assessment results to the public | In every aspect of the Project, Trans Mountain will undertake extensive environmental assessments and an open and thorough engagement process with local communities along the pipeline route and the marine corridor including Aboriginal groups, landowners and stakeholders. Trans Mountain will work openly and co-operatively with all levels of government, Aboriginal groups and stakeholders regarding environmental, health and safety issues to identify and mitigate any potential impacts. | Volume 3 – Consultation |
| | How will engagement outcomes be reported and communicated to communities | The Project has published a report outlining the results of its recent public engagement program. From September 2012 through January 2013, Trans Mountain hosted 37 public information sessions in 30 communities from Edmonton, AB, to Sooke, BC, giving stakeholders the opportunity to meet Project staff, learn about the Project, and provide input. More than 2,200 people attended the sessions along the pipeline route and marine corridor and many others participated online. In addition to highlighting the public components of the engagement program, the report also summarizes an extensive and thorough stakeholder engagement process that included meetings with community leaders and elected officials to get their input and perspectives. The report identifies public engagement highlights and top areas of interest, and is published on the Trans Mountain website.<br><br>All comments, ideas and concerns collected throughout the 2012 Fall Engagement program will be considered as part of a comprehensive Facilities Application that is expected to be filed with the NEB in late 2013. | Volume 3 - Consultation |
| Engagement Process | How does Trans Mountain spill response regime compare to other regimes worldwide - will BC's five requirements mean more resources will need to be added to what is currently in place? | Trans Mountain is working to address BC's 5 Conditions and is supportive of the work of the Federal Tanker Safety Expert Panel that is assessing Canada's oil spill response regime.<br><br>Kinder Morgan Canada Inc. has an existing spill response plan for the Westridge Marine Terminal and that is exercised regularly. With respect to the Project, Trans Mountain believes it compares well against other terminal response plans available in Canada and other jurisdictions globally. The plan will be expanded in keeping with the terminal expansion and increased tanker traffic to Westridge. Western Canada Marine Response Corporation (WCMRC) is the federally-certified oil spill response organization and is responsible for providing spill response to all marine commercial vessels and oil handling facilities along the BC Coast. WCMRC is undertaking a benchmarking exercise against other global spill response organizations as well as assessing any increased need for spill response as a result of the Project. If more resources are required either as a result of WCMRC's recommendations or from the Federal Tanker Safety Expert Panel they will be made available well in advance of the operation of the Project. | Volume 3 - Engagement<br><br>Volume 7 – Risk Assessment and Management of Pipeline and Facility Spills<br><br>Volume 8A, Section 5.0 – Risk Assessment and Spill Management |

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Stakeholder involvement in the ERPs for local shorelines | An open, extensive and thorough engagement process on all aspects of the Project is underway along the proposed pipeline corridor between Strathcona County, AB (near Edmonton) and Burnaby, BC, and the marine corridor. Trans Mountain is reaching out to all landowners along the pipeline and meeting with community leaders, elected officials, environmental groups, and Aboriginal peoples to get their input and perspective.<br>Information sessions and public presentations provide opportunities for public input and queries. Trans Mountain is listening and responding so we can decide the best approaches to any issues that arise. We remain committed to earning your trust and confidence.<br>Comments and concerns gathered as part of the stakeholder engagement program will be incorporated into the Project's Facilities Application which will be filed with the NEB in late 2013. | Volume 3 – Consultation<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Trans Mountain sponsorship of local events could enhance engagement | As a long-time industry and community member, Trans Mountain is committed to working with residents, regulatory authorities and other stakeholders on community, cultural and environmental initiatives. Some of the legacy benefits of the Anchor Loop Project include:<br>• Detailed mapping of the parks;<br>• Over 30 environmental and socio-economic technical reports including extensive wildlife species studies that enhanced the knowledge base for the Parks, including new information about bird migrations;<br>• Greenhouses to grow indigenous plants for the areas that were subsequently donated to the Hinton Community Garden; and<br>• Rebuilt roads and bridges.<br>In 2010, KMC received a prestigious Emerald Award from the Alberta Emerald Foundation. Each year, Emerald Awards "recognize and reward the excellent environmental initiatives undertaken each year by large and small corporations, individuals, not-for-profit associations, community groups and governments." | Volume 3 - Consultation |
| | Distinction between Trans Mountain's engagement process and that undertaken by the NEB during regulatory review | The NEB may go out to communities potentially impacted by the Project to conduct public information sessions. These informal meetings are held before an oral hearing and provide people with information on how to participate during the hearing as well as information on the NEB hearing and regulatory process.<br>For more information about the NEB's process and the different ways to participate, please see the following guide: The Public Hearing Process: Your Guide to Understanding NEB Hearings. Trans Mountain has its own engagement strategy described in this Volume. Trans Mountain has been directly engaging with stakeholders directly, and outside of the NEB process, to ensure it understands and addresses stakeholder's concerns as communicated directly to Trans Mountain. | n/a |
| **Environment - Marine** | | | |
| Marine Tankers | Safety features such as double hull | The implementation of double-hull construction using special shipbuilding grade steel offers increased environmental protection and better protection against breaches during collisions and grounding. Further, within the tanker there are segregated cargo tanks, so if a breach does occur the potential leak is limited to the product within the affected cargo tank. All tankers in local waters are double hulled and have a number of compartments.<br>Tankers are the most scrutinized vessels in the shipping industry. The international tanker inspection regime includes both mandatory regulatory inspections as well as regular inspections by private customers like Trans Mountain who are all united in their efforts to ensure the safety of marine transportation of oil cargoes. Tanker construction has evolved rapidly to meet the strictest of building standards, which meet IMO, Flag State and Class Society requirements. Various modern build features include double hulling, back-up power generators, improved agility and brake horsepower capacity, high quality corrosion control, collision-avoidance radar navigational instruments, Additionally, cargo tanks are maintained in an inert condition (oxygen content less than 5% volume), which removes any danger of fire or explosion in the tank.<br>One of the most effective ways to reduce the risk of a spill is to prevent a collision or grounding of a laden oil tanker. The existing marine navigation management regime is detailed in Section 5.0, Volume 8A, as well as potential improvements to address the increased risk resulting from Project-related tankers. | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |
| | Tanker navigation in harbour and through narrows | Marine vessels have been loaded at the Westridge Marine Terminal since 1956 without a single spill from tanker operations. PMV has worked closely with the marine industry and government stakeholders over the past five years to develop new ways to further strengthen existing safety procedures when escorting all vessels through the Second Narrows. | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |
| | Tanker navigation in shipping lanes through the Gulf Islands | The review included comprehensive simulation exercises and live trials with an Aframax vessel. This led to a number of modifications to the procedures in place, and a higher standard of safety. The new procedures involve new tug escort requirements, installation of new aids to navigation, and development of an enhanced training program for tug captains and ship pilots.<br>These procedures and additional aids to navigation are now in place. The new, innovative procedures further strengthen navigational safety within PMV controlled waters. Information on procedures through the Second Narrows can be found through PMV (2013). | Volume 8A - Marine Transportation |
| | Process for loading tankers and potential for small spills | | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |
| | Ability of Vancouver Harbour to safely accommodate more tankers | Marine vessels have been loaded at the Westridge Marine Terminal since 1956 without a single spill from tanker operations. Close collaboration with organizations such as the various Pilotage Authorities, Government organizations (Transport Canada and CCG) and PMV ensure that tankers navigate local waters safely and are guided in and out of the port by highly-trained and qualified Pilots. Tankers themselves are held to strict internationally accepted build, manning, maintenance and operating quality standards mandated by International Maritime Operations and Canada Shipping Act and verified by Class Societies. Additionally, marine-based spill response plans ensure quick action in the event of a spill. | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |
| | Increased risk of spill due to increased number of tankers | | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |
| | Investment in clean technology and research and development to improve tankers | Trans Mountain is assessing the carbon impact of constructing and operating TMEP and its related facilities. The GHG impacts will be outlined the ESA submitted with the NEB facilities application and a carbon management plan will be developed to mitigate (reduce) emissions as much as possible.<br>For upstream or downstream impacts outside of Trans Mountain's jurisdiction or control, we will also describe how Trans Mountain is acting as a catalyst to influence the industry to help address issues upstream and downstream from the pipeline. Examples include: climate change; oil sands development; shipping practices; emergency spill response; and protecting the ecological integrity | n/a |

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | | of BC and Alberta.<br>Transitioning to a clean energy future takes time, financial investment and a shared commitment between government, industry and British Columbians. It requires us to think beyond traditional methods and attitudes and accept that changes are necessary if Canada is to remain a reliable, global energy provider.<br>TMPL has a 60-year history of safe and responsible operations. Trans Mountain is designing a project that will account for our impact on communities, our environment and our economy. A comprehensive assessment of our work will be available in the ESA when Trans Mountain files the Facilities Application to the NEB.<br>The Conference Board of Canada states that over the next five years, more money ($6.1 billion) will be invested in climate friendly technology in Alberta than all the other Canadian provinces combined. More than $312 million has been collected for a clean energy technology fund, which will be invested to find better ways to cleanly develop resources.<br>Funds are administered through the Climate Change and Emissions Management Corporation and awarded to Projects within the province. The Alberta government is investing $25 million into Carbon Management Canada, a national, university-led research network.<br>Climate change and water use are an important issues which Canada's oil industry have addressed through many activities. A lot has changed in the last fifty years and there are some great resources on the CAPP website about climate and water. As well as on the Canadian Energy Pipeline Association website. | |
| | Inspections of tankers prior to loading | Transport Canada is mandated to inspect tanker vessels on their first call to Westridge and annually thereafter. Canada is a signatory to international agreements that provide inspections conducted in other ports by other countries. Trans Mountain screens vessels proposed by pipeline shippers before accepting them for scheduling purposes and conducts a physical inspection before loading. The Trans Mountain Loading master remains on board throughout the loading process to monitor the ships systems and crew and to ensure efficient communication between the ship and terminal staff. | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |
| | Records to show each tanker's safety history | Trans Mountain is committed to transparency involving any and all spills that have occurred along its lines, or on partner vessels carrying Trans Mountain transported product. Spills are reported, and available for public knowledge.<br>None of Trans Mountain's past spills occurred in open water, or while entering or exiting the Burrard Inlet. We understand the safety of our coastline is paramount, and are proud to be able to say that all 900 tankers that have ever loaded and sailed from the Westridge Marine Terminal in Burnaby have done so without a single spill.<br>This record is thanks to a culture of safety within Trans Mountain, the network of safety and response organizations in the marine community, and the regulations and requirements established to ensure safe transit of oil tankers in the local waters. When it comes to marine safety, KMC also stands with BC in advocating for the necessary level of federal funding and response capabilities. At the same time, we believe companies must also pay their fair share, as it is companies that are liable for potential spills — not communities. | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |
| Marine Tankers | Trans Mountain's involvement in tanker safety and spill prevention | Tankers are one of the most scrutinized vessels on the oceans today. Transport Canada inspects every tanker on its first arrival at a Canadian port and then once per year as part of its Port State Control program. While KMC's strict obligation for tanker safety ends once the tankers leave the Westridge Marine Terminal in Burnaby, BC, we are very concerned that the tanker safety aspect of the transportation chain is well understood, managed and critically assessed. We are taking action by:<br>· Working closely with the maritime community;<br>· Working to improve local mapping and preparedness; and<br>· Working with WCMRC to establish planning standards to address our proposed expansion.<br>As part of an ongoing commitment to safety and environmental protection, Trans Mountain takes responsibility for the cleanup and remediation of spills by responding immediately to any release from the pipeline system. Trans Mountain works with pre-qualified and trained consultants and contractors to ensure any spill is cleaned up as quickly as possible while ensuring the safety of the public and minimizing impacts to the environment. | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |
| | Tugboat escorts in Burrard Inlet and at Saturna Island | Although Trans Mountain is not directly responsible for the operation of marine traffic, Trans Mountain is committed to working with the marine industry to ensure the safe movement of vessels that travel in BC waters and call on the Westridge Marine Terminal in Burnaby. Tug escorts are used in Burrard Inlet and through Haro Strait, as required by the CCG. Trans Mountain will require that all Project-related tankers calling at the Westridge Marine Terminal have mandatory tug escort for the entire route between the Westridge Marine Terminal and the Pacific Ocean. Two qualified Canadian pilots are on board all tankers leaving the Westridge Marine Terminal. | Volume 8A, Section 5.0 - Risk Assessment and Spill Management<br>Volume 8A - Marine Transportation |
| | Need to alleviate concerns about the impacts of tanker traffic on pleasure craft use | The marine component of the proposed expansion is also being developed. Every month, PMV currently handles 250 vessels of all types. At present, the Westridge Marine Terminal handles approximately eight vessels per month (five of which are tankers) — representing less than three per cent of the total traffic in PMV. Should the proposed expansion be approved, the number of vessels, including tankers and barges, being loaded at the Westridge Marine Terminal could increase to approximately 37 per month (34 of which could be tankers) in 2017, or about 14 per cent of today's total PMV vessel traffic. | Volume 8A, Section 4.0 - ESA |
| | Comparison of the number of tankers travelling south to Puget Sound and the number going to Burrard Inlet after the proposed expansion | Every month, PMV currently handles 250 vessels of all types. At present, the Westridge Marine Terminal handles approximately eight vessels per month (five of which are tankers) — representing less than three per cent of the total traffic in PMV. Should the proposed expansion be approved, the number of vessels, including tankers and barges, being loaded at the Westridge Marine Terminal could increase to approximately 37 per month (34 of which could be tankers) in 2017, or about 14% of today's total PMV vessel traffic. The expansion is expected to increase traffic to roughly 8-10% around Puget Sound.<br>The marine ESA considers the potential effects of increased Project-related marine vessel traffic on recreational users (Section 4.3.11). | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |
| | Dredging of Burrard Inlet (*i.e.*, is it necessary and whose decision would it be) | The exact configuration of the new docks has yet to be determined and depending on their location some near shore dredging might be necessary to accommodate construction of the new docks. Piles will be driven to support the new dock structures. Once the docks are constructed, berthing and mooring structures will be constructed. In addition, top-side equipment will be installed, such as piping systems, loading arms, vapour control systems and fire protection systems. The number of piles and other structures will depend on the results of ongoing planning and engineering. | Volume 8A, Section 2.0 – Description of Marine Transportation Activities |

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Marine Tankers | Possibility for tanker size to increase if dredging occurs in the future, and the ability of Trans Mountain to influence this | The proposed expansion at the Westridge Marine Terminal is based on the loading of Aframax tankers, the same tankers currently being loaded at Westridge. The largest vessels calling at the Westridge Marine Terminal are Aframax tankers – due to harbour restrictions, they are loaded only to 80 to 90 per cent of their 650,000-barrel capacity. Aframax tankers are considered mid-size range of tankers that operate globally. | Volume 8A, Section 2.0 – Description of Marine Transportation Activities |
| | Impacts of dredging on tides and on West Vancouver's shoreline near Ambleside | There is no proposed dredging of First or Second Narrows. Limited dredging will only be required for the expansion of Westridge Marine Terminal in Burnaby. Maintenance and dredging concerns to First Narrows fall within the stringent regulations and requirements of PMV (PMV) who would ultimately undertake a maintenance dredging program to ensure that oil tankers navigate local waters safely. | Volume 8A, Section 4.0 - ESA |
| Spills | Potential impact of spill on biodiversity of Fraser Delta ecosystem and Burrard Inlet<br><br>Increased risk of spill with increased tanker traffic<br><br>Providing perspective through the evaluation of spill risk in context of other risks | The long term monitoring report related to the 2007 incident on the TMPL system at Inlet Drive was shared with key stakeholders and posted to transmountain.com. An ESA of the marine transportation and the effects of the Project-related increased vessel traffic has been completed (see Section 4.0, Volume 8A). The marine studies covered a wide-range of topics including: marine sediment and water quality; marine fish and fish habitat; marine air and GHG emissions; marine acoustic environment; marine birds; marine mammals; marine species at risk; traditional marine resource use; marine commercial, recreational and tourism use; human health and ecological risk assessments; accidents and malfunctions; and changes to the Project caused by the environment (*e.g.*, seismicity, climate change).<br><br>Trans Mountain has loaded marine vessels since 1956 without a single spill from tanker operations. Close collaboration with organizations such as the various Pilotage Authorities, Government organizations (Transport Canada and CCG) and PMV ensure that tankers navigate our local waters safely and are guided in and out of the port by highly-trained and qualified Pilots. The number of vessels, including tankers and barges, being loaded at the Westridge Marine Terminal could increase to approximately 37 per month (34 of which could be tankers) in 2017, or about 14 per cent of today's total PMV vessel traffic. While this is a big increase in capacity for Trans Mountain, this is not a dramatic increase in tanker traffic for the Port. Currently Trans Mountain makes for roughly 3 per cent of tanker traffic through the port. The expansion is expected to increase traffic to roughly 14 per cent. Tankers themselves are held to strict internationally accepted build, manning, maintenance and operating quality standards mandated by International Maritime Operations and *Canada Shipping Act* and verified by Class Societies. Additionally, marine-based spill response plans ensure quick action in the event of a spill. | Volume 5A - ESA - Biophysical<br><br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br><br>Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| | Methods of reducing the risk of a spill | Tankers are the most scrutinized vessels in the shipping industry. The international tanker inspection regime includes both mandatory regulatory inspections as well as regular inspections by private customers like Trans Mountain who are all united in their efforts to ensure the safety of marine transportation of oil cargoes. Tanker construction has evolved rapidly to meet the strictest of building standards, which meet IMO, Flag State and Class Society requirements. Various modern build features include double hulling, back-up power generators, improved agility and brake horsepower capacity, high quality corrosion control, collision-avoidance radar navigational instruments, Additionally, cargo tanks are maintained in an inert condition (oxygen content less than 5 per cent volume), which removes any danger of fire or explosion in the tank. | Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| | Implications of the closure of the Kitsilano Coast Guard Worst case spill scenario | A worst case event with total loss of all oil cargo from a tanker is an extremely rare event. In case of an oil spill taking place, through its Environmental Response program, the CCG is responsible for ensuring the cleanup of ship-sourced spills of oil and other pollutants into Canadian waters, *however the actual response operation is carried out by WCMRC.* CCG responsibilities include:<br>· monitoring cleanup efforts by polluters; and<br>· managing cleanup efforts when polluters are unknown, or unwilling or unable to respond to a marine pollution incident. | Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| | What is Trans Mountain's spill record? | KMC, as the operator of TMPL, is committed to transparency involving any and all spills that have occurred along its lines, or on partner vessels carrying KMC transported product. Spills are reported, and available for public knowledge.<br><br>As a regulated company, Trans Mountain is currently responsible for reporting spills greater than 1.5 $m^3$ (roughly five times the volume of an average household bathtub) or releases having any significant adverse effect, such as any spill to water. In those 53 years, there have been 80 spills on the existing TMPL pipeline that have been reported to the NEB.<br><br>These reported incidents are broken down as follows:<br>· 65 incidents involving crude oil;<br>· 7 involving gasoline, jet fuel, diesel and other types of oil;<br>· 5 involving contaminated water such as hydro-test water;<br>· 2 involving other products not listed above; and<br>· 1 did not involve any product.<br><br>Sixty nine per cent of Trans Mountain's past spills have occurred at pump stations or terminals. All of our pump stations and terminals are equipped with monitoring and spill containment systems to provide early detection and lessen impacts and ensure spilled volumes are contained on site. These facilities are rigorously maintained and inspected to meet NEB standards.<br><br>The remaining 31 per cent of Trans Mountain's spills have occurred along the pipeline, with 20 incidents related to releases of crude oil from the pipeline. Of these spills, only twelve exceeded the reporting threshold of 1.5 $m^3$, and just three of those twelve occurred in the last 30 years. None of Trans Mountain's past spills occurred in open water, or while entering or exiting the Burrard Inlet. In all of these circumstances, Trans Mountain deployed its emergency response and spill management procedures.<br><br>Following each spill, Trans Mountain conducts a thorough incident investigation that contributes to improved spill prevention and management initiatives. We recognize the potential for pipeline spills. Our safety programs aim to minimize the effects of spills. | n/a |

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Proportion of product that can be cleaned up following a spill | In some situations, it is not possible to remove or fully remediate the impacts of a spill. These situations may occur due to limited access to the area or in situations when trying to remediate the area will result in more harm (disturbance/damage) than good. In these situations, a Risk Management Plan will be developed and a Long Term Monitoring Program will be implemented to ensure that contamination is not migrating (moving) and is not a threat or risk to the public or environment. As with the remediation process, and other agencies or affected stakeholders and Aboriginal groups will be involved in the assessment of risk and development of a Long Term Monitoring Program. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| Spills | Environmental impact as well as human health risk of a spill in Vancouver Harbour and other coastal areas. | In support of the ESA for the Project, KMC has commissioned a HHRA, the principal aim of which is to identify and understand the potential short-term and long-term health risks, including carcinogenic risks, to people exposed to the chemicals that could be released to the environment from a marine spill. | Volume 8A, Section 4.0 - ESA |
| | Exxon Valdez spill as an example of the longevity of environmental effects | As a result of the Exxon Valdez crude oil spill in the Gulf of Alaska in 1989, the Government of Canada appointed the Public Review Panel on Tanker Safety and Marine Spill Response Capacity (Brander-Smith Panel) and adopted a large number of its recommendations. In the 24 years since the Exxon Valdez incident, many safety improvements have been undertaken by government and the tanker industry.<br>Bills such as C-16 in Canada have given authorities the power to prosecute sub-standard persons/organizations (including CEOs), if found polluting Canadian waters. The initiatives above have contributed to improved safety standards, a measureable reduction in tanker incidents and oil spills, including mystery spills.<br>The Westridge Marine Terminal has operated responsibly for 60 years on the BC coast and Kinder Morgan Canada Inc. and takes spill response seriously. While the specific strategies used in response to a spill will vary depending on the circumstances, the primary objectives in all cases is to ensure safety and to minimize environmental damage. There are a range of strategies available to achieve these objectives including mechanical recovery (using skimmers), in-situ burning (controlled burning the oil), and dispersion (use of dispersing agents to dilute and disperse the oil reducing its concentration). Trans Mountain is also conducting studies to learn about the impacts of the increased tanker traffic that would result from the Project. | Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| | Carcinogenic effects of products in pipeline | There are no known carcinogenic health risks from products within the pipeline. In support of the ESA for the Project, KMC has commissioned a HHRA, the principal aim of which is to identify and understand the potential short-term and long-term health risks, including carcinogenic risks, to people exposed to the chemicals that could be released to the environment from the pipeline and associated facilities. The Ecological Risk Assessment (ERA) and HHRA info will feed into the updated ERP for the Project. | Volume 5A - ESA - Biophysical |
| | Threat to the regenerated herring fishery and newly returned resident populations | Construction of the Terminal will result in the loss and/or alteration of intertidal and subtidal habitat, some of which could be used as herring spawning habitat. While herring spawn has not been observed in the vicinity of the Terminal, there is some indication that local herring populations are rebuilding, as evidenced by the 2009 spawn observed in False Creek (the first spawn at this location in many decades). To ensure that there is no net loss of productive capacity of marine fish habitats due to construction of the Westridge Marine Terminal, any unavoidable loss of fish habitat will be compensated for by the creation or enhancement of new fish habitats. Currently, the preferred marine habitat compensation option is the construction of subtidal rocky reefs. These reefs would be colonized by a diversity of algae and invertebrates and would provide high-value habitat for a variety of commercially, ecologically and culturally important fish species, including juvenile salmon, herring and rockfish. | Volume 8A, Section 4.0 – ESA |
| | Work with the community to address concerns about oil spill impacts | Information sessions and public presentations provide opportunities for public input and queries. Trans Mountain uses information collected at engagement sessions in addressing issues. Trans Mountain is committed to earning the trust and confidence of local population. Trans Mountain will continue to address questions from the public about the effects of an accidental oil spill in the marine environment and related to the roles and responsibilities for emergency preparedness and response. Comments and concerns gathered as part of the stakeholder engagement program have been incorporated into the application, where appropriate. | Volume 3 - Consultation |
| | Who has liability for marine spills?<br>Can those impacted by an oil spill recover costs from responsible parties? | In Canada, liability and compensation for ship-source oil spill pollution are governed by the *Canada Shipping Act and Marine Liability Act*. Both acts reflect Canada's commitment to international conventions administered by the IMO, such as those regarding the IOPC Funds.<br>Conventions limit the liability of the Responsible Party (ship owner) and establish sources of funding for cleanup and compensation for damages. Up to $1.312 billion is available for an individual spill. | Transportation, Section 1.0 & 5.<br>Volume 8A, Section 1.0 – Introduction and Section 5.0 – Risk Assessment and Spill Management |
| | Increase in spill response capacity to cover increase in tanker traffic | The marine component of the proposed expansion is also being developed. Every month, PMV currently handles 250 vessels of all types. At present, the Westridge Marine Terminal handles approximately eight vessels per month (five of which are tankers) — representing less than 3 per cent of the total traffic in PMV. Should the proposed expansion be approved, the number of vessels, including tankers and barges, being loaded at the Westridge Marine Terminal could increase to approximately 37 per month (34 of which could be tankers) in 2017, or about 14 per cent of today's total PMV vessel traffic.<br>As part of an ongoing commitment to safety and environmental protection, Trans Mountain takes responsibility for the cleanup and remediation of spills by responding immediately to any release from the pipeline system. Trans Mountain works with pre-qualified and trained consultants and contractors to ensure any spill is cleaned up as quickly as possible while ensuring the safety of the public and minimizing impacts to the environment. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A, Section 5.0 – Risk Assessment and Spill Management |

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| **Environment Terrestrial** | | | |
| Air | How will Trans Mountain prevent degradation of air quality from increased tanker traffic<br><br>Concern about increase in GHG Emissions/Climate Change from tanker activity. | All vessels calling PMV are required to comply with international and local regulations on the types of engines (both propulsion and generators) that they are fitted with. Those engines have to meet strict exhaust emission requirements set by the IMO and carry manufacturers' certificates to show that. Regular surveys and checks are conducted by local authorities to verify this and to ensure that the engines are maintained to ensure their continued adherence to those standards.<br><br>There is an ongoing internationally mandated process underway to improve the type of fuel used by the ships. Vancouver is part of the North American Emissions Control Area (as are Seattle, San Francisco, and Los Angeles) and all ships entering or plying within 200 miles of our coast have to change over to cleaner burning fuel. Mandated further improvement in fuel standards take effect in 2015 and 2020, which period straddles the project's late 2017 coming into operation schedule.<br><br>In addition, every ocean going commercial vessel is currently required by the IMO to have in place a Shipboard Energy Efficiency Management Plan. From a more practical perspective, given the high cost of fuel, ship operators benefit greatly by taking extra care to ensure that the ship's engines operate efficiently, which plays a very positive overall role in reducing emissions as well. All of the above factors help prevent degradation of air quality in the region from shipping. Trans Mountain, as part of pre-arrival checks shall only accept modern vessels that meet and follow all of the above international requirements to load at Westridge. | Volume 3, Section 4.0 – ESA<br><br>Volume 8A - Marine Transportation |
| Bitumen | What are the Properties of bitumen and dilbit, including corrosiveness | Dilbit is a substance that is constantly being studied. No scientific basis has been found to claims that dilbit causes greater internal corrosion in oil pipelines than other crude oil sources. A substantial amount of work has been carried out recently to demonstrate that dilbit is no more corrosive than conventional crudes. Pipelines transporting dilbit are not at any greater risk of corrosion than pipelines carrying other types of petroleum products, such as conventional crude. Neither the properties of diluent or bitumen carry any characteristics that would cause more corrosion. There are two components in the dilbit that have raised concern, namely acid and sulphur. These components exist in varying degrees in all crude types. If crude is heated to a temperature higher than 200°C, corrosion to pipelines transporting dilbit may occur. However, these pipelines do not operate anywhere near that temperature. The pipelines typically operate at much cooler temperatures. For more information on corrosion, please visit www.aboutpipelines.com. | n/a |
| | Possibility that bitumen will sink in the event of a marine spill | Some people think dilbit sinks in water. The fact is that with a maximum density of 0.94, dilbit is lighter than water (density 1.00) and seawater (density 1.03).<br><br>Additional research is taking place to quantify how the dilbit reacts over time in water, with wave action, with fast-moving currents, with different sediment levels and with various other factors. Other studies have recently been conducted or are underway including the SL Ross Study (Meso-scale Weathering of Cold Lake Bitumen/Condensate Blend), that was prepared for a Joint Review Panel submission by Enbridge Northern Gateway Project and the anticipated Natural Resources Canada look into the weathering effects of dilbit on water.<br><br>The following organizations are currently undertaking studies:<br>· Crude Quality Inc.;<br>· Alberta Innovates; and<br>· Transportation Research Board. | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |
| | Can bitumen and dilbit be cleaned up if spilled? | In the case of any spill, response time is critical. A rapid response means that the spilled product has less time to disperse and to weather, ultimately making the cleanup process more efficient and more predictable.<br>Visit http://www.itopf.com/marine-spills/ for more information about marine oil spills. | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |
| Fish and Birds | Need to protect fish habitat at multiple stream crossings | We agree that measures to protect sensitive environmental areas such as water bodies and riparian areas are critical. This is why we take a multi-layered approach to pipeline safety, including taking measures such as strategically placed pipeline valves near waterways and drilled river crossings at some locations. | Volume 5A - ESA - Biophysical |
| | Impacts on birds and mammals from diminished air quality due to loss of trees during construction | Trans Mountain will work with Environment Canada and comply with the Migratory Birds Convention Act Migratory Birds Sanctuary Regulations related to the Project components and impacts. Trans Mountain will conduct clearing and preconstruction activities outside the minimum migratory bird RAP of May 1 to July 31 where practicable. In the event the schedule changes and clearing activities are planned during the migratory bird RAP, a migratory bird nest sweep will be conducted. In the event an active nest is found, a protective buffer will be established around the nest. The size of the buffer will be influenced by the status of the bird. Typically a 30 m buffer is applied to a songbird nest and a 100 m buffer around waterfowl or raptor nests. If a bird species with a provincially or federally recommended setback distance is found, then that buffer will be applied around the nest, unless otherwise authorized by the appropriate regulatory authority.<br><br>Trans Mountain is aware that small amounts of residual petroleum products found floating on the surface of most tailings ponds can pose a threat to the waterfowl landing on the pond. Tailings ponds are settling basins that enable water to be separated, recycled and used over and over. Trans Mountain has such ponds as emergency catchment at its Terminals (Edmonton, Sumas and Burnaby). Several mechanisms are in place to deter birds from landing, including cannons and radar/laser deterrent systems.<br><br>The marine transportation acoustic environment assessment considers increased frequency of noise events like ship anchors being raised and lowered and vessel horns. The types of noise events are not expected to change from existing vessel operations, however, the frequency may increase. | Volume 5A - ESA - Biophysical |
| | Impact from construction noise during nesting season | | Volume 5A - ESA - Biophysical<br><br>Volume 8A, Section 4.0 - ESA |
| Noise | Impact to residents from construction (primarily directional drilling and helicopter), ship anchorage and bright lights from working at night. | Noise, dust and other disturbances are mitigated to avoid the impact on people near the construction. Every effort is made to minimize impact to landowners and neighbours from staking to final cleanup. In areas where there may be a concern regarding the safety of the public, restricted areas are established. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Regulatory/ NEB Process | Need for public approval of study area, in addition to NEB approval | A recent NEB ruling setting out parameters for hearings related to Trans Mountain's Toll Application, has caused some public discussions about when and how environmental issues will be considered as part of the Project.<br>The Toll Application did not seek approval of the Project, but instead focused on commercial terms between Trans Mountain and its customers, in the event the Project is approved. Find more information about the Toll Application (http://www.neb-one.gc.ca/clf-nsi/rthnb/nws/nwsrls/2013/nwsrls13-eng.html).<br>The Project involves two applications to the NEB for the Project:<br>· Toll Application; and<br>· Facilities Application.<br>Trans Mountain expects to file an application for approval of the Project ("Facilities Application") with the NEB in late 2013, which will ask for authorization to build and operate the necessary facilities for the Project. The Facilities Application will include the environmental, socio-economic, Aboriginal engagement, landowner and stakeholder engagement, and engineering components of the Project. Filing the Facilities Application will initiate a comprehensive regulatory and public review.<br>More than 30 environmental and socio-economic studies will be carried out in 2012 and 2013 and that information will be included in the Facilities Application. For more information on the NEB, the assessment process for projects and opportunities for public involvement, visit the NEB website. | n/a |
| Regulatory/ NEB Process | Timeframe for application to NEB and regulatory review process | Companies, such as Trans Mountain, require permission before they can build or expand pipelines and facilities. As TMPL is a pipeline that crosses provincial boundaries, Trans Mountain must seek permission from the NEB — the federal regulator for pipelines — for its proposed expansion plans. Given the scope and magnitude of the Project, the NEB's comprehensive regulatory review could take place over two years, from late 2013 to mid-2015.<br>The Project involves two applications to the NEB for the Project:<br>· Toll Application; and<br>· Facilities Application.<br>If the NEB makes a recommendation to approve the Project and if the federal cabinet gives the final go-ahead, the NEB's involvement with the Project and engagement with the public will continue. With all such pipeline projects, the NEB takes a life cycle approach to regulation. This means that the NEB does not just make a decision and move on to the next application. For the most part, the NEB is involved in Projects from start to finish – from the application process to the construction phase to the long-term operations and ultimately to the abandonment of a pipeline.<br>With any project approval, the NEB sets forth conditions that must be followed by the company. The NEB follows up with inspections to ensure the company is meeting the conditions and to ensure that the Project is constructed and continues to operate in a safe manner for the benefit of Canadians. If inspectors find that the company is not meeting the conditions, the NEB can take action to enforce these conditions. This may include talking to the company, issuing a written request to correct the problem, or, in certain circumstances, ordering the company to stop construction or operation. | n/a |
| | NEB requirements for the facilities application | | |
| | Will the ESA be available for public review? | Environmental studies are being undertaken to assess existing conditions and types of land use in the Project area, as well as possible socio-economic impacts. Studies range from examining vegetation, soils and wetlands, to observing and documenting wildlife ecosystems. A separate, detailed environmental program will focus on the Westridge Marine Terminal. With each field program, Trans Mountain's goal will be to meet the extensive NEB filing requirements, as well as all federal, provincial, regional, and municipal standards for survey and data collection. All of these reports will be posted on this website and the NEB website once Trans Mountain's Facilities Application is submitted in late 2013. | Volume 3A – Public Consultation |
| | What influence does public opinion have on ultimate decision? | There are generally two ways that individuals or groups can participate in a hearing:<br>· By filing a letter of comment: a written statement about the writer's views; and<br>· As an intervenor: An individual or group granted intervenor status by the NEB may file written evidence, receive all filings submitted by the company, comment on evidence filed and make a final argument (more details about applying to participate in a hearing).<br>The NEB may go out to communities potentially impacted by the Project to conduct public information sessions. These informal meetings are held before an oral hearing and provide people with information on how to participate during the hearing as well as information on the NEB hearing and regulatory process.<br>For more information about the NEB's process and the different ways to participate, please see the following guide: The Public Hearing Process: Your Guide to Understanding NEB Hearings. | n/a |
| Routing | Need to consider proximity of selected study corridor to residential areas | Although there are risks with any form of transportation, Trans Mountain has a comprehensive pipeline safety and emergency response program in place for the existing pipeline system. Trans Mountain will complete a thorough risk assessment for the proposed pipeline and develop a detailed emergency response program. Trans Mountain will share information about the assessment and mitigation as it becomes available. There is more information about the pipeline safety program available on the websites: www.kindermorgan.com/pipelinesafety and www.transmountain.com/industry-safety. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Number of proposed pipelines and contents in the pipeline | The Project proposes one new pipeline, which would be used to ship dilbit and other heavy crude oils, while the existing line would transition to carrying only lighter products. The new pipeline would have the capacity to carry 590,000 bbl/d, most of which would be exported via tanker.<br>Trans Mountain transports crude oil and refined products together in the same line. This process, known as batching, means that a series of products can follow one another through the pipeline in a batch train. A typical batch train is made up of a variety of materials being transported for different shippers. The mixing of products placed next to each other in the pipeline — or product interface — is kept to a minimum by shipping the products in a specific sequence, and any products that interface are re-refined. | n/a |
| | Will the existing pipeline be dismantled or decommissioned, after the new pipeline is installed? | Trans Mountain will continue to operate the TMPL. The proposed new line would be an expansion of the TMPL and would provide extra capacity for the shippers. In all but a few specific circumstances, there are no plans to abandon, sell, or change existing Trans Mountain operations. | |

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | What are the spacing / location of pipeline monitoring sites? | The control centre operators in Edmonton monitor the pipeline 24 hours per day, seven days per week, 365 days per year using a sophisticated leak detection system as well as pressure and flow alarms. Operators are prepared to shut the pipeline down immediately if there is any indication of a potential problem on the pipeline. Shut-off valves are located at varying intervals along the pipeline, depending on topography, watercourses and sensitive environments.<br>In addition to shut-off valves, Trans Mountain has a monitoring program known as a Pipeline Integrity Management program. This program identifies all of the hazards that have the potential to affect the safety of the pipeline system and ensures that control measures are implemented to prevent or mitigate the occurrence and potential impact of each hazard. We monitor the entire length of the right-of-way via ground and helicopter patrols. Trans Mountain has restructured these patrols in the last few years to patrol the line more frequently in areas where there is a high level of construction activity and potential risk of line damage, such as in the Lower Mainland. Trans Mountain has sixteen Pipeline Protection personnel, including a full-time dedicated manager and a full-time ground patroller in the Lower Mainland.<br>Safety is our number one concern and we work hard to avoid any potential incident. | n/a |
| | How will Trans Mountain manage its emergency response processes so that staff don't ignore events as happened with the Kalamazoo spill by Enbridge? | The failure of the crude oil pipeline carrying dilbit at the Kalamazoo River was attributed to multiple factors including external fatigue cracking, deficiencies in leak detection systems, and inadequate training of control center personnel (National Transportation and Safety Board [NTSB] Press Release, 2012). The fact that it was carrying dilbit at the time was incidental to the failure mechanism. Corrosion fatigue is not an issue for internal corrosion of operating oil transmission pipelines (CEPA State of the Art Report Dilbit Corrosivity, 2013).<br>Any product moved in the pipeline must meet KMC's tariff requirements which include the following limitations on product qualities:<br>· a maximum temperature of 38 °C;<br>· a maximum density of 940 kg/$m^3$ (specific gravity of 0.94);<br>· a maximum viscosity of 350 cSt at Reference Temperature;<br>· maximum impurities (bottom sediments and water) of 0.5% of volume;<br>· maximum Reid Vapour Pressure of 103 kPa; and<br>· The dilbit shipped in our pipeline has a maximum specific gravity of 0.94, which is lighter than water (1.00) and seawater (1.03).<br>Additional research is taking place to quantify how the dilbit reacts over time in water, with wave action, with fast-moving currents, with different sediment levels and with various other factors. Other studies have recently been conducted or are underway including the SL Ross Study (Meso-scale Weathering of Cold Lake Bitumen/Condensate Blend), that was prepared for a Joint Review Panel submission by Enbridge Northern Gateway Project and the anticipated Natural Resources Canada look into the weathering effects of dilbit on water.<br>Two systems monitor the TMPL continuously for changes in operating parameters that would indicate a possible leak:<br>· SCADA System; and<br>· Leak Detection System.<br>The SCADA system monitors rate-of-flow in the pipeline, pressure, temperature, and density of product, among other things. The parameters are then compared to a theoretical flow model, identifying any differences outside of prescribed norms that might indicate a problem. If a variance is found, an alarm will sound that is received by the control centre operator in Edmonton, AB. In the centre, there are dedicated operators per shift, each responsible for a different section of the pipeline. Monitoring takes place 24/7, and is divided into 12-hour shifts.<br>All operators undergo rigorous training and simulator testing to determine if they are qualified to hold this critical position. Until operators are fully qualified and have passed all testing, they may not operate unsupervised.<br>The data and modelling for the Leak Detection System is maintained and verified by a separate group of employees. These employees have received specialized training on how to operate and support the leak detection models.<br>In the event that an alarm does go off, a prescribed series of procedures and actions immediately begins. There are various types of alarms that could result in different procedures, as well as different responses depending on the location, the terrain and the conditions surrounding the area in question. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | How much time is there to discuss routing alternatives? | Trans Mountain is currently preparing the Facilities Application and expects to file it in late 2013. This application will include data gathered from the environmental, socio-economic studies, maps of the selected study corridor(s) and engineering studies as well as input from people like you. Route selection continues up to the time the application is filed. After that, affected parties are able to participate in the hearing process if they are not satisfied with the applied-for route. However, Trans Mountain seeks to accommodate the interests of landowners and stakeholders in the routing process so, ongoing discussions and study during the hearing may result in changes to the applied-for route. In the case of the Project, the application describes, in most areas, a 150-m corridor so within that corridor, route refinements are ongoing until the end of the hearing. | Volume 4B - Project Design and Execution - Construction |
| | Impact to property values along the pipeline route | Trans Mountain is searching for feasible route alternatives in order to reduce impacts to residential areas.<br>Trans Mountain appreciates that land devaluation is a concern and Trans Mountain has been investigating potential impacts upon properties for sale – both with easements and without easements. To date, the investigations have not shown a measurable effect, however we will continue to monitor this situation. Trans Mountain is also currently evaluating ways to reduce the impact to the Ledgeview Golf Course. | Volume 5B - ESA - Socio-Economic |
| **Safety** | | | |
| Emergency Response | Concern about pipeline stability in event of Earthquakes and Seismic events | Trans Mountain is committed to reducing the earthquake risks to the existing TMPL and we proactively assess earthquake hazards with consideration of advancements in understanding how pipelines perform during seismic events.<br>Where the pipeline or facilities are determined to be at risk of failure from an earthquake, pipeline infrastructure improvement Projects are completed to reduce the risk.<br>Trans Mountain has also prepared an Earthquake Action Protocol to rapidly prioritize locations for pipeline inspection following an earthquake. This Protocol includes shutting down and isolating the pipeline in the event of an earthquake. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Response strategy for a spill in the Fraser River | Trans Mountain control centre operators monitor the pipeline 24 hours per day, seven days a week, 365 days a year using a sophisticated leak detection system as well as pressure and flow alarms. Operators are prepared to shut the pipeline down immediately if there is any indication of a potential problem on the pipeline. Shut-off valves are located at varying intervals along the pipeline, depending on topography, watercourses, and sensitive environments. In addition, this is supplemented by other monitoring and on the ground staff patrols.<br>Trans Mountain stocks emergency response equipment at various locations along the pipeline routes and trained staff are available around the clock to respond to emergencies. Additionally, Trans Mountain has detailed ERPs for all of the facilities. These plans are updated regularly and contain information on emergency procedures, staff roles and responsibilities, and pipeline route maps. In the event of an emergency, we will immediately mobilize all of the necessary resources to minimize its impact on the public and the environment. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Capacity of infrastructure contain a facility explosion in Burnaby | Trans Mountain continues to meet with the City of Burnaby on all aspects of the Project. In addition, Trans Mountain conducts emergency response drills several times a year. We invite local first responders to participate in these drills in order to ensure an efficient joint response in the event of an emergency. Trans Mountain also stocks emergency response equipment at various locations along the pipeline routes and trained staff are available around the clock to respond to emergencies. Additionally, Trans Mountain has detailed ERPs for all of the facilities. These plans are updated regularly and contain information on emergency procedures, staff roles and responsibilities, and pipeline route maps. In the event of an emergency, Trans Mountain will immediately mobilize all of the necessary resources to minimize its impact on the public and the environment. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Concern about pipeline stability in event of Earthquakes and Seismic events | Trans Mountain is committed to reducing the earthquake risks to the existing TMPL and we proactively assess earthquake hazards with consideration of advancements in understanding how pipelines perform during seismic events.<br>Where the pipeline or facilities are determined to be at risk of failure from an earthquake, pipeline infrastructure improvement Projects are completed to reduce the risk.<br>Trans Mountain has also prepared an Earthquake Action Protocol to rapidly prioritize locations for pipeline inspection following an earthquake. This Protocol includes shutting down and isolating the pipeline in the event of an earthquake. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Pipeline Integrity | Concern about safety with spills | Safety is a top priority and is at the core of who Trans Mountain Is a company. Dedicated staff work to maintain the integrity of the pipeline through the maintenance, inspection and awareness programs. While no spill is acceptable to us, accidents can happen.<br>Trans Mountain has a comprehensive response plan that includes working with local authorities to make sure the public and the environment are kept safe. Where the pipeline runs near schools, Trans Mountain is open to working with individual schools and districts to fully support their safety efforts and ensure their ERPs are coordinated. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | How is a pipeline managed? | Trans Mountain's Pipeline Integrity Program has years of experience maintaining the existing TMPL. Through the Pipeline Integrity Program, Trans Mountain performs aerial surveillance to monitor for geotechnical events – such as landslides, hydrological (stream or river crossings) or third-party activity at least once a month for every section of the route. Additionally, on-ground surveys of all water crossings take place on a regularly scheduled basis. | n/a |
| | How long does it take to shut down the pipe if there is a problem? | It physically takes approximately 4-5 seconds to connect with devices and shut down valves. Shut down times vary with a number of incident specific variables related to reporting, risk, location, and the like. | n/a |
| | Leak detection systems – use latest technology | Trans Mountain's Pipeline Integrity Program is informed by two leak detection systems which monitor the pipeline continuously for changes in operating parameters. More details about the two systems can be found here: http://www.transmountain.com/leak-detection. In the event that a leak is detected, the emergency response is outlined in regulations of NEB. | Volume 4B - Project Design and Execution - Construction |
| | Pipeline life expectancy | With a strong focus on inspection and proper maintenance, pipelines can operate indefinitely. | Volume 4B - Project Design and Execution - Construction |
| | Pipeline Coating | Coating on the outside of the pipeline is used to prevent it from corrosion or rusting. The new pipe (and any repairs to the existing pipe) will typically be coated with fusion bond epoxy. In rockier areas, enhanced external coatings such as concrete, abrasive resistant fusion bond epoxy or polyethylene will be used to mitigate the impact from abrasives or stress-concentrating conditions (such as rocks or backfill) and to provide additional mechanical protection. Prior to lowering the pipe section into the trench, the integrity of the coating is checked by means of a high voltage tool that will detect even the smallest defect in the coating. If a defect is noted, an epoxy repair coating is applied. | Volume 4B - Project Design and Execution - Construction |
| Water | How will Trans Mountain control Silt/Erosion control during construction? | If wind or water erosion is evident during the construction phase of the Project, all necessary Contractor equipment and personnel will be made available to control the erosion. During the construction phase, the Environmental Inspector, in consultation with Trans Mountain's environmental staff, will determine appropriate procedures to be implemented to control soil erosion and other soil handling problems encountered. Similar procedures will be followed during the operational phase. Although not exhaustive, examples of control options to be implemented as soon as practical include:<br>· installation of temporary berms of subsoil, logs, timbers, sandbags or bales during construction activities;<br>· installation of silt fences near the base of slopes;<br>· construct cross ditches and berms decreasing the spacing on steeper slopes or on more erodible soils;<br>· apply netting, mulch or tackifier to hold soil;<br>· armour the upslope face of berms with geotextile, logs or sandbags;<br>· transplant native shrubs, plant willow stakes or use other bioengineering techniques; and<br>· install slope indicators at locations where the risk of slope failure, or creep exists; consult a geotechnical engineer. | Volume 4B - Project Design and Execution - Construction |

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| Water | Alteration of water patterns and habitat due to pipeline installation | Trans Mountain will assess water quality and/or quantity changes to nearby groundwater which may result in adverse effects for other stakeholder or environmental receptors. Trans Mountain will review existing geological, hydrogeological and other information to determine potential hydrogeological conditions along the pipeline right-of-way and proposed facilities; GIS mapping and assessment strategies will be applied. Trans Mountain will develop site-specific hydrogeological investigation activities that may include field verified surveys, hydraulic response testing, monitoring requirements and water quality parameter surveys. | Volume 5A - ESA - Biophysical |
| | Will Trans Mountain consider Eagle Creek Watershed - Integrated Storm Water Management Plan in developing the Project? | We understand that the Eagle Creek Integrated Storm Water Management Plan is currently under development. As such, it is difficult to determine at this stage how the Project may align with the goals and objectives of the plan. However, during a City of Burnaby Integrated Storm Water Management Visionary Workshop for Eagle Creek Watershed held in November 2012 that we participated in, maintaining natural flow regimes and reducing the magnitude of flash discharge events was emphasized as an important aspect of watershed health and reducing erosion and sedimentation.<br>Although increased storm water discharge would be a function of increased disturbance and development at the Burnaby Terminal, the additional runoff volume would not be anticipated to substantively contribute to alteration of downstream drainage patterns. Furthermore, no substantial increase in the rate of storm water discharge from the existing storm water containment pond is anticipated. Trans Mountain will incorporate expansion of the terminal into its existing storm water monitoring program, whereby Trans Mountain will continue to monitor flash drainage events in an effort to identify potential impacts and implement necessary measures to reduce or avoid Project-related impacts to the Eagle Creek watershed. | Volume 5A - ESA - Biophysical |
| **Socio-Economic Benefits and Impacts** | | | |
| | Comparing the need for oil export with the risks to the environment and Vancouver's coastal way of life | Trans Mountain recognizes that risk assessments are important to municipalities and stakeholders. Risk communications to stakeholders will be part and parcel of the engagement programs. | Volume 5B – ESA Socio-Economic |
| | Local benefits don't seem to outweigh local risks | Substantial expenditures, jobs and economic spinoffs in BC and Alberta communities in Project development and during construction:<br>· Training and skills development that will build capacity for Aboriginal workers;<br>· Contracting, employment and vendor opportunities for local and regional businesses;<br>· Investments and advancements in areas such as pipeline development and spill response (Example: $250,000 contribution to BCIT Marine Simulation Centre); and<br>· Trans Mountain is looking for feedback and ideas on how your community could participate in and benefit from the Project. | Volume 5B – Socio Economic |
| | What are the Benefits for non-pipeline communities | Overall, the proposed expansion will enhance Canada's ability to reach diversified markets with its oil, while also increasing tax revenues that can be used to fund government projects and services Canadians depend on such as health care, education, roads and infrastructure.<br>Trans Mountain plans to spend $5.4 billion by the end of 2017 to construct the line and associated facilities, and a further $2.4 billion to operate it for the first 20 years. British Columbia's economy is forecasted to grow by $2.8 billion (GDP) through construction-related spending, and up to $11.3 billion including Project operations through to 2037.<br>The Project is also anticipated to generate substantial provincial and municipal tax revenue. Provincial governments revenues associated with the Project are anticipated to be in the order of $1.7 billion, with B.C. provincial government receiving $1 billion in provincial taxes and Alberta receiving over $0.4 billion in provincial taxes. Municipal tax revenues which can support community services and infrastructure are estimated to increase approximately $23 million annually, or $460 million over 20 years of operations. The estimated tax revenues to the Government of Canada are $2.1 billion over the life of the proposed project.<br>Construction is scheduled in 2016 and 2017 with an estimated 4,500 workers at peak manpower. Trans Mountain expects to create 108,000 person years of employment, from construction and the first 20 years of operations across Canada; of this 66,000 person years of employment will be in BC and 25,000 will be in AB (related to direct project spending as well as supply chain effects and spending of wages. | Volume 5B – Socio Economic |
| | Potential financial impact of a worst-case spill and the adequacy of $1.3 billion to cover this impact | The cost of cleaning up an oil spill is difficult to estimate, as it depends on a variety of factors such as the type of oil, amount of oil, spill location (at sea versus near shore), environmental and socio-economic impacts, weather, ocean conditions, rate of spill and efficiency of response operations.<br>Since Canada's Ship-Source Oil Pollution Fund (Canada) SOPF was implemented in 1989, no Canadian spill has exhausted all sources of cleanup funding http://www.transmountain.com/marine-spill-liability for more information | n/a |
| Benefits and Impacts | Will taxpayers be impacted in the event of a spill? (Is there enough insurance to cover?) | Trans Mountain takes responsibility for first preventing spills and for cleaning up and restoring the environment if there is a spill. While Trans Mountain takes responsibility, ultimate liability for an oil spill depends on the cause of the spill. Trans Mountain would cover the costs of a spill clean-up and restoration and depending on the circumstances seek to recover them from insurance or a third party if they were responsible for the spill.<br>To ensure there are sufficient funds to remediate a spill, Trans Mountain is covered by insurance necessary to respond to all spills or releases from our pipelines and facilities. Trans Mountain monitors the insurance program continuously, and makes annual adjustments as necessary to ensure adequate coverage.<br>Remediation cleanup criteria have been established by both federal and provincial agencies. As a federally regulated pipeline system, Trans Mountain is required to conduct any cleanup to satisfy both the regulations and the NEB. Please visit http://www.transmountain.com/canadian-regulations-and-spill>transmountain.com/canadian-regulations-and-spill for more information on Canadian regulations. | n/a |

## TABLE 1.7.4

## INTERESTS OR CONCERNS – MAINLAND COASTAL REGION (continued)

| Key Topics | Interest or Concern | Summary Response | Application Volume |
|---|---|---|---|
| | Trans Mountain collaboration with trade schools and high schools regarding skills development and equipment funding | Trans Mountain is committed to working with the marine industry to ensure the safe movement of vessels that travel in BC waters and call on the Westridge Marine Terminal in Burnaby.<br>Trans Mountain joined the Government of Canada, Transport Canada and various local west coast marine entities in 2011 to upgrade the multi-million dollar marine simulation centre at the BCIT Marine Campus in North Vancouver, BC.<br>The centre offers a variety of navigation training and safety programs. The simulation training takes place on all vessel types from tug boats to large cargo ships and oil tankers. The centre includes a ship's main bridge simulator which duplicates many scenarios a ship's crew and captain would encounter, such as rolling seas and high winds.<br>Although Trans Mountain is not directly involved in marine shipping, support of the centre helps train crews who ensure vessels move safely along the coast.<br>Trans Mountain's contribution to the centre was $250,000. Other contributors include the Government of Canada and Transport Canada, BC Ferries, Kongsberg Maritime Simulation, PPA, PMV, Seaspan, and the Council of Marine Carriers. | Volume 3A, Section 1.7.8 – ESA Technical Workshops |
| | Opportunities for more collaboration with BCIT (*e.g.*, bitumen research facility) | | Volume 8A, Section 4.0 - ESA |
| | Employment and training for local workforces | Trans Mountain is exploring opportunities to provide and support education and training initiatives along the pipeline route, and has begun dialogue with local training institutions.<br>Education and training in areas such as trades, maintenance, operations and environmental management will enhance the capacity of the local labour force to participate in Project opportunities. This will also build transferrable skills that can be used across other industries, and enhance the overall community capacity. | Volume 3A – Public Consultation |
| | Increasing the number of jobs available in BC | From heavy equipment operators to environmental monitoring crews to land restoration teams, building the proposed 980 kilometres of new pipeline and associated facilities to complete the Project will offer a variety of jobs in BC and Alberta – both during the construction phase and during operations.<br>If the Project is approved, construction will take place in a phased approach between 2016 and 2018.<br>Most of the construction will happen in the spring through to the fall of 2016 and 2017 with some construction taking place in the winter months during both years.<br>When construction of the Project is at its peak, the anticipated workforce will reach up to 4,500 workers. Trans Mountain expects to spend $5.4 billion to build the TMEP. Based on Statistics Canada's input/output model, this expenditure is estimated to generate 44,200 person-years of employment of which 52 per cent will be generated in BC.<br>Trans Mountain plans are to maximize local, regional and Aboriginal employment opportunities by working with communities, construction companies and industry associations along the proposed pipeline corridor. Once the Project is complete, there will be approximately 50 new permanent jobs in BC and 40 in Alberta to operate and maintain the new expanded pipeline and facilities, as well as direct contracting and service opportunities to support pipeline operations. | Volume 2, Section 3.4 - Project Benefits |
| Benefits and Impacts | Potential for more safety-related jobs in the harbour | Trans Mountain plans to maximize local, regional and Aboriginal employment opportunities by working with communities, construction companies and industry associations in the vicinity of the Project. | Volume 8A, Section 4.0 - ESA |
| | Impacts to recreational areas, trails, and sport fishing | Overall, Project-related impacts on recreation use are being addressed in the ESA. This will include development of mitigation plans to reduce impacts and optimize opportunities to enhance recreational use.<br>Proposed mitigation/enhancement measures will be part of the final ESA, which is anticipated to be complete in late 2013, and then will be carried forward into the planning and design of the Project. | Volume 8A, Section 4.0 – ESA |
| | Trans Mountain investment in local initiatives such as herring and bird population restoration Projects | As a long-time industry and community member, Trans Mountain is committed to working with residents, regulatory authorities and other stakeholders on environmental initiatives.<br>KMC, as the operator of TMPL, and the Kinder Morgan Foundation have funded many local environmental education initiatives since 2006, benefiting schools, local stream keepers and other stewardship groups, Trans Mountain continues to engage with these groups regarding the Project.<br>Kinder Morgan Canada Inc. funded a foreshore restoration project near Westridge Marine Terminal in 2007, which involved the creation of an artificial reef where boulders and rip-rap were placed. This project was managed by the Pacific Wildlife Foundation. | Volume 8A, Section 4.0 – ESA |
| | Use of the right-of-way as greenspace | Trans Mountain is aware that people use the right-of-way for recreational purposes. This can make it a real challenge as the community believes it is a part of the open space and park system when it is in actuality a major utility corridor and Trans Mountain is only there as a secondary land use. | Volume 5B - ESA - Socio-Economic |
| | Impact of pipeline expansion on local gas prices | Gasoline prices are affected by a large number of global factors. The prices of crude oil are neither controlled nor directly influenced by the development of any specific pipeline.<br>There are some valuable resources online that explain the factors that influence gas prices, including the following links:<br>- http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/l/gslnprcngnrgfct2010/gslnprcngnrgfct2010-eng.html<br>- http://www.capp.ca/library/faq/Pages/EnergySupplyFAQ.aspx#faqQuestionTwo | |

### *1.7.5 Key Topics of Interest or Concern – Island Coastal*

Figure 1.7.5 displays the key topics of interest or concern in Island Coastal communities. This includes all comments from all engagement activities including public information sessions, ESA Workshops, community workshops and online engagement.

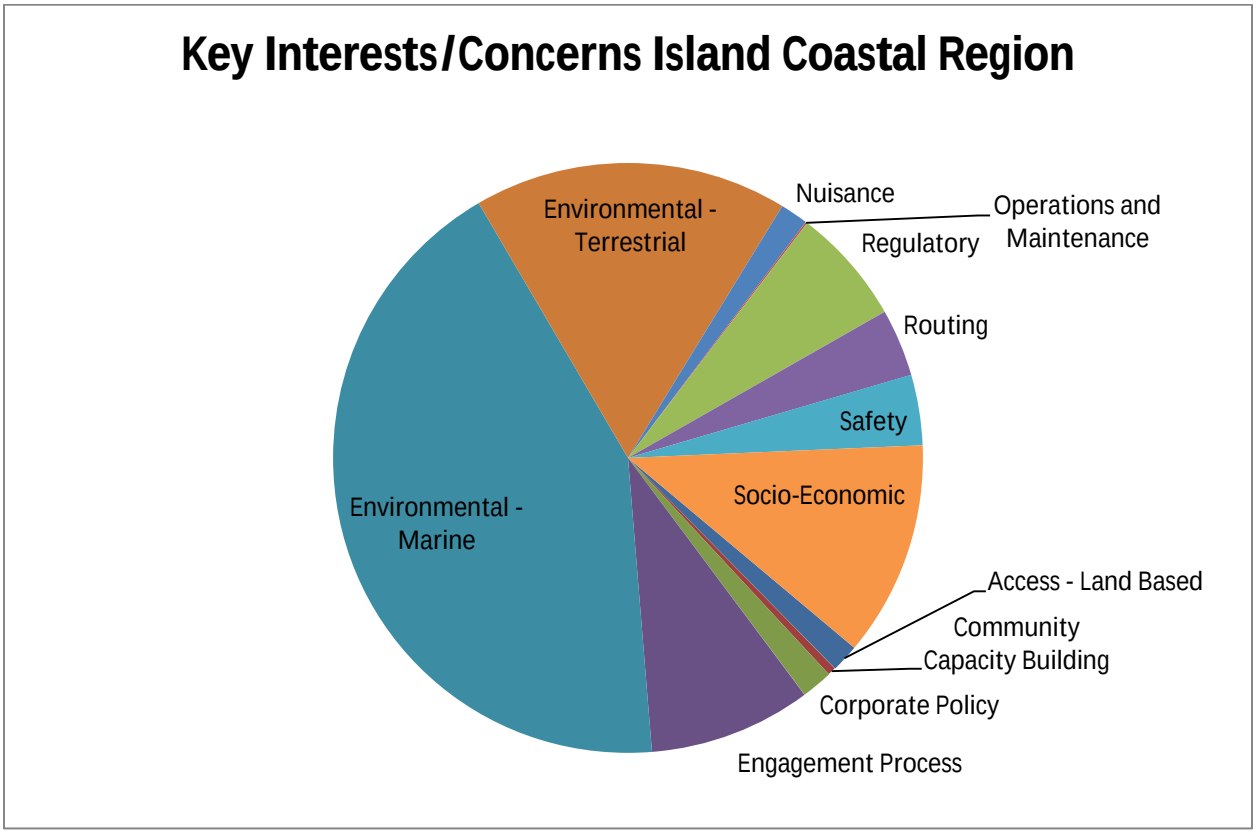


**Figure 1.7.5 Key Topics of Interest or Concern in the Island Coastal Region**

Table 1.7.5 provides information on the key topics of interest for Island Coastal regions as well as the response to the interest or concern. The application section provides information as to where the information is addressed.

## TABLE 1.7.5

## INTERESTS OR CONCERNS – ISLAND COASTAL BC

| Key Topic | Interest or Concern | Summary Response | Application Section |
|---|---|---|---|
| **Corporate Policy** | | | |
| | Export of unrefined product and product destination | Depending on the needs of Trans Mountain's customers, the amount of product shipped to four general destinations: Kamloops Terminal, Burnaby Terminal, Westridge Marine Terminal, or Washington State refineries, varies from week to week. Refined Products: Kamloops or Burnaby where it is sent to a products terminal and transported within BC for local use. Crude Products: Washington State where crude oils are delivered to refineries for processing; Burnaby Terminal where petroleum is received to be delivered to refineries or loaded onto tankers calling on Westridge Marine Terminal for export. | n/a |
| | Investment in sustainable energy | Trans Mountain is supportive of new technologies and innovations which could help improvement in the efficiency, safety, emergency response, and environmental performance of the TMPL and its related facilities. Wireless communications, leak detection systems, new construction materials and other evolutions of the pipeline industry have made a difference in the overall performance of the system since it went into service in 1953. Trans Mountain representatives continue to meet with representatives of BC and Alberta clean technology sectors to identify opportunities for Project investment. | n/a |
| | Stance on upstream/ downstream issues, GHGs and climate change | Trans Mountain is assessing the carbon impact of constructing and operating the TMEP and its related facilities. The GHG impacts will be outlined the ESA submitted with the NEB facilities application and a carbon management plan will be developed to mitigate (reduce) emissions as much as possible.<br>For upstream or downstream impacts outside of Trans Mountain's jurisdiction or control, we will also describe how Trans Mountain is acting as a catalyst to influence the industry to help address issues upstream and downstream from the pipeline. Examples include: climate change; oil sands development; shipping practices; emergency spill response; and protecting the ecological integrity of BC and Alberta. | n/a |
| | Support of Chinese growth; and corporate wealth and capitalist structures. | This is outside the jurisdiction or control of the Project. | n/a |
| | Trans Mountain's corporate ethics | All Trans Mountain personnel are required to adhere to a strict Code of Business Conduct and Ethics, and must renew their commitment to the code on an annual basis. Kinder Morgan's core values are honesty, integrity and respect for people. As KMC's Chairman reminds personnel on a regular basis, "Kinder Morgan's success depends on operating our assets in a safe, compliant and efficient manner, meeting our customers' needs and doing business the right way – every day." | n/a |
| **Engagement Process** | | | |
| | Lack of advertising for the event | Trans Mountain is committed to meaningful engagement. This engagement starts with sharing information. Trans Mountain is encouraging participation and discussion, because we believe your questions, concerns and comments can help us to develop and build a better pipeline and foster responsible marine shipping of petroleum products. At this point, Trans Mountain is introducing the Project. Dialogue with landowners, Aboriginal groups, communities and stakeholders will help the Project team identify concerns and seek input to ensure those with interests in the Project are heard. Feedback collected from Trans Mountain's community engagement activities, including open houses will be used to inform the Project plan and to help develop a Facilities Application that considers the suggestions and opportunities raised by the public. This process will result in a Project application, which is reflective of the needs of the community that it most directly affects. The Project team provides notification and information on ways to engage through a number of media, including paid advertising. In addition to in person engagement opportunities, the public and stakeholders are able to participate in the online engagement opportunities. These include online forums and direct emails. The project team also has a toll free telephone number (1.866.514.6700) where it responds to questions. | Volume 3 - Consultation |
| **Environmental Marine** | | | |
| Marine Tankers | Tanker volumes and numbers | Every month, PMV currently handles 250 vessels of all types. At present, the Westridge Marine Terminal handles approximately eight vessels per month (five of which are tankers) — representing less than three per cent of the total traffic in PMV. Should the proposed expansion be approved, the number of vessels, including tankers and barges, being loaded at the Westridge Marine Terminal could increase up to approximately 37 per month (34 of which could be tankers) in 2017, or about 14 per cent of today's total PMV vessel traffic. | n/a |
| | Adequacy of existing shipping lanes to accommodate increase in tanker traffic | The existing shipping lanes are used by marine vessel traffic for recreational, commercial, tourism and passenger transit on a daily basis. The expected increased Project-related marine vessel traffic is not anticipated to pose a capacity problem for the internationally regulated shipping lanes. | n/a |
| | Double hull construction | The implementation of double-hull construction using special shipbuilding grade steel offers increased environmental protection and better protection against breaches during collisions and grounding. Further, within the tanker there are segregated cargo tanks, so if a breach does occur the potential leak is limited to the product within the affected cargo tank. All tankers calling at the Westridge Marine Terminal are double hulled and have a number of compartments. | Volume 8A, Section 2.0 - Description of Marine Transportation Activities |
| | Dredging requirements for the Project | Dredging of the Second Narrows to accommodate larger ships is not required for the Project. Dredging will be required in the area of Westridge (marine terminal) dock as part of the dock expansion and improvements.<br>PMV manages the dredging program for Burrard Inlet and the Fraser River. More information can be found on their website at http://www.portmetrovancouver.com/docs/default-source/Projects-dredging/PMV_s_Dredging_Philosophy.pdf?sfvrsn=0 | Volume 8A, Section 2.0 - Description of Marine Transportation Activities |

## TABLE 1.7.5

## INTERESTS OR CONCERNS – ISLAND COASTAL BC (continued)

| Key Topic | Interest or Concern | Summary Response | Application Section |
|---|---|---|---|
| | Format of information sessions not conducive to proper dialogue; preference for a town hall format; preference for a panel of experts; expectation for full info sessions west to Sooke; involvement of the public in the water risk analysis. | Trans Mountain has a number of engagement activities that will remain available throughout the duration of the Project:<br>· In-person meetings with interested groups and individuals,<br>· Engagement with all levels of government,<br>· Engagement with environmental and stewardship groups on local and global issues, and<br>· Online opportunities where people can view proposed route maps, provide comments and ask questions.<br>The Project team will continue to host a variety of additional engagement opportunities online and in-person. Stakeholders may contact Trans Mountain by email to: info@transmountain.com, by phone at: 1.866.514.6700 or register online to be notified when new engagement opportunities are available. Opportunities for stakeholders to provide feedback, express concerns and submit suggestions will be available through the entire process until the proposed expanded pipeline operations begin, if the Project is approved.<br>The Trans Mountain open houses are not conducted by the NEB. The results and feedback from the sessions hosted by the Project will be included in Trans Mountain's Facilities Application to the NEB. Trans Mountain is conducting these sessions to provide more information about the Project to enable the public to develop an informed opinion about the Project.<br>The feedback from the sessions will identify concerns, suggestions and opportunities expressed by the public. The NEB will evaluate the information gathered in the Public Open Houses as part of its comprehensive review of Trans Mountain's Facilities Application. Engagement will continue throughout the development of the Facilities Application to the NEB, and after it is filed in late 2013. | Volume 3 - Consultation |
| | Impact of increased tanker traffic and underwater noise and pollution on orca populations | Port officials do not expect harbour traffic jams to arise from a major increase in the number of oil tankers (up to 400 tankers a year) loading from an expanded TMPL. The marine mammals' assessment considers the impact of increased underwater noise on southern resident killer whales and modeling has been conducted. Trans Mountain is investigating potential mitigation options such as acting as an active participant in a joint industry-government advisory group that would be charged with determining and/or developing effective mitigation measures to reduce potential effects of underwater noise on marine mammals in the region. | Volume 8A, Section 4.0 – ESA |
| | Increased tanker traffic increases the risk of groundings as well as the spread of invasive species and stresses on the environment | Tankers calling at the Westridge Terminal are required to follow all regulations in PMV and in BC waters, including safety regulations, pilotage requirements and ballast water exchange requirements. The marine transportation environmental assessment considers the possibility of a grounding event as well as the spread of invasive species and other potential accidents and malfunctions (see also Volume 5A Section 6.2). | Volume 8A, Section 4.0 - ESA |
| | Location of Marine Terminal | Trans Mountain is pursuing its existing Westridge Marine Terminal as the best option for the marine terminal to accommodate the proposed expansion. An existing marine terminal in close proximity to other oil handling terminals, spill response organizations and Port harbour operations; Westridge presents the safest location with the least amount of green field impacts. | Volume 8A, Section 2.0 - Description of Marine Transportation Activities |
| | Safety of tanker design and operation | Tankers are the most scrutinized vessels in the shipping industry. The international tanker inspection regime includes both mandatory regulatory inspections as well as regular inspections by private customers like Trans Mountain who are all united in their efforts to ensure the safety of marine transportation of oil cargo. Tanker construction has evolved rapidly to meet strict build standards, which meet IMO, Flag State and Class Society requirements. Various modern build features include double hulling, back-up power generators, improved agility and brake horsepower capacity, high quality corrosion control, collision-avoidance radar navigational instruments, Additionally, cargo tanks are maintained in an inert condition (oxygen content less than 5 per cent volume), which removes any danger of fire or explosion in the tank. | Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| | Pilotage of tankers and escort tugboats | Two qualified Canadian pilots are on board all tankers leaving Westridge Marine Terminal. | n/a |
| | Potential for unsafe conditions in harbour as a result of increased tanker traffic | Trans Mountain has loaded marine vessels since 1956 without a single spill from tanker operations. Close collaboration with organizations such as the various Pilotage Authorities, Government organizations (Transport Canada and CCG) and PMV ensure that tankers navigate our local waters safely and are guided in and out of the port by highly-trained and qualified Pilots. The number of vessels, including tankers and barges, being loaded at the Westridge Marine Terminal could increase to approximately 37 per month (34 of which could be tankers) in 2017, or about 14 per cent of today's total PMV vessel traffic. While this is a big increase in capacity for Trans Mountain, this is not a dramatic increase in tanker traffic for the Port. Currently Trans Mountain makes for roughly 3 per cent of tanker traffic through the port. The expansion is expected to increase traffic to roughly 14 per cent Tankers themselves are held to strict internationally accepted build, manning, maintenance and operating quality standards mandated by International Maritime Operations and *Canada Shipping Act* and verified by Class Societies. Additionally, marine-based spill response plans ensure quick action in the event of a spill. Trans Mountain has developed additional safety standards for vessels coming in to Westridge Marine Terminal including ship registry assessment in the months leading up to proposed loading and ship inspections prior to loading. | Volume 8A, Section 2.0 - Description of Marine Transportation Activities |
| **Regulatory** | | | |
| Regulatory Process | Components and timeframe of NEB review process | Companies, such as Trans Mountain, require permission before they can build or expand pipelines and facilities. As Trans Mountain is a pipeline that crosses provincial boundaries, Trans Mountain must seek permission from the NEB—the federal regulator for pipelines—for its proposed expansion plans. Given the scope and magnitude of the Project, the NEB's comprehensive regulatory review could take place over two years, from late 2013 to mid-2015. Trans Mountain will be advancing two applications to the NEB for the Project: Toll Application and Facilities Application.<br>If the NEB makes a recommendation to approve the Project and if the federal cabinet gives the final approval, the NEB's involvement with the Project and engagement with the public will continue.<br>With all such pipeline projects, the NEB takes a life cycle approach to regulation. This means that the NEB does not just make a decision and move on to the next application. For the most part, the NEB is involved in Projects from start to finish – from the application process to the construction | n/a |

## TABLE 1.7.5

## INTERESTS OR CONCERNS – ISLAND COASTAL BC (continued)

| Key Topic | Interest or Concern | Summary Response | Application Section |
|---|---|---|---|
| | | phase to the long-term operations and ultimately to the abandonment of a pipeline.<br>With any Project approval, the NEB sets forth conditions that must be followed by the company. The NEB follows up with inspections to ensure the company is meeting the conditions and to ensure that the Project is constructed and continues to operate in a safe manner for the benefit of Canadians.<br>If inspectors find that the company is not meeting the conditions, the NEB can take action to enforce these conditions. This may include talking to the company, issuing a written request to correct the problem, or, in certain circumstances, ordering the company to stop construction or operation. | |
| | Influence of the Harper Government on the NEB review and implications of new legislation for this Project | The NEB process is a quasi-judicial body. This means it is required to objectively assess the Project in accordance with governing law and regulation, without the influence of government. Upon concluding its process, the NEB will make a recommendation to the government of the day, which in turn will determine whether to issue an Order-in-Council approving the project.<br>Form Trans Mountain's perspective, the federal government's new oil-spill prevention program received strong support from the BC marine shipping sector for taking what the industry considers to be best practices and formalizing them in legislation. Tankers are vetted by oil companies through an international inspection database before they are hired. Transport Canada also inspects tankers on their first visit and then targets tankers making subsequent visits for inspection. The new regulation will require first-visit inspections and then annual inspections after that. | n/a |
| **Safety** | | | |
| Marine Spills | Ability to collect insurance from responsible parties | In Canada, liability and compensation for ship-source oil spill pollution are governed by the *Canada Shipping Act* and *Marine Liability Act*. Both acts reflect Canada's commitment to international conventions administered by the IMO, such as those regarding the IOPC Funds.<br>Conventions limit the liability of the Responsible Party (ship owner) and establish sources of funding for cleanup and compensation for damages. Up to $1.312 billion is available for an individual spill. | n/a |
| | Adequacy of $1.3 billion to cover the costs of a spill | Trans Mountain is confident that its liability insurance program and the $1.312 billion available to cover the costs of a spill are adequate. Trans Mountain utilization of spill modelling illustrates that a spill approaching the maximum available liability limits is very low probability event. This fact, combined with Trans Mountain spill prevention measures and emergency response planning leads Trans Mountain to the conclusion that the liability insurance program in place is adequate to cover the cost of any likely spill.<br>The cost of cleaning up an oil spill is difficult to estimate, as it depends on a variety of factors:<br>· type of oil, amount of oil, spill location (at sea versus near shore), environmental and socio-economic impacts, weather, ocean conditions, rate of spill and efficiency of response operations.<br>Since Canada's SOPF was implemented in 1989, no Canadian spill has exhausted all sources of cleanup funding (the Administrator of the Ship-source Oil Pollution Fund 2012).<br>The International Tanker Owners Pollution Federation Ltd. is a not-for-profit organization established on behalf of the world's ship owners to promote an effective response to marine spills. They provide objective technical advice and information on all aspects of marine spills, including spill response and compensation. Visit http://www.itopf.com/spill-compensation/ for more information about compensation and the cost of cleaning up oil spills. | n/a |
| | Cross-border responsibilities | If an oil spill occurs in the marine environment, multiple organizations quickly take co-ordinated action to mitigate public and environmental impacts. The WCMRC has mutual aid agreements with emergency response organizations in the State of Washington. | Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| | Liability regime in Canada in the event of a spill | Ship-source spill: If oil were released from a vessel, the vessel owner would be the Responsible Party. In addition to the ship owner's insurance, there are a variety of funding sources available to cover the costs of cleaning up such a spill. See below for more details about these sources.<br>Although liability for such spills would not fall to the marine terminal owner, Trans Mountain has established programs to reduce the potential for ship-source spills. Vessels must pass a rigorous screening process set out by international and local governing bodies and Trans Mountain before being allowed to accept oil from the Westridge Marine Terminal. By ensuring that only the safest vessels are filled at Westridge, Trans Mountain reduces the risk of a ship-source oil spill. | Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| | Proportion of product that could be cleaned up in the event of a spill | Trans Mountain's goal is to recover as much, and ideally all, spilled product. Additionally, remediation clean up criteria has been established by both federal and provincial agencies. As a federally regulated pipeline system, Trans Mountain refers to the Canadian Council of Ministers of the Environment; Canadian Environmental Quality Guidelines for cleanup criteria.<br>Trans Mountain also supplies the NEB with an annual list of any spills and leaks. The NEB prepares a performance report roughly every three years. This provides an overall picture of pipeline performance throughout Canada compared to the rest of the world. In all cases, Canadian performance ranks at the very top. This report can be viewed on the NEB site (2011 and 2008). A complete history of spills from the TMPL has been shared with stakeholders and posted to www.transmountain.com.<br>Over 97 per cent of the 224,000 litres (1,408.9 barrels) of product released in the 2007 spill in the Westridge neighbourhood of Burnaby was successfully recovered or volatized, including oil that travelled to the marine environment. In some situations, it is not possible to remove or fully remediate the impacts of a spill. The unrecovered volume was 5,636 litres (35.5 barrels). These situations may occur due to limited access to the area or in situations when trying to remediate the area will result in more harm (disturbance/damage) than good. In these situations, a Risk Management Plan will be developed and a Long Term Monitoring Program will be implemented to ensure that contamination is not migrating (moving) and is not a threat or risk to the public or environment. As with the remediation process, the NEB and other agencies or affected stakeholders and Aboriginal groups are involved in the assessment of Marine Terminal risk and development of a Long Term Monitoring Program. | Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| | Protection of fragile marine environment: "impacts of an oil spill would be long term, chronic and | Long term monitoring report related to the 2007 oil spill at Westridge terminal was shared with key stakeholders and posted to transmountain.com. For Trans Mountain, marine environmental studies will focus on the area surrounding the Burnaby Westridge Marine Terminal. These studies will include, but are not limited to, marine sediments, invertebrates, and vegetation, mammals, birds and fish species. Marine field surveys were completed in summer/fall 2012 and will continue on a more limited basis through the winter and into spring/summer 2013. An environmental assessment of the marine transportation and the incremental effects of the increased tanker traffic will be | Volume 8A, Section 4.0 - ESA |

## TABLE 1.7.5

## INTERESTS OR CONCERNS – ISLAND COASTAL BC (continued)

| Key Topic | Interest or Concern | Summary Response | Application Section |
|---|---|---|---|
| | catastrophic" | completed. The Marine studies that are planned cover a wide-range of topics including: Physical and Meteorological Environment; Marine Sediments; Water Quality and Quantity; Marine Fish and Fish Habitat; Marine Invertebrates; Marine Sediments and Water Quality; Air and GHG Emissions; Acoustic Environment; Vegetation, including marine, foreshore and riparian areas; Marine Birds; Marine Sediments; Marine Water Quality and Quantity; Aesthetics (lighting from vessels); Marine Fish and Fish Habitat (includes marine invertebrates); Marine Mammals; Marine Birds; Marine Species at Risk and Special Conservation Status; Aboriginal Marine Resource Use; Heritage Resources / Archaeology (Foreshore area); Marine Commercial and Recreational Use and Tourism; Social and Cultural Well Being; Infrastructure and Services; Employment and Economy; Human Health and Ecological Risk Assessments; Accidents and Malfunctions; and, Effects of the Environment on the Project (*e.g.*, seismicity, climate change). | |
| | Risk of a spill; and increased risk with increased volumes of oil | Trans Mountain has loaded marine vessels since 1956 without a single spill from tanker operations. Close collaboration with organizations such as the various Pilotage Authorities, Government organizations (Transport Canada and Canadian Coast Guard) and PMV ensure that tankers navigate the local waters safely and are guided in and out of the port by highly-trained and qualified Pilots. Tankers themselves are held to strict internationally accepted build, manning, maintenance and operating quality standards mandated by International Maritime Operations and *Canada Shipping Act* and verified by Class Societies. Additionally, marine-based spill response plans ensure quick action in the event of a spill. | Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| | Spill response times | In the event of a spill on land, several different groups co-ordinate efforts to react quickly and effectively. Kinder Morgan Canada Inc., as the operator of TMPL and the Westridge Marine Terminal, uses the ICS. This system allows for seamless coordinated action with government agencies and Aboriginal communities. From alert to isolation, this procedure takes about 15 minutes or less. Kinder Morgan Canada Inc. would then activate response personnel and procedures and notify regulatory agencies. Kinder Morgan Canada Inc. has backup power supplies at all of the stations that can safely perform the shut down functions, including in the event of a power failure. If an oil spill occurs in the marine environment, multiple organizations quickly take co-ordinated action to mitigate public and environmental impacts.<br><br>WCMRC is the Response Organization on the West Coast with the capacity to respond and clean-up an oil spill in the marine environment | Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| | WCMRC equipment locations and response capacity | WCMRC is comprised of a team of spill response professionals (biologists, environmentalists, engineers, fire and police, and others trained specifically in the handling of oil products), and is funded through a tariff charged to every vessel entering PMV.<br><br>Their ability to effectively manage and direct spill response procedures within the first few hours after response activation reduces the negative impacts oil can have on the surrounding environment.<br><br>In the event of a spill, WCMRC personnel immediately respond with carefully designed strategies and countermeasures. WCMRC maintains various response-oriented warehouses and equipment caches that can be activated such as containment booms, skimmers and vessels. Incident Command team members, supervisors, vessel skippers and crew, technical assistance personnel, advisors and others, are pooled both from within WCMRC and from its network of partners across Canada, the USA and around the world. | Volume 8A, Section 5.0 - Risk Assessment and Spill Management |

### *1.7.6 Key Topics of Interest or Concern – Pipeline Communities*

Table 1.7.6 provides information on the key topics of interest for related to the marine regions that were brought up in the pipeline communities including Alberta, BC Interior and Lower Mainland/Fraser Valley regions.

**TABLE 1.7.6**

**MARINE INTERESTS AND CONCERNS – PIPELINE COMMUNITIES**

| Key Topic | Interest or Concern | Summary Response | Application Section |
|---|---|---|---|
| Tankers | Tanker sizes | The proposed expansion at the Westridge Marine Terminal is based on the loading of Aframax tankers, the same tankers currently being loaded at Westridge. The largest vessels calling at the Westridge Marine Terminal are Aframax tankers – due to harbour restrictions, they are loaded only to 90 per cent of their 650,000-barrel capacity. Aframax tankers are considered mid-size range of tankers that operate globally. | Volume 8A – Description of Marine Transportation Activities |
| | Responsibility for cleanup and costs in the event of a spill from a tanker | As part of an ongoing commitment to safety and environmental protection, Trans Mountain takes responsibility for the cleanup and remediation of spills by responding immediately to any release from the pipeline system. Trans Mountain works with pre-qualified and trained consultants and contractors to ensure any spill is cleaned up as quickly as possible while ensuring the safety of the public and minimizing impacts to the environment.<br>During any cleanup, biologists and environmental consultants are on site to help with their areas of expertise. These partners work in tandem with the WCMRC and WCSS, both of which are organizations built specifically to respond to marine spills. In Canada, liability and compensation for ship-source oil spill pollution are governed by the *Canada Shipping Act* and *Marine Liability Act*. Both acts reflect Canada's commitment to international conventions administered by the IMO, such as those regarding the IOPC Funds. Up to $1.312 billion is available for an individual spill. | Volume 8A, Section 5.0 – Risk Assessment and Spill Management |
| | Increase in number of tankers in Mainland Coastal | The marine component of the proposed expansion is under development. Every month, PMV currently handles 250 vessels of all types. At present, the Westridge Marine Terminal handles approximately eight vessels per month (five of which are tankers) — representing less than 3 per cent of the total traffic in PMV. Should the proposed expansion be approved, the number of vessels, including tankers and barges, being loaded at the Westridge Marine Terminal could increase to approximately 37 per month (34 of which could be tankers) in 2017, or about 14 per cent of today's total PMV vessel traffic. | Volume 8A, Section 2.0 – Description of Marine Transportation Activities |
| | Impacts of tanker traffic on pleasure craft use | At present, more than 250 deep draft vessels enter the port each month — about 3,000 per year. Of those 250 per month, only eight are presently destined for Westridge terminal, five of which are tankers. This means traffic to Westridge currently represents less than 3 per cent of the total traffic of PMV.<br>With the proposed expansion of the Trans Mountain system and associated dock facilities the Westridge Marine Terminal is forecast to serve 37 vessels per month, of which approximately 34 would be tankers. This increased total would then represent about 14 per cent of today's marine traffic in PMV. | Volume 8A, Section 2.0 – Description of Marine Transportation Activities |
| Tankers | Tug boat escorts and tanker pilotage | Trans Mountain is committed to working with the marine industry to ensure the safe movement of vessels that travel in BC waters and call on the Westridge Marine Terminal in Burnaby.<br>Trans Mountain joined the Government of Canada, Transport Canada and various local west coast marine entities in 2011 to upgrade the multi-million dollar marine simulation centre at the BCIT Marine Campus in North Vancouver, BC.<br>The centre offers a variety of navigation training and safety programs. The simulation training takes place on all vessel types from tugboats to large cargo ships and oil tankers. The centre includes a ship's main bridge simulator, which duplicates many scenarios a ship's crew and captain would encounter, such as rolling seas and high winds.<br>Although Trans Mountain is not directly involved in marine shipping, support of the centre helps train crews who ensure vessels move safely along the coast.<br>Trans Mountain's contribution to the centre was $250,000. Other contributors include the Government of Canada and Transport Canada, BC Ferries, Kongsberg Maritime Simulation, PPA, PMV, Seaspan, and the Council of Marine Carriers. | Volume 8A, Section 2.0 – Description of Marine Transportation Activities |

### *1.7.7 Website Forum Q&A*

Trans Mountain hosts a forum on the website enabling visitors to ask questions as described in Section 1.2.5.1. When the public asked questions on the website, the Project team provided responses either publically or privately depending on the question. Key topics and issues were relayed to the appropriate Project team representative to be considered and incorporated in the Application where applicable (Figure 1.7.6). Table 1.7.7 provides information on the Trans Mountain website forum Q&A.

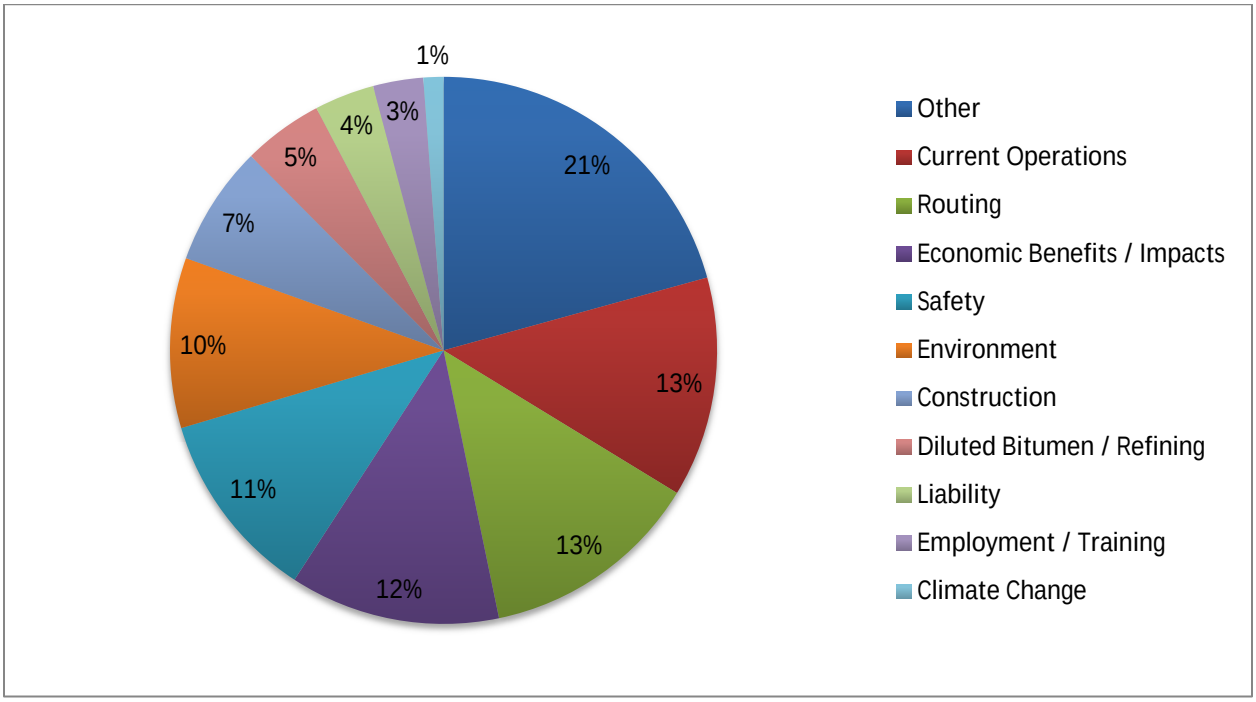


**Figure 1.7.6 Displays the Questions Posed on the Online Forum**

The ‘Other’ percentage covers off topics related to the engagement process, engineering, and general support and opposition, history, imports, landowner rights, social responsibility, sponsorship requests and stock market inquiries. Section 1.7.2 provides information on the questions.

Table 1.7.7 presents the stakeholder questions and Trans Mountain responses posted on the Website Forum Q&As. Responses were provided at the time of the question and may not reflect information that became available after the question was posed, or is available in other communication forums. Trans Mountain did not respond to questions of a negative rhetorical nature nor questions related to concerns beyond the scope of the Project. Names have been suppressed to protect the privacy of respondents, and in accordance with the *Privacy Act*.

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A

| Question | Answer | Application Volume |
|---|---|---|
| July 7, 2013<br>To whom it may concern: Camp Bridal RV Resort (53870 Bridal Falls Road) is very unfortunate to have Trans Mountain pipeline. I wonder about your costumer's service, it is very easy for you (or representative) to go on CKNW and talk about being so helpful and what a great job does? I am going to share the following concerns and hope you can address:<br>· The response time for getting any work or permit, we make an application over 40 days ago and have not heard yet. It is always time consuming, costly.<br>· The cost of maintaining the ROW. If you have the ROW, if we can use for many purpose, if we need to use special equipments for getting jobs done i.e. cutting grass? Why Transmountain does not cover the cost? Why TM will not take care of its ROW? It is very easy to come with rules and regulations; at the same time, I believe TM shall be responsible for cost and maintenance too.<br>· We had to run service (water/sewer) under TM pipeline during Camp Bridal RV Resort development in 2012, it cost us extra $50,000; in addition, we had to take many steps again time/cost. I believe TM shall share the cost. You own the ROW, you can up with rules/regulation/delay; how come the cost is not shared? TM shall pay for cost that directly related to pipeline.<br>· If expansion get approved; does TM covers the cost for paving, our business interruption?<br>thank you | Kinder Morgan is responsible for maintaining the Trans Mountain Pipeline right-of-way to such a degree that it remains visible and accessible for our safety patrol teams, and the pipeline remains safe from damage and hazards. The activities that landowners along the pipeline are allowed to undertake on the right-of-way are regulated by the NEB. The NEB has a good online resource for landowners: http://www.neb-one.gc.ca/clf-nsi/rthnb/pblcprtcptn/pplnrgltncnd/pplnrgltncnd_ndx-eng.html<br>Kinder Morgan takes responsibility for returning any lands disrupted during construction to the same, or better condition than existed before construction (within the confines of safe right-of-way management). We would work with each landowner on this and could involve such things as replanting appropriate vegetation, landscaping and monitoring for weed invasion. That being said, we do not take responsibility for private landscaping needs unrelated to construction.<br>Kinder Morgan does not own the Trans Mountain Pipeline right-of-way. Rather, we hold easements (rights-of-way) on land owned by a variety of landowners, including yourself. These easements have been in place along the existing right-of-way since the pipeline was originally constructed in 1953. They allow us to have the pipeline there, as well as to access, monitor, operate and service the pipeline. As you are a landowner, a member of our lands team will be in contact to discuss specific requirements of the project through your property.<br>Kinder Morgan is responsible for repaving any sections of road that need to be excavated during pipeline construction, and will cover all of these costs. Should the project proceed, we will plan our construction process in such a way that allows us to minimize the amount of time that any given road is closed or disrupted. | Volume 2, Section 5.0 Land Relations, Rights and Acquisition<br>Volume 4B – Project Design and Execution – Construction |
| When are we going to quit fooling around and get the pipeline expansion done - is there going to no end to idiocy of the nay sayers - if there is a problem fix it - if you screw up there is always nationalization - Canada and BC require the taxation and jobs AFTER the construction. | Thank you for your support. The project will be filing its Facilities Application at the end of this year. Once we have filed, the NEB will commence its review process. If there is a successful outcome from the regulatory application process, construction could begin as early as 2016. The expanded capacity in the pipeline would be ready to move products in 2017. | n/a |
| I am in favour of the Trans Mountain crude oil pipeline expansion Project proposal that is yet to be formally filed with the NEB.<br>Can you tell me following its approval and the company using the existing RoW, will Trans Mountain be refurbishing the existing line?<br>It would probably be an appropriate time to refurbish it as the R/W will be disturbed. | Trans Mountain conducts ongoing maintenance and upgrades to ensure the safe and environmentally sound operation of the existing pipeline. We use a multi-layered approach to pipeline safety that encompasses integrity management, damage prevention and emergency response programs.<br>Our goal for the expansion Project is to follow the existing Trans Mountain right-of-way, where practical. We think this can be achieved for 75- 85 per cent of the route. Because Trans Mountain is constantly monitoring and upgrading the existing line, there are no specific plans to do upgrades or maintenance during construction of the new pipeline. However, if, during construction, something of concern is detected on the existing line, Trans Mountain will most certainly address it.<br>More information on Pipeline Integrity and our Pipeline Protection Program, can be found http://www.transmountain.com/pipeline-integrity-management>here<br>To learn more about the proposed route for the expansion, visit our http://www.transmountain.com/route-plans page | Volume 4A - Project Design and Execution - Engineering<br>Volume 4C, Section 8.0 - Systems Integrity Management |
| Is the pipeline coming anywhere near Central Park? | No, the proposed expansion route does not go near Central Park. You can see a detailed map about the proposed route here, http://talk.transmountain.com/document/show/452. You can also provide feedback online, or join a discussion forum for Burnaby here, http://talk.transmountain.com/burnaby. | n/a |
| NO pipeline period.....Shame on all of You and your Corporate Buddies for trying to destroy our beautiful province of B.C. Send your oil East to Ottawa....Ottawa and Alberta a perfect match..... | Comment, does not require a response. | n/a |
| I want your pipeline in BC ASAP. Thank you for investing here. Please do not be scared of all our NIMBYs and BANANAs.<br>Which BC agency or First Nation is your biggest roadblock to getting approval? | Thank you for your comments. It is always nice to hear from a supporter. | n/a |
| WHEN ARE YOU GUYS GOING TO STOP? | Comment, does not require a response. | n/a |
| YOU ARE RUINING CANADA | Comment, does not require a response. | n/a |
| CANT YOU SEE YOU ARE KILLING EVERTHING? | Comment, does not require a response. | n/a |
| ENOUGH WITH YOUR BULLSHIT. JUST SAY IN ORDER TO EARN A PROFIT WE ARE WILLING TO RISK EVERYTHING, INCLUDING LIFE ON EARTH. WHY DON'T YOU SPEAK THE TRUTH? | Comment, does not require a response. | n/a |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| How about a pipeline within a pipeline? The inner pipeline caries the oil; the outer acts as shield and catches any spills. | Your question has been reviewed by our engineers and there a few main reasons why a pipeline within a pipeline is not preferred, or practical in application.<br>Installing a carrier oil pipeline within another pipeline is technically feasible for short distances but impracticable for long pipelines such as the Trans Mountain Pipeline, existing, or proposed. There are additional technical challenges to overcome which would make the manufacturing and installation of the pipes far more challenging. From a lifecycle perspective, the environmental footprint of the new pipeline would be increased considerably due to:<br>· Pipe steel tonnage would be more than doubled<br>· Increased transportation impacts, as more trains and heavy vehicles would be required to transport the additional weight<br>· Increased ground disturbance because a wider, deeper trench would be required to contain a larger diameter casing pipeline<br>· Larger right-of-way required for safe installation to construct the pipeline as larger, and more, equipment would be required<br>· Increased impact to landowners, other stakeholders and the community in general, because of longer installation time<br>New large diameter pipelines, such as Trans Mountain presently installed in Canada, go through 100% inspection, which includes the pipes, welding, external coatings and installation. After inspections, these pipelines rarely have a material, or construction defect left in them that would result in a leak. In addition, these types of pipelines do not suffer from catastrophic failure, if in the unlikely event a leak did occur.<br>It makes the operation and maintenance of the pipelines more challenging and could possibly increase the risk of corrosion for the carrier pipeline. Pipelines used to be installed with casings at road and rail crossings, but that practice was stopped due to increased corrosion in these areas, as well as interference with modern internal pipeline inspection tools to find defects at those locations.<br>To learn more about our existing pipeline safety and management programs you can visit our "http://www.transmountain.com/operating-our-pipeline" Operating & Maintaining our Pipeline page. There have been many developments in pipeline technology, which you can learn about "http://www.transmountain.com/pipeline-technology." | Volume 4A - Project Design and Execution - Engineering<br>Volume 4C, Section 8.0 - Systems Integrity Management |
| WHERE IS THE END TO THE PIPELINES??!?!?!? PLEASE STOP!!! YOU ARE KILLING OUR BELOVED MOTHER EARTH. SOON SHE WILL GET MAD. IS MONEY ALL THAT MATTERS TO YOU? WHAT IS MONEY WITHOUT LIFE? SO PLEASE SAVE US. | Comment, does not require a response. | n/a |
| On your website, you say why pipelines and then show an image that one pipeline is equal to 1400 truckloads and 400 rails cars. Essentially this Project is about making more money for the Shareholders and CEO, who by the looks of it don't live in Vancouver of surrounding area. Why not put in 50 pipelines then? Or how 25? If you're going to do it then why not go all out and do as many as possible. Other than 50 jobs what will BC gain? A spill is a spill it doesn't matter how big one is. You had a pipeline burst in Burnaby one already and nobody knows what the payout was to those residents affected because you had them sign non-disclosure forms. | The diagram provided on the website illustrates the number of tanker trucks and rail cars that would be required in order to move the same amount of product that the Trans Mountain system currently transports every day. Pipelines are proven to be the safest and most efficient method to move large quantities of petroleum products over great distances on land.<br>Twinning the TMPL will increase Canada's capacity to export these resources by facilitating the movement of oil to the West Coast for marine transport to market. It will further secure the supply of oil products to the Lower Mainland for use by BC's residents and businesses. The Project will also lead to new jobs in the short and long term, job-related training opportunities, and increases in taxes collected through all three levels of government.<br>We take pipeline safety very seriously and use a multi-layered approach to pipeline safety that encompasses integrity management, damage prevention and emergency response programs. The unfortunate incident you mentioned occurred on July 24, 2007, when a backhoe, operated by a third party contractor accidentally ruptured the TMPL carrying crude oil to the Westridge Terminal, resulting in the release of crude oil onto Inlet Drive and the surrounding residential area in Burnaby BC. Approximately 95 per cent (210 $m^3$) of the released oil was recovered. An estimated 5.5 $m^3$ was not recovered and was considered to be released to the marine environment. Ongoing monitoring of marine plant and animal life in the affected area has shown very good recovery from the spill. To find out more about what happened in connection with the Westridge spill in 2007 please visit http://www.transmountain.com/westridge-2007-spill.<br>While third-party events are not always in the control of Trans Mountain, damage prevention and public awareness of the pipeline is an important area of focus for TMPL safety processes and personnel. In response to the incident, Trans Mountain made some fundamental changes to the field organization structure, with the formation of the Pipeline Protection Group, a group whose sole focus is on the protection of the pipeline. The Pipeline Protection Group is responsible for signage marking pipeline location, pipeline patrols, and permitting for ground disturbance in proximity to the pipeline. | Volume 2, Section 3.0 - Project Need and Economic Feasibility<br>Volume 4C, Section 8.0 – Systems Integrity Management<br>Volume 5B - Socio-Economic |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| To Trans Mountain:<br>I am in favour of the Trans Mountain crude oil pipeline expansion Project proposal that is yet to be formally filed with the NEB.<br>Can you tell me following its approval and the company using the existing R/W, will Trans Mountain be refurbishing the existing line?<br>It would probably be an appropriate time to refurbish it as the R/W will be disturbed.<br>Thanks | Thank you for your support. Trans Mountain conducts ongoing maintenance and upgrades to ensure the safe and environmentally sound operation of the existing pipeline. We use a multi-layered approach to pipeline safety that encompasses integrity management, damage prevention and emergency response programs.<br>Trans Mountain's goal for the expansion Project is to follow the existing Trans Mountain right-of-way, where practical. We think this can be achieved for 75- 85 per cent of the route. Because we are constantly monitoring and upgrading the existing line, there are no specific plans to do upgrades or maintenance during construction of the new pipeline. However, if, during construction, something of concern is detected on the existing line, we will most certainly address it.<br>More information on Pipeline Integrity and the Trans Mountain Pipeline Protection Program, can be found http://www.transmountain.com/pipeline-integrity-management>here To learn more about the proposed route for the expansion, visit http://www.transmountain.com/route-plans page | Volume 4B - Project Design and Execution - Construction<br>Volume 4C, Section 8.0 – Systems Integrity Management |
| Please...I am begging you... Do not go ahead with this Project or any other pipeline Projects. For far too long, ALL these Oil Projects have led to disaster spilling filthy sludges and corrupting vast areas inevitably filthing and killing off important Water sources, Vegetation, and Wildlife... The very Nature that humans are connected to and depend on for survival...! Absolutely NO amount of economical benefit is important compared to that... The Economy benefits are just not worth the Environmental sacrifice. Remember this: In fact... Environment=Life. There is no economical benefit when there is environmental damage. Environmental damage is a heavy economical loss.<br>Just how can you even reverse the damage done WHEN a pipeline fails? How do you even begin to take responsibility for WHEN contamination occurs? Yes... it's surely never an if scenario, it's always a when scenario. So why not forget about filthy Oil and take an opportunity to step back and search for something truly pure and beneficial to you? Because we just CANNOT continue like this...because this is irrefutably killing us slowly but SURELY! | Trans Mountain has a series of remediation examples available on the website and Trans Mountain strongly encourages you to take a look at them. They can be found here: http://www.transmountain.com/westridge-2007-spill. Trans Mountain has a corporate policy to improve pipeline and facility integrity to protect the safety of the public, the environment and its employees. We will continue to uphold these values as we prepare to file the facilities Application for the proposed expansion at the end of this year. | Volume 6B, Section 7.0 - General Pipeline Construction Mitigation Measures<br>Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |
| The bitumen should be upgraded close to the source. This produces a wide range of products that can be available in Canada and as well as marketed to the Pacific Ocean communities and neighbours. Lighter hydrocarbons can make easier environmental solutions. The lighter hydrocarbons make a range of fuels, lubricants, and petrochemical feedstock. The recovered sulphur and ammonia are used for sulphuric acid, fertilizer, etc. All bitumen going to upgraders in China is not the best opportunity for the world economy.<br>I was a mine engineering representative for Petro-Canada in oil sand Projects when we turned Syncrude, in early 1980, into a profitable operation.<br>I forgot this comment in the question I just asked. Upgrading the bitumen closer to the source provides quality employment and a higher value to the sold products. This automatically provides more opportunity and money in the Canadian economy including municipal, provincial and federal taxes. | Thank you for your comment. We appreciate your participation. However, since you have not asked a question for us to answer it won't be posted in our Q&A. We have captured your thoughts for our Application, however if you would like this to be posted publicly we encourage you to re-post your thoughts in the discussion forums taking place on the community pages. You can find a list of community pages here: http://talk.transmountain.com/article/proposed-study-corridor-feedback | n/a |
| What is the existing route and new route through Surrey? Can you please send me a readable map - all the detailed maps of surrey are blurry on your website. Thanks | Thank you for your email and interest in the Trans Mountain Expansion Project. You can find maps of the proposed route through Surrey either attached or below. Due to the size of the document, you many need to zoom in to focus on the details. See map here: http://talk.transmountain.com/document/show/448 | Volume 4A, Appendix E – Route Maps |
| How about NOT having an expansion - or a pipeline - AT ALL ?!? You are presenting this as though it's a done deal - and the ONLY discussion we may have is just how much damage can be contained. I want to know why you're STILL stubbornly and doggedly hanging on to this destructive energy source - when there are better ones, with new technologies involved (creating and providing more JOBS) - that don't harm our environment. Why are you still hanging on to short-term solutions for long-term problems - the damage from which will be almost impossible to repair ?!? | Comment, does not require a response. | n/a |
| In areas that have a current pipeline but the twinned pipeline moves to a new route, what happens to the old pipeline? | Trans Mountain will continue to operate the existing TMPL as it exists today. The proposed new line would be an expansion of the TMPL and would provide extra capacity for our shippers, and in all but a few specific circumstances, there are no plans to abandon, sell, or change existing TMPL operations. | Volume 4C, Section 12.0 - Preliminary Abandonment Plan |
| Is an oil spill response plan in place? If so, does it include the use of toxic dispersants to hide the oil and reduce the fine? | Trans Mountain has comprehensive spill response plans in place for its TMPL and facilities. These plans are constantly being updated to keep them current and are regularly practiced through deployment exercises.<br>Both Trans Mountain and every ship visiting our Westridge Marine Terminal are required to have an arrangement with WCMRC, the Transport Canada certified spill response organization for the west coast, who would provide response equipment and personnel services in the event of a spill.<br>While the specific strategies used in response to a spill will vary depending on the circumstances, the primary objectives in all cases is to ensure safety and to minimize environmental damage. There are a range of strategies available to achieve these objectives | Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| | including mechanical recovery (using skimmers), in-situ burning (controlled burning the oil), and dispersion (use of dispersing agents to dilute and disperse the oil reducing its concentration).<br>Dispersants are used on oil spills to accelerate the process of natural dispersion. In certain situations, dispersants may help to minimize or prevent damage to important sensitive resources. Dispersant use would be recommended by the Federal, Provincial, Municipal, and Aboriginal agencies involved in the response and would ultimately need to be approved by Environment Canada.<br>Dispersants are not used to hide oil or reduce fines as the question suggests.<br>For more information about oil dispersants you can visit the International Tanker Owners Pollution Federation Limited's <a ref=http://www.itopf.com/spill per cent2Dresponse/clean per cent2Dup per cent2Dand per cent2Dresponse/dispersants/>pageon dispersants or see the DFO website http://www.dfo-mpo.gc.ca/science/publications/article/2009/04-27-09-eng.htm>page | |
| Who is responsible should your pipes burst? Who is accountable with respects to the destruction of property, the environment, and the entire nation's reputation? What assurance do we have as everyday people, some of us the parents of tomorrow's people, that these pipelines do not lead to disaster and disease and death for our children? Do you really think that disaster cleanup funds really make a difference to us? This pipeline benefits you an unfathomable amount more than us and it would appear that we take bear all the consequences should disaster strike. | At Trans Mountain, we are committed to keeping our pipelines safe, and protecting our employees, the public and the environment. Because safety is at the core of our business, we strive to safeguard our facilities and to meet or exceed all applicable federal, provincial, and local safety regulations.<br>Trans Mountain takes responsibility for first preventing spills and for cleaning up and restoring the environment if there is a spill. While Trans Mountain takes responsibility, ultimate liability for an oil spill depends on the cause of the spill. Trans Mountain would cover the costs of a spill clean-up and restoration and depending on the circumstances seek to recover them from insurance or a third party if they were responsible for the spill.<br>To ensure there are sufficient funds to remediate a spill, Trans Mountain is covered by insurance necessary to respond to all spills or releases from our pipelines and facilities. Trans Mountain monitors the insurance program continuously, and makes annual adjustments as necessary to ensure adequate coverage.<br>Remediation cleanup criteria have been established by both federal and provincial agencies. As a federally regulated pipeline system, Trans Mountain is required to conduct any clean up to satisfy both the regulations and The NEB. Please visit http://www.transmountain.com/canadian-regulations-and-spill>transmountain.com/canadian-regulations-and-spill for more information on Canadian regulations. | Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |
| Can you please leave our communities alone and in peace? We do not want to live in fear of the inevitable leaking of your pipeline. You would never subject your families to this process. | Comment, does not require a response. | n/a |
| If the Project goes through how many temporary foreign workers will Trans Mountain bring in? And after the completion, how many be specific, here, how many people will be directly employed with the ongoing and daily operation the pipeline? Again will they be BC Residents, Alberta Residents or Temporary Foreign workers? | Our plans are to maximize local, regional and Aboriginal employment opportunities by working with communities, construction companies and industry associations along the pipeline corridor in BC and Alberta.<br>When construction of the Project is at its peak, the anticipated workforce will reach up to 4,500 workers. Based on Statistics Canada's input/output model, this expenditure is estimated to generate 44,200 person-years of employment of which 52 per cent will be generated in BC, 29 per cent will be generated in Alberta, and 10 per cent will be generated in Ontario.<br>Other provinces and territories will also experience a positive jobs impact with indirect induced employment as a result of the pipeline construction Project. This includes providing materials and equipment such as pipe for the Project.<br>Following construction, 90 full time jobs will be created, 50 in BC and 40 in Alberta. More information on Trans Mountain jobs can be found http://www.transmountain.com/jobs<br>*NOTE: Since the time of this response, updated economic data has been incorporated in economic data contained in this Application.* | Volume 2, Section 3.0 - Project Need and Economic Feasibility |
| When a spill does happen and it has in the past couple weeks, so we know it's not a matter of if but when, will the Trans Mountain Management team agree to eat seafood from the pacific coast. This is after a spill has happened, and if so will they buy enough seafood to keep the fishing and cruise ship business alive in BC? | Trans Mountain has loaded marine vessels since 1956 without a single spill from tanker operations.<br>We are an active participant in the maritime community and have a long history of facilitating improvements to regional marine safety. Close collaboration with organizations such as the various Pilotage Authorities, Government organizations (Transport Canada and CCG) and PMV ensure that tankers navigate our local waters safely and are guided in and out of the port by highly-trained and qualified Pilots.<br>Unlike any other ships, all tankers must adhere to highly-regulated safety protocols when entering BC waters, two experienced pilots on board when tankers are loaded and transiting between Westridge and Victoria, tug escort (tankers are tethered to 3 escort tugs capable of controlling the ship in the event of systems failure), double hulls and segregated tanks.<br>In addition to the stringent regulations and requirements of these organizations, Trans Mountain has developed additional safety standards for vessels coming in to Westridge Marine Terminal and can be found http://www.transmountain.com/safe-marine-operations>here</a>. | Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| What's the Burnaby Fire Chief Say about this? Does Burnaby have the equipment to contain and control a fire if it would happen to break out? | Although Pipeline incidents are rare, their consequences can be serious. Therefore, we have detailed ERPs for all our facilities. The ERPs are updated regularly and contain information on emergency procedures, staff roles and responsibilities, and pipeline route maps.<br>Emergency response equipment is stationed at various locations along our pipeline routes and trained staff are available around-the-clock to respond in the unlikely event of an emergency.<br>Our staff practices emergency response several times a year. Often, the practice drills involve local first responders to ensure an efficient joint response. Regular training provides continual preparedness techniques, equipment and communications. If an emergency occurs, we will immediately mobilize all the necessary resources to minimize its impact on the public and the environment. | Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |
| Would Richard D. Kinder allow for a power company to put high voltage power lines over his house? If not then why should we allow pipelines in our communities? | Pipelines are the safest and most efficient way of moving oil over land. Twinning the TMPL will increase Canada's capacity to export these resources by facilitating the movement of oil to the West Coast for marine transport to market. It will further secure the supply of oil products to the Lower Mainland for use by BC's residents and businesses.<br>The Project will also lead to new jobs in the short and long term, job-related training opportunities, and increases in taxes collected through all three levels of government.<br>More information on the importance of pipelines can be found on the Canadian Energy Pipeline Association's http://www.cepa.com/about-pipelines/why-pipelines>website</a>. | Volume 2, Section 3.0 - Project Need and Economic Feasibility<br>Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |
| How do you call this pipeline an expansion when it's a new line? An expansion would be digging up the old line and putting a bigger pipe in. This is just a new pipeline. | The proposed new line would be an expansion of the TMPL system as it utilizes many of the same facilities or expands upon the same facility footprint and much (75 per cent-85 per cent) of the same right-of-way along the route from Edmonton to Burnaby.<br>In places where land use has changed dramatically since the original line was built in 1953, a new right-of-way will be considered to minimize disruption.<br>We will continue to operate the existing TMPL system as it exists today. For more information about the expansion Project, visit http://www.transmountain.com/proposed-expansion> this section of our website. | n/a |
| The Northern Gateway proposal initially factored in arbitrage as a Company benefit.<br>Apparently that odd term means that access to a higher world price will force/allow oil companies to charge much higher fuel prices to us here.<br>Put in the plan to ship oil in the rawest possible form, and not refine it here; and I'm sure we have a negative benefit.<br>The question is, are Canadian companies legally bound to consider national interest, especially when it is so obvious? | The Application will be evaluated by the NEB. It is their mandate is to consider Canadian public interest when providing their recommendations to the federal government.<br>Therefore, it is in our best interest to also consider this as part of our Project plan and Application. More information on the NEB and their governance can be found http://www.neb-one.gc.ca/clf-nsi/rthnb/whwrndrgvrnnc/whwrndrgvrnnc-eng.html> here</a>. | n/a |
| What is the route of the pipeline through Westridge, Burnaby? | More details and maps of the study corridor through Westridge, Burnaby can be found http://talk.transmountain.com/burnaby> here</a>.<br>It is important to note that the final route has not yet been determined, but rather two alternatives for study corridors.<br>A study corridor is wider than a pipeline right-of-way. Pipelines are installed within a strip of land known as the right-of-way. Before the right-of-way is selected, a study corridor is determined, and studies are undertaken to identify potential routes.<br>We're looking for your comments or input about the study corridor we've identified for Westridge, Burnaby. Please review the maps and post your thoughts on http://talk.transmountain.com/burnaby> this page</a>. | Volume 2, Section 4.0 - Pipeline Route and Facility Siting |
| Would it make sense to replace the aged existing line with a single larger diameter line built with today's improved welding, material and inspection technique's instead of having twin lines and having to continue maintenance on the older line? If this is done than modern controls, monitoring equipment and safety systems could be utilized making the new line essentially safer that the one in operation today. Just a thought. | Trans Mountain has no plans to replace the existing pipeline. The existing system has been upgraded with current technology including control and monitoring systems, including 24/7 monitoring and leak detection. Trans Mountain also has a long standing pipeline integrity program which includes the use of inline inspection tools for monitoring of the condition of the pipeline. These technological advancements and Application to the existing pipeline have resulted in an excellent safety record and a demonstrated reduction in spill frequency over the last 30 years of the pipeline operation. We are committed to continuous improvement of this safety record and are confident that the existing pipeline is safe for continued operation. | Volume 4A - Project Design and Execution - Engineering |
| Why is it that people cannot accept 50 years or more of operation of the pipeline without a negative incident as a sufficient demonstration that the pipeline is operated responsibly, and that the risk of accident (while always present) is small. I am personally happy to leave the design and operation of the pipeline expansion to those who have demonstrated that they know what they are doing. | We are committed to keeping our pipelines safe, and protecting our employees, the public and the environment. Because safety is at the core of our business, we strive to safeguard our facilities and to meet or exceed all applicable federal, provincial, state and local safety regulations.<br>We know there are risks with any form of transportation, and while pipelines have proven to be the safest from of transportation for oil, there is always a risk a spill may occur.<br>To ensure the continued safe and reliable operation demonstrated over the past 60 years, we use a multi-layered approach to pipeline safety that encompasses integrity management, damage prevention and emergency response programs. More details about our current pipeline integrity program can be found http://www.transmountain.com/pipeline-integrity-management> here</a>. | Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| Why do companies pipeline the bitumen instead of a much safer product through the pipelines? If the buyers don't want to buy refined oil from us, then to my mind it is our loss and all these other Countries that gain. I'm shaking my head wondering why we allow other Countries to dictate what we ship through our pipelines. Ship a safer product and build more refineries so that Canadians benefit instead of foreign Countries. I'm against shipping Bitumen but the only saving grace in this, is that your company has been doing it for 50 yrs. | Transporting dilbit is as safe as transporting other types of crude oil. This is because there is virtually no difference between the two products.<br>Our industry has been safely transporting dilbit in pipelines for over 30 years and conventional crude for over 60 years.<br>The TMPL transports crude oil, semi-refined and refined products – for use in local markets and for export – on behalf of its customers. In the same way a highway does not own the cars travelling on it, Trans Mountain does not own the product it transports. Any product moved in the pipeline must meet Trans Mountain's tariff requirements. These are the specifications that must be followed in order for the product to be moved in the Trans Mountain Pipeline. | Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |
| Will the existing pipeline and pumping infrastructure be upgraded with the installation of the new pipeline? | Although the TMPL was built in the 1950's, the pipeline is fully capable to continue safely operating and efficiently delivering product to our customers because of Kinder Morgan Canada's efforts in ongoing maintenance and implementation of technology advancements.<br>The most recent expansion Project took place between 2006 and 2008 with the construction of 13 new pump stations and modifications to existing stations along the route.<br>The current proposal intends for 11 new pump stations to be built and the existing stations along the route to be expanded. Additional storage capacity would be added to existing storage terminals in Burnaby, Sumas, and Edmonton as well as the Westridge Marine Terminal. | Volume 4A - Project Design and Execution - Engineering |
| Why cannot not be located under the power lines, which primarily go through fields and not under schools and private homes. Primarily I am against it but in the event it proceeds I believe it should be located in the least damaging area. I am not sure I am happy with the answer to when a pipeline bursts and damages a home. Renovation could very well not be the answer as still located on the site of the toxicity. | The proposed expansion of the TMPL line is to follow the existing route between Edmonton and Burnaby that has been in operation since 1953, where practical. Trans Mountain recognizes that many regional changes have occurred since the pipeline was installed 60 years ago and patterns of land use have changed with the growth of communities.<br>Trans Mountain is listening to Aboriginal peoples, landowners and stakeholders and will consider deviating from the existing route while balancing operational, engineering, environmental, community and economic factors.<br>Visit the Have Your Say http://www.transmountain.com/talk> page and find out more information about routing through your specific community. | Volume 2, Section 5.0 – Land Relations, Rights and Acquisition<br>Volume 4A - Project Design and Execution - Engineering |
| Will the upgraded line include a return path for condensates or are you planning to ship dilbit from the Burnaby terminal or otherwise use the condensates in West Coast refineries? | The proposed Expansion Project does not include a return path for condensates because the product is provided by the customers ready to transport - we do not add or remove any diluents. For the most part, the diluents are shipped along with the bitumen, or other crude oil products to the shipper's desired destination where it would become part of the refining process.<br>While the products in our pipeline belong to the customer, they must meet our specifications and tariff requirements. Trans Mountain's tariff rules and regulations are published http://www.kindermorgan.com/business/canada/transmountain_tariffs.cfm> here</a>.<br>You can also learn about the products shipped in Trans Mountain's pipeline on the http://www.transmountain.com/product-shipped-in-pipeline> Product Shipped in a Pipeline page. | Volume 4A - Project Design and Execution - Engineering |
| How many ESVs are on the new line?<br>What automatic safety trips are on the ESVs, and is there a override on the safety trips?<br>If there was a leak in the line, and the pipeline shutdown and the ESVs closed, what would be the largest possible spill volume?<br>thanks. | The number of ESVs for the proposed line has not yet been determined. The number and locations of ESVs will be guided by modeling studies that factor in local conditions and potential consequences. As we do our detailed design and engineering work the final locations of the valves will be designed to protect sensitive areas and minimize impacts that are identified in our routing and design process.<br>The best way to shut a pipeline down in an emergency is to isolate upstream of the location and continue pumping away from it on the downstream side. In order to do this, an operator at our control centre receives the alarms and uses their training and knowledge of the specific situation to shut down the pipeline in a way that can best minimize impacts.<br>There are a number of factors that impact the volume of a spill, including the type of product in the line, terrain elevations and distance between ESVs. We calculate worst-case spill volumes for emergency response planning purposes to ensure that adequate response resources are available. | Volume 4A - Project Design and Execution - Engineering |
| In construction of TMOPL, Jan.-Feb. 1953, the line was laid cross the Thompson River, near Fulton Field airport (Kamloops). According to the Kamloops Daily Sentinel, April 1957 saw a 2nd line laid across the river from the Kamloops Pumping Station to Barriere. How many TMOPL lines presently cross the river at this location? Is one of the two lines presently inactive? Will the present request for expansion by Trans Mountain mean a new line would cross the Thompson River in the present location of the previous two lines? | Trans Mountain currently has two pipelines installed beneath the Thompson River at the crossing next to the Kamloops Airport. The original 24 diameter pipeline installed during the initial construction of the pipeline in 1953 and a 30 diameter pipeline that was installed during a previous expansion in 1957. Currently, the 30 pipeline is in service as part of the TMPL and the original 24 pipeline is inactive.<br>A new 36 diameter pipeline is planned to be installed as part of the proposed Trans Mountain Expansion. The new pipeline is planned to be installed adjacent the two legacy pipelines. A new larger pipeline is required because neither of the existing pipelines is able to meet the capacity requirements of the proposed expansion.<br>Unlike the trenched crossing installed in the 1950's, the new crossing of Thompson River is planned to be completed using the modern technique of a horizontal directional drill (HDD). Pending favourable results from ongoing geotechnical investigations, a HDD | Volume 4A - Project Design and Execution - Engineering |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| | of the river will not require any disturbance of the river bed or river banks, as the drill path will start and end several hundred metres on either side of the river's edge.<br>Upon completion of the expansion Project, the status of the two existing legacy pipelines would remain as they are today, the 30 pipeline continuing to be used by the legacy line and the 24 pipeline inactive. | |
| Is the old pipeline still going to be used or will it be abandoned? The pipeline goes through my back yard and I'm wondering if there will be any changes to the existing easement | Trans Mountain will continue to operate the existing TMPL as it does today. The proposed new line would be an expansion of the TMPL and would provide extra capacity for our shippers, and in all but a few specific circumstances, there are no plans to abandon, sell, or change existing TMPL operations. | Volume 4C - Project Design and Execution – Operations and Maintenance |
| 1. Did the spill originate in a valve or a joint in the pipeline or did it come from a rupture in the pipe itself?<br>2. As pipeline spills are higher in 50 - 60 year old lines, how often is a smart pig run through the Alberta/Vancouver run to investigate eroding/thinning areas of the pipe?<br>3. Does the ministry of environment or the NEB insist on mandated maintenance reporting to those regulatory agencies so companies such as Trans Mountain aren't allowed to ignore timely pipeline maintenance checks as is the case with the Esso Mayflower rupture?<br>4. Though the leak was small and properly confined, why did it take two days to get to the leak?<br>5. Doesn't Trans Mountain's monitoring equipment work for small leaks as it should for large ones?<br>6. Won't small pipeline leaks often turn into larger ones with the passing of hours or days?<br>7. Was the province just fortunate that a large rupture didn't happen in this case with the passing of those two days to expose the faulty area of the pipeline? | · There are ongoing investigations of the incident and as such it wouldn't be appropriate to speculate about the cause or origin.<br>· The assumption that spills are greater in older pipelines is not necessarily accurate. A proper integrity maintenance program is intended to detect defects, which is what occurred in this case. In terms of investigative methods, we have a program that is in compliance with NEB regulations and industry practice that sees us employing investigative methods on a risk assessment basis. The timelines vary.<br>· The NEB performs frequent audits of our Integrity Management Program. Regardless, pipeline integrity and public and environmental safety is Trans Mountain's number one concern, so under no circumstances do we ignore timely maintenance checks.<br>· The seepage was found as a result of our inspection program and our crews were preparing the site for examination when they discovered the small patch of oil. It's tough to know exactly how long it had been leaking due to the very small amount of product and the tiny size of the cracks<br>· Our integrity program did identify this defect and that's why we were preparing to excavate the pipe and examine the defect when the oil was discovered on the surface above the pipe.<br>· Our integrity management process and leak detection system is intended to prevent leaks, and if they occur, to catch them at the earliest opportunity. We respond to any leak immediately to prevent the leak from propagating. We use best available internal inspection technology which enables us to find defects before they develop into major leaks.<br>· The leak was discovered as part of our ongoing integrity maintenance program. Our program identified an area of investigation, which was why we were in the area. The small seepage was discovered and contained as a result of the proactive maintenance work. | Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |
| IF THE PIPELINE NEAR MY HOUSE BURSTS AND DESTROYS THE VALUE OF MY PROPERTY, WILL YOU PAY FOR MY NEW $350,000 HOUSE IN VICTORIA? | In the event of a spill, Trans Mountain would attempt to return any affected properties to an equivalent or better condition than existed before the spill. These efforts could include landscaping, and interior and exterior renovations, if applicable. An example of restoration and remediation efforts can be found http://www.transmountain.com/westridge-2007-spill> here</a0>. | Volume 2, Section 5.0 - Land Relations, Rights and Acquisition |
| http://www.ctvnews.ca/business/transmountain-pipeline-in-merritt-b-c-shut-down-after-small-leak-1.1324345<br>Where are the guarantees? | While there are no guarantees, Trans Mountain has worked hard to develop a mature suite of programs to maximize the safety of the pipeline. It was while performing regular maintenance that we found this leak.<br>These pipeline safety practices focus on preventing pipeline failures and minimizing their impact. They are all part of what is known as a Pipeline Integrity Management program. This program identifies all of the hazards that have the potential to affect the safety of the pipeline system and ensures that control measures are implemented to prevent or mitigate the occurrence and potential impact of each hazard.<br>Additionally, we have plans to ensure we are able to respond in the event of an incident like this one. ERPs are constantly being updated to keep them current. The plans are location specific, identify locations of emergency response materials and equipment, and are regularly practiced through field deployment exercises. Because of this planning, we are able to be quickly contain any spilled material and immediately begin clean up and remediation.<br>As part of an ongoing commitment to safety and environmental protection, Trans Mountain takes responsibility for the cleanup and remediation of spills and we work with pre-qualified and trained consultants and contractors to ensure any spill is cleaned up as quickly as possible while ensuring the safety of the public and minimizing impacts to the environment. | Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |
| My question is what type of pump station is near Hope BC? How do you power the station for the oil to go through the pipelines? Are you using micro-hydro, or wind, solar, or burning gas? which one | The TMPL pump station, in Hope, B.C., is similar to other pump stations along the pipeline - it has two electrically-powered centrifugal pump units.<br>Electrical supply for the Hope station is obtained from BC Hydro, who generates much of their electricity with hydroelectric installations around the province. | Volume 4A – Pipeline Engineering and Design |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| How many people does Trans Mountain currently employ in Canada? | Trans Mountain employs more than 350 people, not including contractors. To learn more about Trans Mountain, visit http://www.transmountain.com/about-kinder-morgan-can> transmountain.com/about-kinder-morgan-can</a>. | Volume 5B - ESA - Socio-Economic |
| Hi<br>I have one question. I am a land owner in the Valemount area and I own land adjacent the existing pipeline.<br>Wondering how the expansion of the new line will affect my property?<br>Sorry I was unable to attend the information session in Valemount.<br>Thanks | We'd like to answer your question. Can you please provide us with your address and your phone number? We'll specifically look into your property and give you a call to discuss how you may be impacted.<br>Please email your details to info@transmountain.com<br>Thank you! | n/a |
| How much oil is imported to BC? | As we only have information on our company's activities, we are unable to answer your question about the total amount of oil imported to BC, you could try contacting the CEPA [Canadian Energy Pipeline Association] or CAPP. | n/a |
| When the proposed TUC section is operational, will Trans Mountain discontinue use of the current urban pipeline? Will it be abandoned, sold to another operator, or what? | Trans Mountain will continue to operate the existing TMPL in Edmonton, and throughout the line, as it does today. The proposed new line would be an expansion of the TMPL and would provide extra capacity for our shippers. There are currently no plans to abandon, sell, or change existing TMPL operations. | Volume 4C, Section 12.0 - Preliminary Abandonment Plan |
| I have heard from many that the oil from the pipeline proposed to run from AB to Kitimat will not be refined in Canada, but sent to another country (China) to be refined and then sent back to us, costing us more money. If this is true, why? What good does that do for Canada and future jobs in BC? Does anyone understand how dangerous it is to send unrefined over an ocean? The idea to help other countries' economies is nice, but sooner or later our lack of aggressiveness will bite us in the butt. | Just to clarify, the TMPL currently runs from Alberta to Burnaby, B.C. with the proposed expansion Project paralleling the existing route, where practical. Neither the existing pipeline nor the proposed pipeline goes to Kitimat.<br>We transport both refined and unrefined products in our pipeline – both for use in local markets and for export. Trans Mountain has been safely loading unrefined petroleum products on to marine vessels from at our Burnaby facility since the 1950's.<br>Expanding the TMPL system will create both short and long term job opportunities in B.C communicates along the pipeline route and result in increased tax revenues for local and provincial governments. For more about benefits for B.C., click http://www.transmountain.com/benefits-for-british-columbia> here</a>. | Volume 6D – Westridge Marine Terminal EPP<br>Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |
| 1. Why not avoid the lower mainland and choose a more direct route west to Prince Rupert area? There are other markets in the world other than the USA.<br>2. Why are Canadian Gasoline prices so high? | The proposed expansion of the TMPL line is to follow the existing route between Edmonton and Burnaby that has been in operation since 1953, where practical.<br>This is known as a Brownfield Project — whereas completely new pipelines are known as Greenfield Projects. This approach to routing provides a number of advantages.<br>The need for new pipeline corridors would be reduced because the existing corridor would be expanded, and construction and operating activities would occur along an existing TMPL right-of-way. Portions of the existing TMPL right-of-way could also be used during construction, reducing the area disturbed. Visit http://www.transmountain.com/route-plans> this page for more information.<br>Gasoline prices are affected by a large number of global factors. The prices of crude oil are neither controlled nor directly influenced by the development of any specific pipeline.<br>There are some valuable resources online that explain the factors that influence gas prices, including the following links:<br>· http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/l/gslnprcngnrgfct2010/gslnprcngnrgfct2010-eng.html> NEB web page</a><br>· http://www.capp.ca/library/faq/Pages/EnergySupplyFAQ.aspx#faqQuestionTwo> CAPP web page</a> | Volume 2, Section 4.0 - Pipeline Route and Facility Siting |
| Is there really going to be any weight given to citizen feedback? Isn't economic homeostasis simply to satisfy the most convenient and cost reduced desires of big industry at the price which cannot be measured in eco-destructive (referred to as economic construction) Projects such as this? | Public input is an important part of any major pipeline Project, and will form a critical component of the Application. We are reaching out to all landowners along the pipeline and meeting with community leaders, elected officials, environmental groups and Aboriginal Peoples to get their input, issues and perspective. To date we have received feedback that has been very helpful in our planning and will ensure we can make the Project better.<br>Community engagement began in April 2012 and will continue through 2013 as part of the preparations for our Facilities Application to the NEB, expected to be filed in late 2013. The Facilities Application asks the NEB for permission to build the necessary facilities associated with the proposed expansion Project. Engagement and consultation will also continue through the lifetime of the Project.<br>To find out how you can give feedback now, and throughout the process, go to:<br>· http://www.transmountain.com/talk> feedback forum</a>.<br>For more information on how public input is used, visit Trans Mountain's<br>· http://www.transmountain.com/using-your-feedback>Using Your Feedback page</a>. | Volume 3C - Landowner Relations |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| Why aren't we preparing for the post-carbon world that our children need to stay alive as the runaway climate change threshold is fast approaching? Why are we building pipelines that serve to accelerate an already disastrous watershed operation in northern Alberta? Please rethink your business, if not for sake of your own children. | Trans Mountain is assessing the carbon impact of constructing and operating the proposed expansion of the Trans Mountain pipeline and its related facilities. The GHG impacts will be outlined the ESA submitted with the NEB facilities application and a carbon management plan will be developed to mitigate (reduce) emissions as much as possible, then offset emissions which cannot be avoided.<br>For upstream or downstream impacts outside of Trans Mountain's jurisdiction or control, we will also describe how Trans Mountain is trying to influence the industry to help address issues upstream and downstream from the pipeline. Examples include: climate change; oil sands development; shipping practices; emergency spill response; and protecting the ecological integrity of BC and Alberta.<br>Transitioning to a clean energy future takes time, financial investment and a shared commitment between government, industry and Albertans. It requires us to think beyond traditional methods and attitudes and accept that changes are necessary if Alberta is to remain a reliable, global energy provider.<br>TMPL has a 60 year history of safe and responsible operations. Trans Mountain is designing a Project that will account for our impact on communities, our environment and our economy. A comprehensive assessment of our work will be available in the ESA when Trans Mountain files the facilities Application to the NEB.<br>The Conference Board of Canada states that over the next five years, more money ($6.1 billion) will be invested in climate friendly technology in Alberta than all the other Canadian provinces combined. More than $312 million has been collected for a clean energy technology fund, which will be invested to find better ways to cleanly develop resources.<br>Funds are administered through the Climate Change and Emissions Management Corporation and awarded to Projects within the province. The Alberta government is investing $25 million into Carbon Management Canada, a national, university-led research network.<br>Climate change and water use are an important issues which Canada's oil industry have addressed through many activities. A lot has changed in the last fifty years and there are some great resources on the CAPP website about<br>· http://www.capp.ca/environmentCommunity/Climate/Pages/default.aspx> climate; and<br>· http://www.capp.ca/environmentCommunity/water/Pages/default.aspx>water<br>· As well as on CEPA<br>· http://www.cepa.com/library/publications> website </a>. | Volume 2, Section 3.0 - Project Need and Economic Feasibility |
| If the trans Canada pipeline does go through, how will I as a consumer benefit from this? Will gas prices be reduced at the pumps for all Canadians?<br>Will the pricing of gas be filtered down at the pumps? | We cannot speak to the Trans Canada Pipeline but we can speak to our Project which is the expansion of the existing TMPL from Edmonton, AB to Burnaby, BC.<br>The TMEP will provide municipal and provincial taxes, as well as jobs, among other benefits. For detailed information about the ways in which the TMPL will benefit Canadians, please visit http://www.transmountain.com/benefits> transmountain.com/benefits</a>.<br>With respect to gasoline prices, these are affected by a large number of global factors. The prices of crude oil are neither controlled nor directly influenced by the development of any specific pipeline. There are some valuable resources online that explain the factors that influence gas prices, including the following two links:<br>· http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/l/gslnprcngnrgfct2010/gslnprcngnrgfct2010-eng.html> NEB web page</a><br>· http://www.capp.ca/library/faq/Pages/EnergySupplyFAQ.aspx#faqQuestionTwo> CAPP web page</a> | Volume 2, Section 3.0 - Project Need and Economic Feasibility<br>Volume 5B – Socio Economic |
| What has been TM's operational performance in terms of safety, spills, leakages, cleanup, and remediation over the past 60 years? A comparison of regulatory jurisdictions, as given in NEB reports on your website is not helpful in enabling the public to adequately assess the performance history of Trans Mountain in operating the existing 60-year old pipeline. | As a regulated company, we are responsible for reporting spills greater than 1.5 m3 to the NEB. Since the NEB started regulating pipelines in 1961 there have been approximately 78 reported incidents on the TMPL system. These reported incidents are broken down as follows:<br>· 61 incidents involving crude oil<br>· 7 involving gasoline, jet fuel, diesel and other types of oil<br>· 4 involving water<br>· 5 involving other products not listed above<br>· 1 did not involve any product<br>Approximately 70 per cent of these incidents occurred at terminals or pump stations and the remainder occurred along the pipeline right-of-way. For a detailed list of the release incidents, please see our<br>· http://www.transmountain.com/spill-history> Spill History page</a>.<br>Additionally, the following pages provide information on our most serious spills in the last decade; they discuss real spill details, remediation, and lessons learned:<br>· http://www.transmountain.com/ward-road-2005-spill> 2005 Ward Road incident</a> | Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| | · http://www.transmountain.com/westridge-2007-spill> 2007 Westridge incident</a><br>· http://www.transmountain.com/burnaby-tank-82-2009-spill> 2008 Burnaby Tank 82 incident</a><br>· http://www.transmountain.com/abbotsford-tank-121-2012-spill> 2012 Abbotsford Tank 121 incident</a><br>*NOTE: This is the response that was provided at the time of the request and does not reflect the updated information related to this issues at the time of this filing, and noted with other inquiries above in this document.* | |
| If a pipeline is going to run throughout our city, this doubtless means you have to disturb our surrounding ecosystems. Is there a plan to fix this issue? Canada has diverse species that bring in travellers from all over the world, pipelines will likely destroy that which is beloved by locals and tourists. Even small disturbances can lead to large interruptions in our environment. | Trans Mountain is fully committed to environmental management, protection and stewardship of the land during the construction and operation of all its facilities.<br>A comprehensive ESA will be completed for the TMEP. There will be over 30 environmental surveys completed by local and regional biologists and resource specialists.<br>The results of the surveys will be incorporated into an Application to be submitted to the NEB for review and approval. Species of special status and their habitats will be identified and assessed as part of this Project.<br>Through the development of thousands of kilometers of pipelines, there have been a number of mitigation strategies developed that can be employed to minimize impacts to wildlife and wildlife habitat. These can range from avoiding important wildlife periods through the timing of construction to conducting detailed surveys immediately prior to construction.<br>Pipeline construction is a sequential series of activities which do not remain in one area for an extended period of time. A detailed Environmental Protection Plan will be submitted to the NEB as part of the Application which will document every linear metre of the construction right-of-way and mitigation strategies to help avoid or minimize environmental impacts from construction.<br>Where practical, the route will remain within the existing TMPL right-of-way, which will minimize new disturbances to ecological communities. | Volume 6B, Section 8.0 – Pipeline-Specific Construction and Mitigation Measures |
| Can you please advise whether this proposed expansion will affect or have the possibility to affect the existing pipeline through the Westridge-Wolf Willow area located in west Edmonton at approximately 170th Street and 69th Avenue?<br>Thank you. | Thank you for your question.<br>At this time our plan is to file our Facilities Application with the NEB with a preferred route through the south TUC as opposed to using the existing TMPL right-of-way, which does pass through Westridge-Wolf Willow.<br>Extensive urban development has been built around the existing TMPL right-of-way since it was constructed in the 1950s. By following a utility corridor, land disturbance and impact to existing development will be minimized. The proposed pipeline would exit the Trans Mountain Edmonton Tank Facility and join the TUC on the east side of the City, then exit the TUC on the west side of the City near Whitemud Drive and rejoin the existing TMPL right-of-way.<br>We are working with the City of Edmonton and Alberta Infrastructure (AI), and the final routing would require approval from the NEB and AI.<br>A map of the preferred proposed study corridor and other details of the proposed Trans Mountain Expansion can be found at: http://talk.transmountain.com/edmonton<br>Thank you for your interest in the Project. | Volume 2, Section 4.0 - Pipeline Route and Facility Siting |
| What are you doing to engage the BC provincial government? Christy Clarke seems not to be a willing partner in these pipeline Projects unless she can hold the various stakeholders ransom for extra revenue. | Since announcing our intention to pursue the Project in April 2012, we've engaged with thousands of people through one on one meetings, 37 public information sessions and ongoing opportunities online and in-person. We are committed to engaging with governments, community leaders, land owners, Aboriginal groups - including the provincial government.<br>With a Project of this size and nature that touches 15 B.C. ridings along the pipeline route and 25 ridings along the marine corridor, we expect and welcome a high degree of public interest. It is important we provide timely and accurate information to all interested, including MLAs, relevant government ministers, opposition critics and public office holders along our pipeline and marine corridors.<br>The MLAs representing communities potentially affected by the Project have been sent information packages and have been invited to attend community open houses and workshops. | Volume 3C – Landowner Relations |
| What would the duration of construction be until pipeline through-put would commence, timeline please | Stakeholder engagement was kicked off in late spring/early summer of 2012, and will be ongoing through 2014. June 2012 through Spring 2014 will also see Trans Mountain undertaking comprehensive pipeline routing studies, traditional knowledge studies, and ESAs.<br>A comprehensive facilities Application will be filed with the NEB in late 2013. The NEB will conduct a regulatory review of this Application through 2015 and pending approval of the Project, pipeline construction is anticipated to begin in 2016 and to be completed in 2017. The proposed operations start date is for 2017.<br>For a visual of this timeline, please visit http://www.transmountain.com/timeline> transmountain.com/timeline</a>. | Volume 2, Section 2.0 - Project Description |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| Is there an open house planned for the Edson/Yellowhead County area? | We held a series of 37 Information Sessions to introduce the Project along the pipeline and marine corridors last fall and winter, including one in Edson in October 2012.<br>We have recently launched new public engagement opportunities. In this phase we are seeking feedback on the selected study corridor area for the pipeline and how it might affect communities. All pipeline communities have the opportunity to see the selected study corridors and provide feedback through this website, the Edson pages can be found http://talk.transmountain.com/edson> here<br>In some areas where the pipeline route has changed, we will be hosting public Open Houses. Open Houses will be held in Hinton on May 15 and in Edmonton on May 16. Stakeholders are encouraged to attend either session or participate by joining the conversation or providing input through this website.<br>Additionally, we plan on hosting another series of Information Sessions in the Fall of 2013, prior to filing an NEB Application, and we anticipate one would be in held in the Edson area. Upcoming events will be posted on http://www.transmountain.com> transmountain.com and advertised locally.<br>We encourage you to participate online today by http://talk.transmountain.com/register?return_to= per cent2F> registering and providing your feedback about the Edson area. | Volume 3C – Landowner Relations |
| Can I bid on your work through core and is net?<br>I really would like to do so and who can I contact for light load hotshots? | We are in the early stages of the proposed Trans Mountain Expansion Pipeline Project and are still a few years away from securing vendor opportunities. We appreciate hearing from you and will add your name to our list of interested suppliers. As more information becomes available, it will be posted on this website.<br>You can also sign up for updates about supplier or vendor opportunities http://www.transmountain.com/contact-us#newsletter> here</a>. | Volume 5B, Section 5.0 - Socio Economic Setting for the Pipeline |
| Will TransMtn use clac, non-union or unionized contractors for the construction of the mainline pipeline? | As the TMPL is still a few years away from construction, contractors have not yet been secured for the construction phase of the Project. Trans Mountain is consulting with Unions, Association, Communities and Contractors to develop a strategy that will encourage and benefit local employment. | Volume 5B, Section 5.0 - Socio Economic Setting for the Pipeline |
| Response to the question in January indicates the preferred Trans Mountain on route through Edmonton is not confirmed had not yet been released. When do you expect that to happen (assuming it has not already). Thank you. | Information on the proposed Trans Mountain expansion route in Edmonton and how the route decision-making process works will be available in mid May.<br>We will be providing materials for comment online between May 8 and May 29, 2013 and holding a public open house on May 16, 2013. If you would like us to notify you when this information becomes available, please register on the website http://talk.transmountain.com/register?return_to= per cent2F> here</a>. | Volume 2, Section 4.0 - Pipeline Route and Facility Siting |
| I worked in the oil industry from Alberta to the middle east for over 40 years, I never until 2 days ago heard the term dilbit as an abbreviation of 'diluted bitumen'. | Dilbit is used and defined by the CAPP.<br>Their publication entitled Alberta Oil Sands Bitumen Valuation Methodology (2013) defines dilbit blends as blends made from heavy crudes and/or bitumen and a diluents usually condensate, for the purpose of meeting pipeline viscosity and density specifications, where the density of the diluents included in the blend is less than 800 $kg/m^3$.<br>The term was coined in the 1980's when the process of diluting bitumen using diluents to facilitate transportation by pipeline was developed. | Volume 4A – Project Design and Execution - Engineering |
| Will there be an increase in capacity or any proposed upgrades and improvements to be performed to the Washington State branch supplying Refineries in Whatcom County? Have any proposed upgrades or increase in capacity been addressed with Washington communities and land owners? | Trans Mountain is exploring upgrades to the Puget Sound system to increase capacity from 170,000 bbl/d to 225,000 bbl/d to meet refinery demand. Facility improvements could include a new pump station and additional meters at our existing Anacortes and Ferndale facilities. These proposed plans are dependent on the proposed TMPL expansion project in Canada being approved. Information about proposed upgrades will be discussed with local communities and landowners as plans are developed. | Volume 4A – Project Design and Execution - Engineering |
| Where can I get a copy of current easement agreements? i.e. Responsibilities and restrictions on parties involved.<br>Thanks.<br>Abbotsford, B.C. | This inquiry was forward to the Land Team, and is addressed in Volume 3C. | Volume 3C – Landowner Consultation |
| Has an alternate route been determined to circumvent the proposed Ajax mine site in Kamloops? If so where would the route be and if not how will the pipeline remain safe should the mine receive approval? | We are aware of the proposed Ajax Mine Project and the proximity of the Project footprint to the existing pipeline. We have been in discussion with KGHMI to more fully understand the scope and extent of the mine development and mine site operations, and to ensure the continued integrity of the existing pipeline operation as well as the proposed TMEP.<br>As a primary routing objective, where practical the routing of the proposed expansion will remain within the existing TMPL right-of-way. Extensive consultation, studies, and ESAs will help determine the best routing options for the proposed expanded Trans Mountain Pipeline.<br>With respect to the Ajax mine location and potential impacts of the mine development, these considerations will apply to both the existing pipeline as well as the new proposed pipeline. | Volume 4A – Project Design and Execution - Engineering |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| Please, could you tell me, if there is a leak of oil from your pipeline (present and proposed future line), precisely how much money are you obligated to spend in repair of the line and cleaning up the oil spilled and returning the affected area to its original state? | Trans Mountain takes responsibility for the cleanup and remediation of spills by responding immediately to any release from the pipeline system, regardless of size or cause, and with the intent of returning the impacted area to its original state.<br>Trans Mountain may be entitled to recover from insurance funds or from third parties and their insurance funds if they are legally responsible for causing the spill. Trans Mountain has a comprehensive risk management policy and substantial spill liability insurance to manage the risk of spills. With the proposed expansion a review of spill liability insurance requirements is planned. | Volume 6B, Section 7.0 – General Pipeline Construction Mitigation Measures<br>Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |
| In addition to Jasper National Park, what other protected areas does the proposed pipeline expansion run through? What policy arrangements make it possible for the pipeline to go through these areas, and which policies for Jasper National Park needed to be amended for the expansion? | The TMPL was constructed in 1952-53 and traverses nine parks and protected areas in BC, one in Alberta and one National Park. With the exceptions of Jasper National Park and Mount Robson Provincial Park, the installation of the pipeline predated the establishment and designation of the parks under the BC Park Act and Alberta Provincial Parks Act. Trans Mountain has been operating and maintaining its pipeline in these parks and protected areas for over 60 years.<br>In 1951 a Government of Canada Order In Council was granted for Jasper National Park and in 1952 a BC Order In Council was granted for Mount Robson Provincial Park. These orders allowed for the construction and operation of the pipeline, and included a provision for future considerations of multiple pipeline rights in the right-of-way. The multiple pipeline rights allowed the environmental assessment to proceed and ultimately approval of the construction of the TMX Anchor Loop Project. As part of the approval to construct the TMX Anchor Loop, Trans Mountain relinquished its rights to construct through Jasper National Park in the future. Many other net benefits to the parks were developed as a result of the construction. Please visit: www.transmountain.com/anchor-loop for a discussion and story of the Alberta Emerald Award-winning Project.<br>A Boundary Amendment Application, BC Parks Impact Assessment and a legislative amendment was required to complete the construction of TMX Anchor Loop through Mount Robson Provincial Park. Lands were temporarily removed from the park to allow for construction and lands were then returned back to the park after construction to ensure no net loss in total park area. An operations BC Park Use Permit allows Trans Mountain to maintain and operate the pipelines. All applicable federal and provincial permit approvals are required to conduct routine operations and maintenance activities in the parks and protected areas.<br>Although the TMEP does not involve pipeline construction in either Jasper National Park or Mount Robson Provincial Park, the planned reactivation of a deactivated 24 inch diameter pipeline segment from Hinton, Alberta to Hargreaves, BC will require installation of automated mainline block valves. This was a commitment that Trans Mountain made to Parks Canada and BC Parks as a part of the TMX Anchor Loop Project approval.<br>Routing studies and environmental field programs are currently underway for the TMEP; consequently, specific parks crossed by the proposed pipeline have not yet been identified. In the event any provincial parks are crossed by the selected route, a Boundary Adjustment application will be prepared and submitted to BC Parks, and any other necessary regulatory approvals, permits and/or authorizations will be sought. | Volume 2, Section 4.0 - Pipeline Route and Facility Siting<br>Volume 4C, Section 2.4 – Environment Policy |
| How many staff monitored the pipeline right-of-way when it was operated by Trans Mountain and how many staff are performing the same tasks with Trans Mountain today? | Our control centre operators in Edmonton monitor the pipeline 24 hours per day, seven days a week, 365 days a year using a sophisticated leak detection system as well as pressure and flow alarms and are prepared to shut the pipeline down immediately if there is any indication of a potential problem on the pipeline. The number of operators monitoring the Trans Mountain system is increased from the number before Trans Mountain acquired the pipeline in 2005.<br>In 2007, two years after the acquisition of Trans Mountain by Trans Mountain, our field workforce was restructured to create a Pipeline Protection department with the sole purpose of monitoring construction activity near our pipeline and preventing damage to our pipeline by third parties working near the line. As part of this restructuring we added a full time dedicated manager and a full time ground patroller in the Lower Mainland, bringing the total complement of Pipeline Protection personnel to sixteen.<br>We also monitor the right-of-way with aerial patrols using a helicopter. We have restructured these patrols in the last few years to patrol the line more frequently in areas where there is a high level of construction activity and potential risk of line damage, such as in the Lower Mainland. | Volume 4C - Project Design and Execution – Operations and Maintenance |
| When you say the tankers are only partially loaded, what does that mean? Are they half full or 95 per cent full? Is it only the Aframax tankers that are partially loaded? Is it less economic to run these tankers below capacity? | Aframax tankers will be loaded to a maximum 80 to 90 per cent of their total capacity. The departure draft of any tanker loading at Westridge Terminal is controlled by the maximum allowed to transit the Second Narrows as regulated by PMV, and is dependent on the actual depth of high water levels on the day of departure. Destination port restrictions is the other limiting factor when it comes to loading tankers, as they may have lower limits than PMV. | Volume 8A - Marine Transportation |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| I sent in a request on the 13th of February regarding Trans Mountain possibly supporting the Seymour Salmonid Society. I have yet to hear any response. Can you please let me know where this is at? | Thank you for your interest and follow-up. Your request was received and is currently under review. We will get back to you shortly.<br>NOTE: Subsequent to this online response, TMEP has provided funding to the Seymour Salmonid Society for an education program. | Volume 3C - Landowner Relations |
| Traffic expansion in Vancouver Harbor seems very controversial. Are there any other contingencies under consideration should traffic expansion in Vancouver Harbor be denied? | While we have considered alternatives to the proposed expansion of the existing marine terminal at Westridge, we have not yet found any compelling enough to justify a deviation from what is an existing corridor for petroleum transportation.<br>The Trans Mountain pipeline and marine loading facility has been operating safely since 1953. Today about 5 tankers per month are loaded at Westridge which represents less than 3% of the total traffic in PMV.<br>If the expansion proceeds this could increase up to 34 tankers per month which would be about 14% of total traffic. While the project involves an increase in the frequency of tankers calling at Westridge, the size of the tankers is not proposed to change.<br>Rules for safe tanker operation in the harbour are established by PMV and these limit the maximum size of tankers that can call at Westridge to the Aframax class and these are only partially loaded. In addition, loaded tankers are required to have two licensed BC Coast pilots and to be tethered to large escort tugs when transiting through the harbour. | Volume 5B - ESA - Socio-Economic |
| My husband & I were at the meeting at the school in Hope BC last fall. I filled out a feedback form BUT I just found it today under some files that I haven't used in awhile. Now if I could do this online that would be good<br>Now I found everyone at the meeting who worked for Trans Mountain all very professional & if you asked a question they answered with a common sense answer.<br>They knew what they were talking about<br>The display with all the pipeline pictures were just great to see. A lot has happened to pipelines over the years<br>What I did not like was the protesters out front.<br>I talked with a girl who asked about returning this info because it is very important.<br><br>*Note: names deleted from question in accordance with Privacy Act.* | We really appreciate your interest and your persistence in providing your feedback. Although this phase of feedback has closed (to enable us to analyze, report back and plan our next phase), if you scan and email your paper form to us at info@transmountain.com we will ensure we review and consider it in our Project Application. Alternatively you could mail this form to us at: 2844 Bainbridge Avenue, PO Box 84028 Bainbridge, Burnaby, BC V5A 4T9.<br>Also, we will have a new phase of consultation and feedback beginning in late spring. To be notified when these new opportunities begin, please register on our site here: http://talk.transmountain.com/register?<br>We look forward to see you in Hope,<br>TMEP Team | Volume 3C – Landowner Relations |
| Powder River Land Services, LLC would appreciate the opportunity to be considered for contract right-of-way Acquisition work on this Project. THX!! | We are in the early stages of the proposed Trans Mountain Expansion Pipeline Project and are still a few years away from securing vendor opportunities. We appreciate hearing from you. You can email us at info@transmountain.com with your company name and contact details and we will add your name to our list of interested suppliers. You may also wish to sign up to receive Project updates and specify that you are interested in vendor or supplier opportunities. You can do this through the 'stay informed' form on the homepage of this website. | Volume 5B - ESA – Socio Economic |
| Through Coquitlam is the right of way being widened? Specifically at 1701 Lougheed Highway. This is our work yard so we need this information for our future expansion. Also, I tried to sign up for the releases and have got no reply via email. Last, but not least, when are the public consultations for parties with property (as we are) along the ROW. | We recognize that land use, particularly in the Lower Mainland, has changed since the original TMPL was installed 60 years ago. We are studying routing in the entire lower mainland area from Port Kells to Burnaby and are working to identify potential alternative route options that will reduce the impact on urban developed areas. We are looking at ways that we can make use of other existing transportation, transmission and utility rights-of-way corridors; however as our routing studies are still underway, we are not yet able to propose an alternate preferred route. We anticipate being able to discuss our preferred alternate route this spring, once our routing studies are further along. For now, we will note your questions and will commit to responding to them as soon as we can. In the interim, we suggest you plan around the existing line, and if we propose to follow the existing line in your area, we will take your plans into consideration and work with you as we develop our plans.<br>We have ensured you are signed up for our email updates using the email address XX. Note that we send emails to our list only a few times per quarter.<br><br>*Note email address removed in accordance with Privacy Act* | Volume 2, Section 5.0 - Land Relations, Rights and Acquisition |
| At the fall meeting in Kamloops, I was told that the pipe in my area was not going to be dug up and enlarged. Has that changed since this most recent announcement of expansion on the pipeline and its capacity, this week? I live north of the McLure Ferry on Westsyde Rd. I would please like a definite answer of yes or no. Thank-you | The area you are referring to is in a reactivation zone for which no new construction is planned at this time. Reactivation of the existing line may require some digs on a localized basis in order to examine the condition of the pipe and to repair anomalies as necessary. In these locations, our land agents will work with landowners to determine an appropriate strategy. | Volume 5B, Section 7.7 – Effects Assessment – Pipeline Reactivation Activities |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| Since bitumen is basically just oil despite the disinformation spread by (largely US foundation-funded) professional eco-agents, and Canada's oil sands contributes just 1/1000 (and Canada overall contributes only two percent) to global GHG emissions (and, in fact US coal-fired power plants contribute 28 times more GHGs to global emissions), and even Greenpeace co-founder Dr. Patrick Moore defends oil sands reclamation and resource necessity, why are so many people so misinformed that they march and protest etc.? | Climate change is an important issue for our country. There are many misconceptions about the efforts being made by Canada's oil industry to address the climate impact of its activities.<br>A lot has changed in the last fifty years and there are some great resources on the website: CAPP, http://www.capp.ca/environmentCommunity/Climate/Pages/default.aspx and CEPA, http://www.cepa.com/library/publications<br>We have also identified many misconceptions about dilbit and how it behaves. Dilbit has been moving through TMPL for close to 30 years. It is not handled differently than other heavy oils; however the industry is doing more to explore how dilbit behaves in the environment many past studies are posted to our website at: http://www.transmountain.com/diluted-bitumen-info. | Volume 4A - Project Design and Execution - Engineering |
| I know that routes are still being evaluated but would it not make sense to fast track the Edmonton work and possibly retire a portion of the existing line? Atco is moving this year to realign a lot of their stuff in the TUC where practical.<br>Also, is there a chance more product could move south via pipe before it hits the port or is the whole Project viable only if tanked out. | Trans Mountain is aware that land use has changed in areas of Edmonton surrounding the TMPL right-of-way since the completion of the original line in 1953.<br>Trans Mountain is not likely to use the existing TMPL right-of-way for the ProjectProject in Edmonton but cannot eliminate the possibility until an alternative route is confirmed. Alternative routing options are being assessed along the north and south portions of Edmonton's TUC and information regarding the preferred route through Edmonton will be made public in due course.<br>While the new line is likely to follow the TUC, Trans Mountain is not contemplating relocating the existing TMPL in Edmonton<br>To answer your second question, some products from the TMPL do currently flow south to Washington State through the Puget Sound Pipeline which connects the TMPL into Washington State, while some are delivered into Kamloops and the Vancouver area in BC, rather than being sent to the Westridge Terminal Facility for transportation by tanker. The expansion of the TMPL will provide extra capacity for all three of these markets.<br>Today the Puget Sound Pipeline, which supplies four refineries in Washington State, has some spare capacity and we expect that more Canadian crude will be used in Washington State over time but the potential growth of that market alone does not support the expansion of the TMPL which is being proposed. | Volume 2, Section 4.0 - Pipeline Route and Facility Siting<br>Volume 4A - Project Design and Execution - Engineering |
| Your person directed me to this site at meeting on salt spring today...I wanted to know who is the general partner and who are the limited partners in the Trans Mountain pipeline...also would like to know the twelve customers signed up and how much bitumen from each | The general partner of TMPL L.P. is TMPL ULC. The list of thirteen customers is contained in the Press Release that was issued on January 10, 2013 and can be found at: http://phx.corporate-ir.net/phoenix.zhtml?c=119776&p=irol-newsArticle&ID=1773410&highlight, or on the TM website at: http://www.transmountain.com/news-releases/trans-mountain-updates-customer-commitments-for-proposed-expansion-Project<br>Other specific information requested related to customer volumes of product is confidential. For more information please visit http://www.kindermorgan.com> kindermorgan.com and http://www.transmountain.com/about-us> | Volume 3C – Landowner Relations |
| Why does all your promotional info never include the word bitumen or 'dilbit' as one of the stuff you pump through your pipes instead using words like heavy oil or synthetic crude, bitumen being neither? | Dilbit is a type of heavy oil, a generic classification of crude oils with a density between 904 and 940 kilograms per cubic metre. While DilBit refers to bitumen which has been diluted with condensate, there are also other blends.<br>Bitumen on its own does not meet pipeline specifications for transport as defined in our Tariff and must be diluted with other petroleums to meet these specifications (*i.e.*, density and viscosity). Some other types of heavy oil are SynBit (Bitumen blended with Synthetic), or even DilSynBit (bitumen diluted with both condensate and synthetic oil). The term Heavy Oil is consistent with our tariff treatment of all these sub-types. | Volume 4A - Project Design and Execution - Engineering |
| How much diluted bitumen from the Alberta Tarsands will be shipped annually though this pipeline and shipped out of Burnaby in tankers??<br>What is the age of the oldest section of TM Pipeline and where is it? | We cannot provide a precise answer regarding the types of petroleum that ship on the pipeline as they will change from time to time.<br>Right now we expect that about 60 per cent or 540,000 bbl/d will be heavier oil. The remainder is light oil and refined products.<br>Most of the heavier oils are destined for the Westridge Terminal (for tanker loading) but we are seeing a trend in the coming years for more light oil including upgraded synthetic crude processed in Alberta being exported. Dilbit has been shipped in the Trans Mountain system for over 30 years.<br>The oldest sections of pipe in the Trans Mountain system date from the original construction in 1953. These sections exist all along the route between Edmonton and Burnaby. Over the years, during routine maintenance activities, small sections of the original pipe have been replaced to ensure that the entire pipeline remains in excellent condition. | Volume 4A - Project Design and Execution - Engineering |
| Is this pipeline a bitumen line or what product will be pumped through the line? As a concerned Canadian we as a people need to look into secondary refinery instead of just pumping raw resources to other countries. | The existing TMPL is unique in the world in that it can transport both crude oils and refined products in a single pipe. The expertise to do that was developed here by Trans Mountain more than 25 years ago. This innovation has played an important part in serving the needs of all residents of BC.<br>Today the pipeline is full and has been for years and to meet the needs of our customers we're proposing to expand it. The expansion will increase the available capacity and separate the refined products already shipped from the heavy crude oils providing more capacity for all petroleum types including refined products and value added synthetic crudes which are processed from the oil sands in Alberta. | Volume 4A - Project Design and Execution - Engineering |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| | While it is true that we expect the majority of the new capacity to be used by heavy crudes, the Trans Mountain expansion will also provide an important outlet for more value added materials in BC and Alberta creating benefits for all Canadians. | |
| Is this a union pipeline!! And I'd so how do I go about getting my rig on this proposed job? Or is this gonna be a typical union pipeline family job? | We are in the early stages of the proposed Trans Mountain Expansion Pipeline Project and are still a few years away from securing vendor opportunities. We appreciate hearing from you.<br>You can email us at mailto:info@transmountain.com>info@transmountain.comwith your company name and contact details and we will add your name to our list of interested suppliers.<br>You may also wish to sign up to receive Project updates and specify that you are interested in vendor or supplier opportunities. You can do this through the 'stay informed' form on the homepage of this website. | Volume 5B - ESA - Socio - Economic |
| AS we live within 2 kilometres of the Kamloops Pumping Station we are wondering if this will increase the size of the pumping station. We have lived that close for the past 35 years and have no complaints, just the odd time when they are blowing off and we have received warnings of such action<br>Thank you | The scope of the Project includes a second pump station at Kamloops Terminal within the existing property. The size and number of pump units has yet to be determined. There are no plans to increase the number of tanks at the Terminal. The blowing-off you refer to is likely related to pipeline maintenance activities and these activities are not associated with the addition of a second pump station. | Volume 5B - ESA - Socio - Economic<br>Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |
| if your company is in business to make a profit then any money that is saved on an improper of incomplete clean up more profit for your shareholders our current government is in the process of removing environmental protection of lakes rivers and streams and the ocean which will no doubt make your company more profit in the long term what makes you think that I will believe your company will put our beautiful BC and its people before your company's profits. | Working openly and co-operatively with all levels of government, Aboriginal groups, and stakeholders, Trans Mountain is committed to minimizing impacts to the local environment, health, and community.<br>Trans Mountain is committed to best practices in reclamation and mitigation, always striving for opportunities leading to advancement. As with all of its construction Projects, Trans Mountain will reclaim and mitigate any areas that are affected by the proposed pipeline expansion Project.<br>Trans Mountain is committed to full reclamation and mitigation measures of the pipeline right-of-way and surrounding areas following construction. This could include developing new habitats, improving water crossings or bettering migration corridors. For more information on Environmental Responsibility please go to this http://www.transmountain.com/environmental-responsibility> link</a>.<br>Additionally, Trans Mountain is committed to working with Aboriginal groups, residents, regulatory authorities and other stakeholders on environmental initiatives, as described on the website http://www.transmountain.com/corp-environmental-initiatives%3ehere%3c/a%3e | Volume 3C – Landowner Relations<br>Volume 6B – Pipeline Environmental Protection Plan |
| I live in a mobile home park (Silverridge - XX Flood Hope Road, Hope, B.C.). I have lived here for 12 years and until a crew showed up this Spring and started taking out the trees that boarded my fence line was I made aware, by the crew leader that the land behind me was a pipe line route and was not land belonging to the Park Owner. After discussion with the Trans Mountain employee we were informed that, in due time, there would be another pipeline layed. The employee was very disturbed that the owner of the Park had not met with his tenants and informed us what was happening, that in fact Trans Mountain had spoken with the lawyer for the park owner and he, the owner, chose not to speak to us previous to the your crew arriving and doing the work to prepare for the pending expansion of the pipeline. I did attend the public meeting in Hope and your staff were very helpful and respectful to me, a XX year old that had planned to market my home this spring and go into an Assisted Living Home). In explaining the proposal to twin the line (we did not know there was one there already). I am in agreement with the twining and the revenue that will accrue to our Province and our Country. I am fearful that my mobile will not sell with a pipeline running with a few feet at the back of my mobile home, I cannot afford to just walk away and having any discussions with the present owner is not possible, he does not speak to his tenants. It is not anywhere in our rental agreement about a pipeline right-of-way at the back of our homes. Any suggestions? Stress about the possibility of just walking away without being able to sell is not something I thought I would have to deal with at this late stage in my life. Thank you for reading this and any suggestions you may have to my (our) situation would be greatly appreciated.<br>Again I say, your staff were very kind and considerate this Spring when they began the clearing for the new line and did say they had spoken to the Park owner through his son and his lawyer and that is where it ended, no Park meeting with the mobile home owners to discuss what was going to happen.<br><br>*Note: personal information has been deleted in accordance with the Privacy Act* | Thank you for your question. We are sorry that our pipeline expansion plans are causing you concern and appreciate the concerns you have about your property and its value. Our representatives at the meeting likely told you that we are still in the process of determining a preferred route for the new pipeline in Hope, generally and in your area, particularly. Until that work is complete early next year, we will not be able to tell you where the new line is proposed. However, in the meantime, we would like to arrange to have one of our land agents visit with you to discuss your concerns. We will relay your message on to our agent and have him contact you within the next few days. | Volume 2, Section 5.0 – Land Relations, Rights and Acquisition |
| It is good to hear you say you are looking at ways to mitigate the noise problem of visiting vessels because at least the company acknowledges there is a problem that needs to be dealt with. Since you seem to suggest that the land based power solution is politically driven and entirely out of your hands, what other solutions are you specifically looking into that would address the problem sufficiently? | We are researching design and procedural means to address the communities' needs. We expect to share more in the spring and early summer of 2013 prior to our facilities Application. | Volume 3C – Landowner Relations |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| Are your company willing to deposit $ 50,000,000,000. Dollars (Fifty Billion Canadian Dollars) with the Province of BC, as a surety, in case there is oil spill in B.C. from your proposed pipeline across BC? | Trans Mountain will cover all costs associated with cleaning up spills originating from its pipelines and facilities. We are aware that the BC Provincial Government has initiated a review of the current status of terrestrial spill response with the stated intent of re-enforcing the polluter-pay principle including a review of the funding mechanisms in place. | Volume 7 - Risk Assessment and Management of Pipeline and Facility Spills |
| How much of the product currently moving through the pipeline is used by Canadians? How much is exported and to where?<br>How many BC jobs will be involved in the twinning process? How many BC jobs are currently involved in this pipeline (i.e. operations, maintenance, monitoring, safety, upkeep, etc.)? Will there be more jobs for BC workers after the twinning is finished? How many?<br>Do all residents with property affected by the twinning currently have knowledge of this? How much protection is there for each of them should they be opposed to the Project?<br>· Are there alternative measures that could replace this twinning Project proposal? What are they?<br>Do Trans Mountain and Trans Mountain have social responsibility principles and policies within their corporate mission statements? How would I access these? | In order to ensure we answer each of your questions, we have broken up your question into its 12 parts:<br>Questions 1 & 2) How much of the product currently moving through the pipeline is used by Canadians? How much is exported and to where?<br>· All of the crude oil and refined products shipped on Trans Mountain comes from either Alberta or North-east BC. The use of the pipeline can change from time-to-time based on the needs of our customers. In 2010 for example about 30 per cent of the volumes we transported were delivered directly to locations in BC, 30 per cent for offshore export on tankers and 40 per cent by a connecting pipeline into Washington State. It's not possible for us to quantify exactly how much is used by Canadians but we believe some crude processed in Washington State is processed into refined products and either trucked or barged back into Vancouver for use here, so it would likely be a bit more than 30 per cent. The destination of the 30 per cent that is exported on tankers is controlled by the shippers and thus we don't have exact statistics, however we believe approximately 80 per cent is destined for California, 10 per cent is to China and the other 10 per cent fluctuates.<br>Question 3) How many BC jobs will be involved in the twinning process?<br>· All job estimates are based on preliminary information and generated through the Statistics Canada Input/Output model.<br>· The proposed expansion is anticipated to create approximately 21,400 person-years of employment for Project development through to construction between 2012 and 2017. An incremental 5,800 person-years of employment will result from pipeline operations over the period 2018 to 2048 (Statistics Canada model estimates over a 30 year life span). The combined employment through construction and operations represents an equivalent of more than 750 full-time jobs every year during the time span 2012 to 2048.<br>Question 4) How many BC jobs are currently involved in this pipeline (*i.e.* operations, maintenance, monitoring, safety, upkeep, etc.)?<br>· There are currently 119 Trans Mountain full-time employees in BC. Sixty-seven of those people work on the operation and maintenance of the Trans Mountain system. In addition to these full-time regular positions are temporary employees, summer students and contractors that fluctuate.<br>Question 5 & 6) Will there be more jobs for BC workers after the twinning is finished? How many?<br>· The proposed expansion is anticipated to create 35 new full-time, permanent positions in BC. | Volume 4A – Project Design and Execution – Engineering<br>Volume 2, Section 4.0 - Pipeline Route and Facility Siting<br>Volume 6A – Environmental Protection |
| | Question 7) Do all residents with property affected by the twinning currently have knowledge of this?<br>· We are currently in the process of determining a preferred route for the new pipeline through route studies and discussions with landowners. Until that work is complete early 2013, we will not be able to tell where the new line is proposed. In the meantime, we are in the process of contacting all landowners who have land along the existing pipeline to provide information on the new proposed expansion, discuss any questions or concerns they may have and obtain survey permission to enable us to complete the routing, engineering and environmental studies we need for our NEB Application. In areas where urban development, engineering or environmental issues exist, we are examining<br>· Whether alternate routes might be available to us for the new pipeline. Over the next 6 months, we will be contacting any additional landowners who may be affected by these alternative routes to explain the Project, answer questions and determine their views on the alternative routes.<br>Questions 8) How much protection is there for each of them should they be opposed to the Project?<br>· Landowners have specific legal rights related to pipelines and new proposed pipelines. The NEB has produced a very comprehensive guide for landowners and the public that includes details about the regulatory process governing pipeline Projects. This information is available at www.neb-one.gc.ca. We would encourage you to read this guide to get a full understanding of landowner rights and the regulatory process for Projects such as the TMEP.<br>· Over and above legal rights landowners have, Trans Mountain greatly values and works to protect the good relationships developed with landowners over the past 60 years since the pipeline was first put | Volume 3C – Landowner Relations |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| | · Into service. A key objective for Trans Mountain continues to be to treat each landowner fairly and equitably. For those who may be directly affected by the proposed expansion Project, Trans Mountain will identify and work to address landowners' concerns and questions about the Project. Our goal will be to reach amicable agreements with each landowner.<br>· In cases where Trans Mountain is unable to reach a mutually agreeable settlement with a landowner, the NEB will provide a multi-step process to address differences of opinions as part of the routing review and approval process. | |
| | Question 9 & 10) Are there alternative measures that could replace this twinning Project proposal? What are they?<br>· Pipelines are the safest and most efficient means of transporting petroleum products over land. Tanker trucks and tanker railcars are used in some instances as alternatives to pipelines; however these modes are not practical for the volume of product that Trans Mountain moves.<br>· The volume of oil that moves through the existing TMPL each day is equivalent to 441 tanker railcars or 1,400 tanker trucks – this translates to one tanker truck leaving Edmonton for Burnaby every minute each day.<br>Question 11 & 12) Do Trans Mountain have social responsibility principles and policies within their corporate mission statements? How would I access these?<br>· We demonstrate our commitment to social responsibility by demonstrating excellence in the areas of environment, health and safety. As of 2011, Trans Mountain's employees have worked 2 million hours without a lost time incident. Additionally, Trans Mountain Canada is actively involved in a number of Projects aiming to enhance the wildlife habitat within our operating areas. Several of these initiatives have received international recognition from the Wildlife Habitat Council, and non-profit organization dedicated to the preservation and conservation of wildlife habitat. Additional information on Trans Mountain's commitment to environmental health and safety can be found at this http://www.kindermorgan.com/ehs/kmc_ehs.cfm | Volume 2, Section 3.0 – Project Need and Economic Feasibility |
| The report mentions earthquakes and soil stability, but I could not find Tsunami information. Is it in the report? | Our engineering and environmental teams are in the midst of a number of studies that will inform the placement and design of the pipeline so as to mitigate risks posed by earthquakes and unstable ground.<br>A risk assessment is underway to determine all aspects of the Project, which includes an assessment of the risk of a Tsunami.<br>It is worth noting that according to studies by the BC Government, the tsunami hazard is rated as 'very low' for the area (Clague and Orwin, 2005; BC Ministry of Public Safety and Solicitor General, 2005).<br>Citation: Clague, J.J. and Orwin, J., 2005. Tsunami Hazard to North and West Vancouver, BC. North Shore Emergency Planning Office. | Volume 4B, Section 5.0 - Health and Safety, Security and Emergency Management |
| Why is this Q&A page so blank, and why did Trans Mountain representatives leave the peaceful demonstration in Victoria last night? If you want to know what people think, stay to hear what they have to say. | This page was created to answer questions posed by the public. All questions that have been asked are being answered.<br>Trans Mountain representatives stayed throughout the peaceful protests in Victoria on Dec 5th. When the demonstrations became disruptive, including vandalism and refusing other members of the public the opportunity to review materials, Trans Mountain made the decision to close down the public information session with the safety of everyone as the first priority. Before these actions took place, we had heard from over 180 people at this session that peacefully and respectfully expressed their opinions and asked their questions. | N/A |
| as the negative environmental impacts of other oil spills around the globe are still being felt and while the companies that are reasonable for these spills still make huge profits the oil they spilled will never be completely removed from the environment and there will be a negative impact on the people in the areas affected for all of time does Trans Mountain really know the true long term cost of increased tanker traffic on the BC coast my vote says there would be none at all I'm sure the same clean up tactics would be used as Exxon Valdez, BP gulf, Enbridge Kalamazoo, etc why would I think your company would do otherwise ? | Trans Mountain has been operating responsibly for 60 years on the BC coast and we stand on our record. We take spill response seriously - you can learn more about our spill response plans and procedures at: http://www.transmountain.com/marine-spills .<br>We are also conducting studies to learn about the impacts of the increased tanker traffic that would result from the Project. You can read about the details of the marine studies at http://www.transmountain.com/esa-fact-sheets . | Volume 7 – Risk Assessment and Management of Pipeline and Facility Spills |
| What precautions have you taken to anticipate the effects of earthquakes along the route? | Through its experience with managing pipelines in the varied terrain of North America, Trans Mountain is very aware of the effect of the geologic environment on its pipeline infrastructure. Our Geohazard Management Program is one of the key tools for managing the risks associated with natural hazards to pipeline infrastructure.<br>We are committed to reducing the earthquake risks to the existing TMPL and we proactively assess earthquake hazards with consideration of advancements in understanding how pipelines perform during seismic events.<br>Where the pipeline or facilities are determined to be at risk of failure from an earthquake, pipeline infrastructure improvement Projects are completed to reduce the risk.<br>Examples of Projects completed to manage earthquake risk are: the replacement of the pipeline crossing of the Fraser River by directional drilling to install the pipeline below susceptible soils, and the reinforcement of the earthen dykes at Burnaby Terminal. | Volume 7, Section 3.0 – Oil Spill Risk Assessment |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| | We have also prepared an Earthquake Action Protocol to rapidly prioritize locations for pipeline inspection following an earthquake. This Protocol includes shutting down and isolating the pipeline in the event of a earthquake.<br>More details about our seismic safety measures and plans to ensure the proposed pipeline anticipates and mitigates effects of an earthquake can be found http://www.transmountain.com/seismic-safety-measures . | |
| At the increased pipeline capacity of 750000 bbl per day. How many years before a further increase in capacity are required? | The capacity and scope of the Project is determined by the level of the commercial support received. Subsequent to the original question, we announced on January 10th an increased capacity to 890,000 bbl/d based on additional 15 and 20 year firm commitments from our customers. Any consideration of future expansion would have to stand on its own merits and be subject to the same processes as the current expansion. | Volume 4A Project Design and Execution - Engineering |
| I read you propose to build 3 berths for tankers. The 24 hour noise of generators on waiting tankers is hugely annoying and diminishes the living and sleeping pleasure of people living around the bay in Belcarra, Burnaby and Deep Cove in no uncertain terms. (I am sure you are familiar with the impact of noise traveling over water.) Is it possible to have all tankers moor at your proposed berths and have them hook up to a land based power supply on those berths? That way they don't have to use their noisy generators and that would give us the enormous pleasure back of not having to be disturbed 24 hours a day by generator noise of waiting tankers. | As part of our facility development plans we are looking into ways to mitigate the impact of ambient noise from vessels calling at Westridge Terminal. This includes the feasibility of providing shore power. However, the majority of the international tanker fleet is not equipped to receive an external power source and operate fully.<br>That said, if future regulations or developments make more shore-power equipped tankers available to us, we would be prepared to accommodate their needs.<br>We will share more information with the community prior to finalizing our facility design options, which should be available in early summer of 2013. | Volume 8A – Marine Transportation |
| BC needs a good garbage dump. Maybe Alberta could offer a dump site for BC's garbage in exchange for cutting the province of BC in two with a pipeline. | Thank you for providing feedback through the Trans Mountain website Q&A function. As your feedback was a comment, rather than a question, we recommend that you post it on the discussion forum which can be accessed here: http://talk.transmountain.com/topic/what-local-benefits-would-be-most-valuable-to-you . | n/a |
| Could you please advise where are the planned routes for the twinned pipeline are being currently located through the City of Edmonton in more detail than on the below provided high level map? I am living in Aldergrove community in West Edmonton. Do you plan on using the same Kindermorgan pipeline's corridor that is currently going via our community in between our homes back yards? | Trans Mountain is aware that land use has changed in areas of Edmonton surrounding the TMPL right-of-way since the completion of the original line in 1953.<br>Trans Mountain is not likely to use the existing TMPL right-of-way through Edmonton for the proposed expansion Project but cannot eliminate the possibility until an alternative route is identified.<br>Alternative routing options are being assessed along the north and south portions of Edmonton's TUC, which runs along Anthony Henday Drive, and once the preliminary routing assessments in Edmonton are complete we will be communicating the route options publicly. The Edmonton TUC was established by the Government of Alberta in the 1970s to accommodate a ring road, transmission lines, pipelines, and municipal utility lines.<br>Extensive environmental and technical field studies will help inform the route selection. The route will need to deviate from the TUC in order to link back up with the Trans Mountain right-of-way. In these areas, routing will also involve a comprehensive consultation process with communities, neighbours, and landowners. | Volume 2, Section 4.0 – Pipeline Route and Facility Siting |
| I need five more sets of your TMEP Feedback Form for my neighbours to fill out. Can I pick them up at 2844 Bainbridge Avenue, Burnaby, BC? | We would be happy to mail you additional forms, or your neighbours can fill them out online here: http://talk.transmountain.com/transmountain?module=form#tool<br>If you would like paper forms sent to you, please send your mailing address to info@transmountain.com along with your request.<br>Thank you for your interest. | n/a |
| If there are spills, and there will be judging by the recent events, who will pay for the cleanup and how quickly will the response be? | As part of an ongoing commitment to safety and environmental protection, Trans Mountain takes responsibility for the cleanup and remediation of spills by responding immediately to any release from the pipeline system.<br>With respect to financial responsibility, Trans Mountain covers these costs and then recovers them from insurance or third parties if applicable. Trans Mountain works closely with local police and fire departments, government agencies, regulators and Aboriginal communities in developing and maintaining comprehensive plans to ensure preparedness for any type of potential emergency - land-based or marine-based.<br>Aerial and ground patrols, calls from the public to Trans Mountain's toll-free emergency number (1-888-876-6711), and 24/7 SCADA monitoring and leak detection systems combine to ensure we are quickly notified and respond to any potential emergencies.<br>ERPs are constantly being updated to keep them current. The plans are location specific, identify locations of emergency response materials and equipment, and are regularly practiced through field deployment exercises. | Volume 7 – Risk Assessment and Management of Pipeline and Facility Spills |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| I live in the Silver Ridge Estates, we have a pipeline Right of Way behind us and my neighbour went to the meeting yesterday and was told that this r.o.w is owned by the pipeline. If this is so why is our landlord allowed to park RVS on this property and get paid rent from the owners of the RVs, been doing it for years, is this legal?<br><br>*Note: personal information has been removed in accordance with the Privacy Act.* | Thank you for your inquiry. I would like to clarify the rights Trans Mountain has in Silver Ridge Estates. Your neighbour was correct in that Trans Mountain has an easement through the Estates. This easement, however, does not mean we own the land – the easement only gave Trans Mountain the right to build and maintain the pipeline within the 60 foot wide easement registered on title. While we can and do restrict activities which would involve digging to protect the pipeline and the safety of the public, we do not generally restrict activities that occur above ground unless they affect our ability to monitor the pipeline and do maintenance as required. Temporary activities like parking an RV on the easement would not be restricted because the RV could be moved if required. | Volume 2, Section 5.0 – Land Relations, Rights and Acquisitions |
| As a landowner affected by the pipeline route (since 1979) I feel that the proposed expansion has already (and in the future) negatively affected both resale price and demand for properties affected by the right-a-way. What will be done to compensate those property owners for current and future losses if the Project goes ahead? | TMEP has been investigating potential impacts upon properties for sale – both with easements and without easements.<br><br>To date, our investigation has not shown a measurable effect, however we will continue to monitor this situation. We appreciate that most homes with the existing pipeline were built after the pipeline was in-place and the easement would have been disclosed to the buyer at that time.<br><br>Looking ahead to the proposed new pipeline, under the NEB Act, companies are required to compensate landowners for any new easement and pay for any damages and inconvenience associated with the new pipeline. Included within the determination of compensation is any change in the value of the property before and after the pipeline was built. | Volume 2, Section 5.0 – Land Relations, Rights and Acquisitions |
| Do you plan to list on the TSX? | The pipeline is indirectly 100 per cent owned by Kinder Morgan Energy Partners (KMP). KMP is traded on NYSE.<br><br>At this time, there is no plan to list KMP or Trans Mountain on the TSX. | n/a |
| Can you put more stress on the economic benefits to BC? The same people against the expansion want more money for education and health care and they keep campaigning against revenue sources that will actually help. | To date, we have completed the Statistics Canada analysis of the economic benefits for the Project, which are available on our website here: http://www.transmountain.com/benefits. Construction and operation of the TMX pipeline will bring more than $8 billion in total additional GDP to the Canadian economy over the next 25 years; $4.4 billion of that amount will go to BC. Of all regions in BC, Thompson/Okanagan will see the most direct GDP benefit from TMX construction and operation – with $980 million over the next 25 years. Employment in Canada (direct, indirect and induced) is expected to ramp up to 35,000 jobs at the peak of construction and settle down to 2,500 jobs during the operation phase.<br><br>Moving forward, we are working on further definition of the regional and municipal economic benefits that will result from the Project. We will be posting these details on our website when available in the new year, and will post a public response to your question at that time as well. | Volume 2, Section 2.0 – Project Need and Economic Feasibility |
| The current pipeline is one protected salmon stream away from a habitat for humanity site here in Burnaby. A detailed map of the proposed rout as it relates to Burnaby would put a great amount of speculation and worry to rest. Can you provide that? | Maps of the proposed route for the TMEP are not yet available, since the proposed route is still in development.<br><br>Our plan, though, is to parallel the existing pipeline to the extent practical (click on this link to see detailed community maps of the http://www.transmountain.com/existing-community-level-maps<br><br>For those areas, such as Burnaby, where urban development or environmental and engineering constraints make paralleling the existing pipeline impractical, we will be exploring alternative routes for the new pipeline and sharing them with the public once the preliminary routing assessments are completed.<br><br>Our primary focus in developing these new options will be safety above all else — safety for landowners, the environment and communities. We will work with communities, landowners, Aboriginal groups and stakeholders as we complete extensive engineering and environmental studies to identify and evaluate route options for the proposed TMEP. The results of these studies and discussions will form a part of our NEB Application.<br><br>Key factors we will consider in selecting and evaluating alternate routes include:<br><br>1) Human - Land use: residences, commercial, recreation, parks<br><br>2) Environment - Environmentally sensitive areas; Water crossings; Wetlands and wildlife; Rare and endangered species<br><br>3) Engineering - Public and worker safety; Technical constraints / possible construction techniques; Geotechnical conditions; Pipeline length; Number and difficulty of crossings (highways, roads, other line crossings) | Volume 2, Section 4.0 – Pipeline Route and Facility Siting |
| Does Trans Mountain have enough liability insurance to totally cover the cost of an oil spill from it's Trans Mountain pipeline? | Trans Mountain carries insurance necessary to respond to spills or releases from our pipelines and facilities. Trans Mountain monitors this program continuously, and makes annual adjustments as necessary. | Volume 7 – Risk Assessment and Management of Pipeline and Facility Spills |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| Should there be a spill either on land or in harbour, who will be responsible for the total cost of cleaning up and returning any affected area to its' original condition? | Liability for an oil spill depends on the source of the spill. Trans Mountain would cover the costs of a spill clean-up and restoration and then recover them from insurance or third parties if applicable.<br>If oil were released from the Trans Mountain Pipeline, final responsibility for cleanup costs would depend on whether the spill was the fault of Trans Mountain or a third party.<br>If oil were to be released from a ship, the ship owner would be the responsible party and would pay all clean-up costs. They would rely on WCMRC and other Canadian contractors who have the equipment, manpower and expertise necessary to return the affected area to its original condition.<br>There are a variety of industry-funded sources available to cover the costs of cleaning up such a spill. To learn about these, visit IOPC Funds at: http://www.iopcfunds.org/ and SSOP Fund at http://www.ssopfund.gc.ca/english/index.asp . | Volume 7 – Risk Assessment and Management of Pipeline and Facility Spills |
| Why don't we save it for our future? | The Canadian Centre for Energy states that by most measures, Canada consistently ranks among the top 10 energy producers in the world, and that Canada's energy production is always higher than its consumption.<br>Canada is a net energy exporter, and with our energy exports accounting for 22.4 per cent ($90.7 billion in revenue) of all Canadian exports in 2010, they drive a substantial part of the overall Canadian economy. As of December 2010, energy was the fourth largest contributor to Canada's GDP, representing 6.34 per cent.<br>Trans Mountain understands that with current production that exceeds our domestic needs and some of the largest energy reserves in the world, Canada is uniquely positioned to benefit from our abundant energy resources. Canada can best support its economy now and in the long term by supplying energy to our trading partners, while maintaining an energy supply for our future Canadians. | Volume 2, Section 4.0 – Pipeline Route and Facility Siting |
| Is it going to make Gas cheaper for average Canadians and by how much? | Gasoline prices are affected by a large number of global factors. The prices of crude oil are neither controlled nor directly influenced by the development of any specific pipeline.<br>There are some valuable resources online that explain the factors that influence gas prices, including the following links:<br>· NEB web page<br>· http://www.neb-one.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/l/gslnprcngnrgfct2010/gslnprcngnrgfct2010-eng.html<br>· CAPP web page http://www.capp.ca/library/faq/Pages/EnergySupplyFAQ.aspx#faqQuestionTwo | n/a |
| I keep hearing it is your customers who want the expansion.<br>Who and where are these customers located? | A full list of the customers that have contracted to ship on the proposed expansion can be found on our website http://www.transmountain.com/commercial-support>here<br>Each customer name is linked to their website where you can find out more about their company. In addition the pipeline directly serves other customers including Chevron in Band Shell and Phillips 66 in Washington State. | Volume 2, Section 2.0 – Project Description |
| Would the new pipeline follow the existing one through the Coquihalla canyon? If so, what will you do to minimize disruption to the Trans Canada Trail (former CPR railbed) that is adjacent to the pipeline? Are there plans to improve recreational access to the area? | The new pipeline may pass through the Coquihalla canyon, however exact routing options through the area are still being examined and alternate routes are being considered.<br>Overall, Project-related impacts on recreation use are being addressed in the ESA. This will include development of mitigation plans to reduce impacts and optimize opportunities to enhance recreational use.<br>Proposed mitigation/enhancement measures will be part of the final ESA, which is anticipated to be complete in late 2013, and then will be carried forward into the planning and design of the Project. | Volume 2, Section 4.0 – Pipeline Route and Facility Siting |
| Would you please consider including pounds per square inch [psi] pressure ratings because 3000 kilopascals means nothing to me except big pressure. | To convert kilopascals (kPa) to pounds per square inch (psi), the kPa value is multiplied by 0.145. Therefore, the normal operating pressure in the existing TMPL at the Fraser River crossing just south of Coquitlam, BC, ranges from around 290 psi to about 435 psi. | Volume 4A – Project Design and Execution - Engineering |
| Please include the PSI in the form of lbs per square inch as well, as a lot of the older people reading these have no understanding of the metric system whether it is kilo pascals or bars. Thanks, it's a lot of the older people you are talking to that will be interested in these questions. How many other compressor stations and scraper traps are going to be added to the existing ones now in use? | First part of your comment: to convert kilopascals (kPa) to pounds per square inch (psi), the kPa value is multiplied by 0.145. Therefore, the normal operating pressure in the existing TMPL at the Fraser River crossing just south of Coquitlam ranges from around 290 psi to about 435 psi.<br>Second part of your question: Centrifugal pumps are used to move liquid petroleum products through the Trans Mountain system so the term pump station is used. Compressor stations are used on natural gas pipelines. Two new pump station facilities will be added at Obed, AB, and Black Pines, BC, as is shown on the proposed route map on the website. (http://www.transmountain.com/route)<br>In addition to that, new pumps will be added at a number of existing pump stations as per the route map.<br>A scraper trap is an assembly used to send/receive scraper (or cleaning) pigs and in-line inspection tools for maintenance operations. Five new scraper trap facilities will be installed. At Rearguard, BC, new scraper trap facilities will be installed for both | Volume 4A – Project Design and Execution - Engineering |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| | the Existing and New Line, and at Edmonton, AB, and Kamloops and Burnaby, BC, for the New Line. Scraper traps at Darfield, BC, will be deactivated, disconnected and moved to Black Pines, BC, on the Existing Line. | |
| What is the operational pressure in the pipeline where it crosses the Fraser River and then goes uphill into Coquitlam? | Normal operating pressure in the existing TMPL at the Fraser River crossing just south of Coquitlam is 2,000 to 3,000 kPa. The pressure changes with product type (refined products, light crude, heavy crude) and destination (Burnaby, Suncor Refined Products Terminal).<br>At this time, while the pressure of the existing line may be considered representative of the possible pressure for the proposed Trans Mountain expansion, the final range of pressure for the proposed pipeline is as of yet unknown. | Volume 4A – Project Design and Execution - Engineering |
| We live just above the Westridge terminal and are concerned about the design of the dock system, and the location of the ships not only at the dock, but where will they will sit in the inlet, waiting to be loaded, and or for tides. We understand that the docked boats will be visible from our location, how can we review this. Also we are concerned with construction and loading noise levels. | As our neighbours, your input is important to us, and our intention at this stage is to gather your feedback and input to incorporate into our facility Application and Project plans. We understand that noise and aesthetics are of concern and will take these into account when planning the modifications of our Westridge Marine Terminal.<br>Once preliminary site layouts have been prepared our neighbours will have the opportunity to view the design and offer further input. We will provide street level artistic renderings as a tool to provide neighbours with an idea of what they may see with the proposed facility modifications. We expect this information to be available approximately summer 2013.<br>Regarding ship traffic, we are assessing the logistics of the increased traffic and will work with the Port of Metro Vancouver (PMV) to create a traffic management plan. This will allow the regulation of ships distributed between our berths, available anchorages within PMV, and if required, held in International waters. This is information that we are developing and will share with the community when available. | Volume 5A - ESA - Biophysical<br>Volume 5B - ESA - Socio-Economic |
| How will Trans Mountain use the input from all the community engagements, in the aggregate, and will the decision making process the company uses based on these inputs be made transparent and disseminated back to the communities? | All input received through the TMEP stakeholder engagement program will be considered by the Project team in developing and designing the proposed Expansion Project.<br>When input is received from a member of the public or stakeholder, the stakeholder engagement team shares that input with the relevant discipline group, for example, questions or concerns about watercourses would be directed to the Trans Mountain Environment Team, who will then take the comments into account in designing their studies and in assessing impacts and developing mitigation measures.<br>We will be preparing a summary report of all comments received during the current round of information sessions and a description of how those comments are being considered by the Project Team. We are expecting to make this available to the public in early 2013.<br>In addition, all comments received at information sessions, at public meetings, through the website, online engagement, email address, info line and other engagement methods will be documented in Trans Mountain's Application to the NEB.<br>The Application will include a description of comments and concerns raised by stakeholders along with a description of how Trans Mountain plans to address these comments. The Application to the NEB will be a public document and is anticipated to be filed in late 2013. | N/A |
| I live in Port Moody but my TM pipeline questions concern the route through the Coquihalla River watershed:-<br>1) How many TM river crossings are there within this watershed?<br>2) Does TM propose to twin the pipeline through the Coquihalla a) given the existing environmental sensitivities, b) the difficulties in doing river crossings in this system, c) it's extremely high energy volatility (floods) and d) the constricted condition of the valley as a result of the other lineal infrastructure that has been installed over the decades?<br>3) Are there any alternate routes for the pipeline that could be taken to avoid the Coquihalla?<br>Thanks you. | The existing TMPL pipeline has 16 crossing of the Coquihalla river itself. There would also be other creek crossings in the watershed such as Boston Bar Creek and Ladner Creek. We are actively studying alternate routes to decrease the number river crossings and the opportunity exists to achieve that goal. Based on our experience with the TMPL system the concerns for environmental issues, constricted workspace, river crossings and flooding are all issues that we will be taking into consideration and planning and designing for.<br>We will be publicly communicating route alternatives and mitigation measures in the future. Please check back to the website as the Project proceeds, as well, on our homepage you can sign up to our mailing list for Project updates.<br>Note: we have not answered your question publicly on our website to respect your privacy. If you would like this Q&A to be posted on our website, you can resubmit your question without your private information included in the question (phone number, name and city). | Volume 2, Section 4.0 – Pipeline Route and Facility Siting |
| How does the twinning of a pipeline work? Is it a completely new pipe or just an expansion? | The twinning is a completely new pipe which is laid within or proximate to the right-of-way of the existing pipeline, so there are two pipes running the length of the line.<br>The Project would follow our existing pipeline route wherever practical. You can read more about what goes into the route determination and the studies that are part of this process on our website http://www.transmountain.com/route> here And you can learn about the construction process http://www.transmountain.com/building-a-pipeline> here</a>. | Volume 2, Section 4.0 – Pipeline Route and Facility Siting |

## TABLE 1.7.7

## TRANS MOUNTAIN WEBSITE FORUM Q&A (continued)

| Question | Answer | Application Volume |
|---|---|---|
| What kind of benefits will BC get? | The Project is anticipated to generate a range of economic benefits in BC, including employment, local business opportunities, and provincial and municipal taxes.<br>About 60 per cent of Canadian direct expenditures during design and construction (or about $2.6 billion) are anticipated to be spent in BC. Further, during each year of operations, it is estimated that more than $55 million will be spent in BC (not including property taxes).<br>Construction and operations are estimated to create about 46,000 person years of employment (direct, indirect and induced combined), again with 60 per cent of this estimated for BC. BC will accrue provincial taxes for construction and operations of the Project, estimated at $320M. Municipal taxes in BC are estimated to increase approximately $20M annually. The expansion is also anticipated to create 35 full-time permanent positions in BC, in addition to direct and indirect contracting opportunities in support of operations.<br>Trans Mountain is also exploring opportunities to make other strategic investments in communities along the pipeline route.<br>For more information please see the Benefits for Bisection on the website at: http://www.transmountain.com/benefits-for-british-columbia. | Volume 2 – Project Overview, Economics and General Information |
| How long has the existing pipeline been in operation? | Trans Mountain and its predecessor companies have safely and efficiently operated the TMPL through BC and Alberta, for almost 60 years. It was constructed in 1952 and began operating in 1953. | Volume 2 – Project Overview, Economics and General Information |
| When and where will you have information session in Burnaby? | Two information sessions are planned for Burnaby during the week of November 19-25, 2012. Please check the calendar of events for specific locations, dates and times, to be announced shortly. If you are unable to attend these sessions, you are invited to participate online via the feedback form and discussion forums here and on the regional pages. | N/A |

### *1.7.8 ESA Technical Workshops*

#### *1.7.8.1 ESA Workshops – Edmonton, AB*

Table 1.7.8 provides information on the specific key topics, interests and concerns for the Edmonton ESA Workshop. These topics have been captured in the Alberta Region summary in Section 1.9.0.1.

**TABLE 1.7.8**

**ESA TECHNICAL WORKSHOP – EDMONTON, AB**

| Topic | Summary Interest or Concern | Application Volume |
|---|---|---|
| Air | Participant provides information on local and regional air quality - area of responsibility includes the pipeline corridor up to the BC border, including 12 manufacturing stations. Air quality is generally good, occasional exceedances in Hinton at the pulp mill and ozone exceedances in the Wabamun/Genesee region. Our trending is showing an overall decrease in sulphur dioxide and $NO_X$ is steady despite the fact we have increased activity in the region. The only area that causes some concern is the ozone and particulates. | Volume 5A - ESA - Biophysical |
| | Integrate your land, air and water monitoring. It's important to tie them together so you can see the bigger picture. | Volume 5A - ESA - Biophysical |
| Water | Participant commented that the indicators were potentially ambiguous. The indicators are targeting groundwater and not surface water. | Volume 5A - ESA - Biophysical |
| | Participant asked that surface water be specified in the indicator language. Suggestion to potential for transported in the tributaries for Wabamun Lake. | Volume 5A - ESA - Biophysical |
| | Participant suggestion that groundwater quantity is relatively easy to measure and easy to attribute quality. Cumulative effects will be a huge component and it is a difficult to attribute factors to causes | Volume 5A - ESA - Biophysical |
| | Participant commented that the measure of sediment (Total Suspended Solids) needs to be considered. | Volume 5A - ESA - Biophysical |
| | Participant commented that there is a lack of water quality parameters. | Volume 5A - ESA - Biophysical |
| | Participant commented that there could be better tie-in with land and water indicators up front – at least show the riparian indicators. | Volume 5A - ESA - Biophysical |
| Fish and Fish Habitat | Participant commented that the notion of fish populations is critical and not just habitats. There could be a detriment to native fish and increase in non-native numbers. For example, threats to the Athabasca Rainbow. Comments regarding riparian function should be measured before and after. | Volume 5A - ESA - Biophysical |
| | Participant commented that mountain whitefish were being targeted more and more by recreational fishermen. | Volume 5A - ESA - Biophysical |
| | Participant commented that there would be cumulative effects that would need to be demonstrated. | Volume 5A - ESA - Biophysical |
| | Participant commented that if Lake Sturgeon were put on the list it would not incur more field studies as good information was already known about their distribution.- and is it an indicator of the effects of the Project. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.8

## ESA TECHNICAL WORKSHOP – EDMONTON, AB (continued)

| Topic | Summary Interest or Concern | Application Volume |
|---|---|---|
| | Participant commented that a spill on the North Saskatchewan and Athabasca would be devastating. | Volume 7-Risk Assessments and Spill Scenarios |
| Wildlife | Participants felt that there should be a Regional Study Area (RSA) if we are unable to mitigate beyond the area covered by the Local Study Area (LSA). Presenter explained that often, indicators are looked at in a regional context in separate areas (*e.g.*, watercourse crossings are covered in depth in the Water module, although there is overlap). | Volume 5A - ESA - Biophysical |
| | Participant commented that the McTaggart sanctuary is a designated land of value near the TUC and should be considered in the study area. | Volume 5A - ESA - Biophysical |
| | Participant would like to see the study area include the park in Hinton. | Volume 5A - ESA - Biophysical |
| | Participant concern that there is insufficient time to collect data for ESA, determine impacts and hence to prepare sufficient mitigation plans. | Volume 5A - ESA - Biophysical |
| | Deer, coyote, black bear and cougar should be included as indicators for Edmonton Valley. | Volume 5A - ESA - Biophysical |
| | Traditional aboriginal knowledge for vegetation along the south TUC should be considered. | Volume 5A - ESA - Biophysical |
| Wetland | Establishing the highest classification system in regards to Wetlands function is important. A precautionary principle approach in respect to acute scenarios is something to consider. For the process moving forward; establish and maintain your own high standards. | Volume 5A - ESA - Biophysical |
| | In Edmonton, Wagner Bog and the Wagner Natural Area is where the pipeline may potentially cut across area's feeding that region and may impact the water supply. The Wagner Natural Area Society is interested in any activity that could affect this area and the County themselves might be interested in hearing about and perhaps having some input regarding these areas. NEB is not the only piece of paper required by the company. Under the Water Act, codes of practices need to be followed and approvals may be required in some instances, once construction begins. | Volume 5A - ESA - Biophysical |

### *1.7.8.2 ESA Workshops – Kamloops, BC*

Table 1.7.9 provides information on the key topics, interests and concerns for the Kamloops ESA Workshop.

**TABLE 1.7.9**

**ESA TECHNICAL WORKSHOP – KAMLOOPS, BC**

| Topic | Summary Interest or Concern | Application Volume |
|---|---|---|
| Air Quality | Concerns with location of Kamloops pump station in close proximity to residences leading to issue with air and noise in regards to public health. Citizens are also sensitive around odor because of the pulp mill. | Volume 5B - ESA - Socio-Economic |
| | Suggested using local data and the new airshed management plan just created the week before in Kamloops and was available on the City website. | Volume 5A - ESA - Biophysical |
| | Suggested that the Ministry of Energy would know where the hot spots where for radiologicals in the area. | Volume 5A - ESA - Biophysical |
| | Blackpool and Clearwater area is rich in uranium and radon gas is an indoor air quality issue therefore know the mineralogy prior to blasting and disturbance in possible water run-off or stream areas. | Volume 5A - ESA - Biophysical |
| | Concern with air quality issues using a slash and burn technique. | Volume 5A - ESA - Biophysical |
| | Dry vegetation makes this area hard to regenerate therefore dusts may not settle. Concern with the high ATV and recreational uses on the right-of-ways in the area that may prevent regeneration. | Volume 5A - ESA - Biophysical<br>Volume 5B - ESA - Socio-Economic |
| Water Quality and Quantity | Water Users Communities established under the *Water Act* should be addressed and notified or supply drinking water if required. | Volume 5A - ESA - Biophysical |
| | Identified that the bias to ground water indicators makes sense as the HDD method used. | n/a |
| | Use local governments to request mapping of water systems and that fully recorded streams are those that have reached the licensed capacity of use. | Volume 5A - ESA - Biophysical |
| | Identified a need to give Ministry of Forests, Lands and Natural Resource Operations MFLNRO more lead time, consult with community water users – domestic or through Ministry of Forests, Lands and Natural Resource MFLNR Regional Offices. | Volume 5B - ESA - Socio-Economic |
| | Mentioned that the stream status can be equal to the public sensitivity *e.g.*, sportfish/aquaculture and indicated an interest in timing of construction and its impacts on water crossings | Volume 5B - ESA - Socio-Economic |
| | Interest if there could be an indicator for mapping surface water and groundwater systems. Focus efforts in localized areas – human habitation or salmon value. | Volume 5A - ESA - Biophysical<br>Volume 5B - ESA - Socio-Economic |
| Fish and Fish Habitat | Participants noted that riparian habitat is of concern as it is important in limiting access. | Volume 5A - ESA - Biophysical<br>Volume 5B - ESA - Socio-Economic |
| | Participants identified that *Species at Risk Act* (SARA) listed species the west slope cutthroat and Salish sucker are not in the local area. Additions to SARA species included bull trout as it is provincially listed. | Volume 5A - ESA - Biophysical |
| | Participants suggested that benthic invertebrates can be a better indicator to include as they can show changes in their environment in a much shorter timeline than fish, create a better baseline and use for spill or long term monitoring that from a public confidence and sport fishing are important. | Volume 5A - ESA - Biophysical |
| | Participants suggested that if species in watershed, should be dealt with at a watershed level. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.9

## ESA TECHNICAL WORKSHOP – KAMLOOPS, BC (continued)

| Topic | Summary Interest or Concern | Application Volume |
|---|---|---|
| Wetlands | Participants suggested considering physical size of wetland and source of wetland (groundwater vs. surface). | Volume 5A - ESA - Biophysical |
| | Participants suggested that 2 km radius be extended to the area at that the groundwater could travel and to ensure “wet ground” is not missed as it is important habitat. | Volume 5A - ESA - Biophysical |
| | Wetland restoration of previous Trans Mountain activities should be addressed and that these wetlands not are used as a baseline. | Volume 5A - ESA - Biophysical |
| | Topographical considerations may need to be integrated into the LSA. | Volume 5A - ESA - Biophysical |
| Vegetation | Participants suggested to consider grasslands and forested lands separately. Participants noted old growth management areas as one tool to look at old growth forests. | Volume 5A - ESA - Biophysical |
| | Participant noted visual impacts/aesthetics are important for grasslands. For example, if vegetation regrowth doesn’t blend, it is not visually pleasing. Issues with St John’s Wort, Orange Hawk Weed, Tansy, Suplhur cinquefoil and hoary alyssum. | Volume 5A - ESA - Biophysical<br>Volume 5B - ESA - Socio-Economic |
| | Participants noted the existing line needs some work. While constructing the new line, take the opportunity for recontouring, weed management (herbicides or goats), revegetation of the existing line. The existing line has a poor record with weeds and is a transect for the spread of weeds in North Thompson. Suggested to look at Ministry of Forest database for weeds and data may be deficient on existing line. | Volume 5A - ESA - Biophysical Volume 6 - Project Execution |
| | Interest to review the final vegetation indicators involved upfront in this process, rather than at the back-end in an effort to save everyone time and do the work correctly the first time. | Volume 5A - ESA - Biophysical |
| | Noted that types of pre-planning are needed for seed collection gathering and collecting seed. Local source seed and propagation. | Volume 5A - ESA - Biophysical |
| | Concerns around removal of Russian weed grass along fibre optic line in Lac du Bois Provincial Park if the route is selected through the park. | Volume 5A - ESA - Biophysical |
| | Rare ecosystems in the context of the entire Project, it becomes much diluted and a need to provide a way to address this. | Volume 5A - ESA - Biophysical |
| | Participant noted restoration could focus on local climate change and progressive way could be through small scale assisted migration. Trans Mountain has been very good at repopulating stands, maintain crested wheat grass to stabilize soil and water resistance. Species like native bluebunch wheatgrass from North Dakota would not be adequate. | Volume 5A - ESA - Biophysical |
| | RSA will be large enough to take into account both impacts from the Project and others in a cumulative effect. Participants noted that this was important along the highway where you may have multiple utilities and users impacting vegetation. | Volume 5A - ESA - Biophysical |
| Wildlife | Issue with habitat loss through direct methods clearing or indirect reduction of use and wildlife movement during construction and operation through mortality risks or increase in predation/access. | Volume 5A - ESA - Biophysical |
| | Participant raised consideration need in predator prey relationships for example caribou wolf dynamics on linear disturbances. These should be covered under mortality risk. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.9

## ESA TECHNICAL WORKSHOP – KAMLOOPS, BC (continued)

| Topic | Summary Interest or Concern | Application Volume |
|---|---|---|
| | Bull Trout was a species discussed in the areas Chinook and Coho present in all streams north of Clearwater. Fishing interests discussed included: federal fish interests on tributaries; provincial and federal fish interests on Louis Creek; Fish Trap Creek for data collection after fire may have ongoing studies; Sturgeon in Kamloops Lake; Rainbow Trout in Jacko Lakes; and Kamloops lake as a migration route for salmon where outflow is greater and not regulated. | Volume 5A - ESA - Biophysical |
| | North of Avola and South of Valemount – Mountain Caribou can be found West of the highway usually | Volume 5A - ESA - Biophysical |
| Socio-Economic | Creek with Independent Power Producer (IPP)- Valemount where it flows into Fraser . | Volume 5B - ESA - Socio-Economic |
| | Clemina Creek* with IPP license - 20 km south of Valemount where our line is West of the highway (no impact) | Volume 5B - ESA - Socio-Economic |
| | Valemount Snowmobile Club recreation areas - North Thompson, Thunder River*, Clemina*, Adolph Creek | Volume 5B - ESA - Socio-Economic |
| | Several areas were identified with Independent Power Producers (IPPs): Shannon Creek (Active;); Finn ( Application); Hellroar (Application); Bone (Active – Trans Alta); Serpentine (Application);Dominion (Application) and Pyramid (Application); Clemina* (Licence); Gum (Application); White River at Blue River* (Application); White Water Creek 10 km north of Blue River (License); Miledge Creek; and Aldoph off Brooks . | Volume 5B - ESA - Socio-Economic |
| | Water supply sources and rights:<br>In Blue River – water supply at White River<br>In Avola – water supply at Avola Creek as well as DFO fish enhancement site<br>In Clearwater – water supply from Candle Creek<br>In Barriere – water supply from Barriere River<br>Peterson River – water users in Chinook Cove<br>South of Little Fort where streams enter North Thompson there is the greatest chance of water licenses<br>In Kamloops – water supply is a fair distance from water supply and back up water supply locations<br>Heffley Creek – water supply for community<br>It was also noted that Raft River (DFO fish enhancement) and Lemieux Creek (fully recorded) as well a multiple streams south of Avola are agricultural streams with multiple rights and storage rights. Jamieson Creek had forestry above and agricultural operations below (dairy producers). | Volume 5B - ESA - Socio-Economic |

### *1.7.8.3 ESA Workshops – Abbotsford, BC*

Table 1.7.10 provides information on the key topics, interests and concerns for the Abbotsford ESA Workshop.

**TABLE 1.7.10**

**ESA TECHNICAL WORKSHOP – ABBOTSFORD, BC**

| Topic | Summary Interest, Concern or Question | Application Volume |
|---|---|---|
| Environment | Process for bringing in rock for construction purposes, ensure proper screening processes are used | Volume 6 - Project Execution |
| | It's very important to agricultural community that after any digging, any contaminants spilled from machinery be cleaned up right away. | Volume 6 - Project Execution |
| | Review 'west soil shutdown policy' provided by attendee | n/a |
| | Follow up on mandate by Canadian Food Inspection Agency. A truck washing station for various points along pipeline was designed at one point. | Volume 6 - Project Execution |
| | Topography of soil can vary throughout Fraser Valley because it was a river bottom. 250m soil survey testing in some farms might not be adequate. Consider conduction of water along pipeline. Review list of topics raised by attendee regarding data collection methods for agricultural use. | Volume 5A - ESA - Biophysical |
| | Feedback about peaty spots (spotty areas) for environment team to consider. | Volume 5A - ESA - Biophysical |
| | LSA 1 km – should look at extending that in some places, depending on soil or farm. Soils expert should know where these areas are. | Volume 5A - ESA - Biophysical |
| | A traffic control plan for right-of-way is critical to ensure no invasive species or contamination are being introduced. Need to think further than this and look at biosecurity measures in place at each farm – they will be different depending on type of farm | Volume 6 - Project Execution |
| | Feedback: when you do digs, consider not "orphaning" to much land (where piece of land is too small for farming machinery" and you will need to pay farmer more for that | Volume 5B - ESA - Socio-Economic<br>Volume 6 - Project Execution |
| Engineering | Have discussion around construction timetable - not advisable to do construction in winter or spring. Request that no highway trucks are brought onto field by individual farmer. If you need to get materials in, use a helicopter. | Volume 5B - ESA - Socio-Economic |
| | Think about installing fibre optic cable alongside pipeline (latest technology to detect pipeline leaks). | Volume 4B - Project Design and Execution - Construction |
| Stakeholder Engagement | Continue to engage with DDI Committee on construction plans regarding crossing Suman drainage canal and dykes around it. | |
| | Communication is key with farmers and businesses (those who farm the land not necessarily the land owner). Think about adding crop values to compensation formula – not just crop volumes. | |
| | Make sure to engage with Organic community *(NOTE: representatives from Organic community were invited to both MV-FV ESA Workshops)* | |

### *1.7.8.4 ESA Workshops – Surrey, BC*

Table 1.7.11 provides information on the key topics, interests and concerns for the Surrey ESA Workshop.

**TABLE 1.7.11**

**ESA TECHNICAL WORKSHOP – SURREY, BC**

| Topic | Summary Interest, Concern or Question | Application Volume |
|---|---|---|
| Air Quality | Consider impacts through all of Fraser Valley. It will be important to consider the cumulative air quality impacts of the marine and land-based assessments. | Volume 5A - ESA - Biophysical<br>Volume 8A - Marine Transportation |
| Climate Change | Consider how increased flooding and erosion will impact pipeline safety and access for maintenance. | Volume 5A – ESA - Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Geology | Consider the connectivity of geology when assessing potential impacts to rock-dwelling species (particularly with respect to blasting impacts), and when assessing risk of mineral seepage via groundwater into ground and surface water bodies. | Volume 4B - Project Design and Execution - Construction |
| Soils | Consider adding food production as a condition or key issue for the assessment of soil productivity. | Volume 5A - ESA - Biophysical |
| Fish and Fish Habitat | Make sure that study areas for water quality, fish, wetlands, soils, physical environment reflect surface and ground water flow patterns – rather than just assigning study distances. | Volume 5A - ESA - Biophysical |
| | Consider forage species as well as sport fish; consider Sockeye, nooksack dace, coastal cutthroat. | Volume 5A - ESA - Biophysical |
| Wetlands | Gradual degradation if we always use the existing condition as a baseline. Consider looking at habitat potential as a baseline rather than just current conditions. | Volume 5A - ESA - Biophysical |
| Vegetation | Weed introduction is a big concern. Want to see proper handling of soils, revegetation with native species, and monitoring. | Volume 5A - ESA - Biophysical |
| Wildlife | Lynx should be back on the list, marbled and ancient murrelets. | Volume 5A - ESA - Biophysical |
| | Edge species should be considered carefully – although the Project may not affect their core habitat, the edge populations can be critical to species survival. | Volume 5A - ESA - Biophysical |
| ATK | Aboriginal Traditional Knowledge is listed as a study method – local community knowledge should be added. | Volume 5A - ESA - Biophysical |
| Socio-Economic | Would like assurance that commitments and efforts are the same in rural and wilderness areas as they are in urban areas – even though feedback will be skewed to urban areas. | Volume 5B - ESA - Socio-Economic |
| | Would like to see acknowledgement that there will be impacts, and commitment to investing in the community/local environment to offset these impacts. | Volume 5B - ESA - Socio-Economic |
| | Would like to see concerns and monitoring related to access points identified in a report. | Volume 5B - ESA - Socio-Economic |

### *1.7.8.5 ESA Technical Workshop - Marine*

Table 1.7.12 provides information on the key topics, interests and concerns for the Marine Workshops. A response to the interest or concern is provided as well as the volume of the application where the information has been addressed.

**TABLE 1.7.12**

**ESA TECHNICAL WORKSHOPS – MARINE**

| Topic | Summary Interest or Concern | Application Volume |
|---|---|---|
| Marine Spills | Interest in Emergency Planning activities (current, and to accommodate post-expansion activity) – local municipalities want more involvement. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A – Marine Transportation |
| | Consider worst case scenarios in addition to most credible (likely) ones in the risk assessment. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A – Marine Transportation |
| | Consideration of traditional knowledge in site selection for spill modelling. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A – Marine Transportation |
| | Provide more information on how oil dissipates over time. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A – Marine Transportation |
| | More information on existing protocols and remediation in the event of a spill. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A – Marine Transportation |
| | Interest in the WCMRC, how the organization responds to spills and how public may be involved. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A – Marine Transportation |
| Marine Tankers | Interest in including on-board vessel fires to the list for accidents and malfunctions. | Volume 8A – Marine Transportation |
| | Provide more information on how shipbuilding has changed over time, including safety improvements. | Volume 8A - Marine Transportation |
| | Consider the potential west coast “brand” effects of increased tanker traffic – effects on tourism, recreation, etc. | Volume 8A – Marine Transportation |
| | Interest in the increase in tanker traffic (sevenfold) relative to triple the pipeline capacity. | Volume 8A - Marine Transportation |
| | There is a concern about ships illegally pumping bilges in BC. We specifically have a problem with ships transiting Canadian waters and emptying ballasts before entering more stringently regulated American waters. | Volume 8A - Marine Transportation |
| | Interest in the technology of shipbuilding during the 1950s to 1970s era as opposed to modern shipbuilding technology | Volume 8A - Marine Transportation |

## TABLE 1.7.12

## ESA TECHNICAL WORKSHOPS – MARINE (continued)

| Topic | Summary Interest or Concern | Application Volume |
|---|---|---|
| Marine Tankers | Concern that the capacity of the ships is so large now. We need to limit the size of the vessel to the size of the response capability | Volume 8A - Marine Transportation |
| | Public perception is that an accident will result in the entire volume of oil spilling out. Clarification that there are chambers and the spill will be limited to the chamber that is ruptured. | Volume 8A - Marine Transportation |
| | It is unlikely that debris will potentially damage ships in the area where the ships are transiting. The concern is about damage caused by debris from Japan and containers that have fallen off of ships | Volume 8A - Marine Transportation |
| Climate Change | Effects of climate change on the Project | n/a |
| Acoustic | Implement regulations to reduce noise emitted from tanker vessels | Volume 8A - Marine Transportation |
| | Use cameras to document impact of noise below water | Volume 8A - Marine Transportation |
| ESA | Consider impacts of ballast water and invasive species | Volume 8A - Marine Transportation |
| | Consider anchor drops at moorage within the study area | Volume 8A - Marine Transportation |
| | Consider a wider study area (greater than 12 nautical miles/include the Gulf Islands) | Volume 8A - Marine Transportation |
| | Consider the effects of 24-hour operations on marine species | Volume 8A - Marine Transportation |
| | Various suggestions to include additional species as part of the environmental assessment | Volume 8A - Marine Transportation |
| | Identify rate of marine mammal and bird strikes with marine vessels – post expansion monitoring plan in place? | Volume 8A - Marine Transportation |
| | Include cumulative effects of use of crude oil | Volume 8A - Marine Transportation |
| | Cumulative effects of the Project on climate change | n/a |
| Traditional Marine Resource use | Interest in benefits for Aboriginal communities, particularly from increased oil tanker traffic | Volume 5B - ESA - Socio-Economic<br>Volume 8A - Marine Transportation |
| | Benefits will there be to Aboriginal communities to assume the risk of the increased tanker traffic | Volume 5B - ESA - Socio-Economic<br>Volume 8A - Marine Transportation |
| | Consider “spiritual” and mental stress assessment as part of the cultural assessment | Volume 5B - ESA - Socio-Economic<br>Volume 8A - Marine Transportation |
| NEB Application | Format of the NEB application and relevance of the TERMPOL within it | n/a |
| | Clarify the process of informal consultation and formal consultation, before, during and post-NEB submission | n/a |
| | What opportunities will there be for peer review before the NEB application is submitted? | n/a |

## TABLE 1.7.12

## ESA TECHNICAL WORKSHOPS – MARINE (continued)

| Topic | Summary Interest or Concern | Application Volume |
|---|---|---|
| Engagement Process | Desire for ongoing input/involvement in the planning process and subsequent NEB review (detailed requests also included below) | |
| | Involve streamkeeper organizations | |
| Pipeline Integrity | Lifespan of the infrastructure and what maintenance programs are in place | Volume 4B - Project Design and Execution - Construction |
| Alternatives | On alternative modes of transport, is there a study that indicates the percentage of truck traffic that may be reduced as a result of transporting the products through pipelines? | n/a |

### *1.7.9 Community Workshops*

#### *1.7.9.1 Community Workshop – Edmonton East, AB*

Table 1.7.13 provides information on the key topics, interests and concerns for the Edmonton East Community Workshop.

**TABLE 1.7.13**

**COMMUNITY WORKSHOP – EDMONTON EAST, AB**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Soil conservation, especially if community gardens (which do use lands in the TUC) will be affected. Increased soil erosion resulting from the removal of trees. | Volume 5A - ESA - Biophysical |
| | Bird migration patterns over Edmonton – in the northeast near the North Saskatchewan River and along the west side of the city near wetlands. | Volume 5A - ESA - Biophysical |
| | Big Lake (north of the city and west of St. Albert) is an important water body for birds. | Volume 5A - ESA - Biophysical |
| Air | Concerns about the coating of the pipeline and whether odors would be emitted during construction or operation. | Volume 5A - ESA - Biophysical |
| | Remediation of air quality, noise and wind breaks once the trees are removed. Noise in general during construction. | Volume 5A - ESA - Biophysical |
| Water | Water table is naturally high and there are buried springs along west side of the city. | Volume 5A - ESA - Biophysical |
| | Concern about the potential for a pipeline break under a watercourse. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Human Use and Activity | Known historic resource feature within the TUC on the west side of the city such as Riverbend Archaelogical Site. | Volume 5B - ESA - Socio-Economic |
| | Tourism in the TUC is not an issue | Volume 5B - ESA - Socio-Economic |
| | Some communities use the TUC for walking their dogs, especially younger communities with less infrastructure | Volume 5B - ESA - Socio-Economic |
| | Trans Mountain needs to educate the community about pipeline safety and spill prevention. This could occur at the community (league) level. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Pipelines can be terrorist targets – particularly if there is lots of information available publically. Interest in how Trans Mountain and the NEB will keep the pipeline safe. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Participants want a commitment from Trans Mountain to clean up spills | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |

### *1.7.9.2 Community Workshop – Edmonton West, AB*

Table 1.7.14 provides information on the key topics, interests and concerns for the Edmonton West Community Workshop.

**TABLE 1.7.14**

**COMMUNITY WORKSHOP – EDMONTON WEST, AB**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Concern about changes in vegetation composition, especially in areas of native vegetation. | Volume 5A - ESA - Biophysical |
| | Blackmud Creek and Whitemud Creek ravines support unique flora and fauna species. Participants stated that there have been several studies of these areas in the past that should be considered in the ESA (studies mentioned in passing included some from Alberta Environment in the early 2000s, and Stantec 1996, 2004 and DFO for fish). | Volume 5A - ESA - Biophysical |
| | TUC acts as a barrier to deer movement | Volume 5A - ESA - Biophysical |
| | Hawks in the area – concern is that there is less food than in the past. | Volume 5A - ESA - Biophysical |
| | Fulton Conservation southwest of the Whitemud-Anthony Henday interchange. This area supports ducks, fish, muskrats and other wetland species. Water levels are dropping. | Volume 5A - ESA - Biophysical |
| | Existing traffic on Anthony Henday is noisy for nearby residents. | Volume 5B - ESA - Socio-Economic |
| Air | Concern about dust, light and noise during construction – sound travels further in winter when trees have shed their leaves<br>Participants suggest a berm or tree planting to dampen noise | Volume 5A - ESA - Biophysical |
| Water | Concern about spills and the effect on water quality in wetlands and watercourses. | Volume 5A - ESA – Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Wet areas along the TUC on the east side of the city. | Volume 5A - ESA - Biophysical |
| | Some communities may be affected – use the TUC for walking their dogs. | Volume 5B - ESA - Socio-Economic |

### *1.7.9.3 Community Workshop – Parkland County, AB*

Table 1.7.15 provides information on the key topics, interests and concerns for the Parkland County Community Workshop.

**TABLE 1.7.15**

**COMMUNITY WORKSHOP – PARKLAND COUNTY, AB**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Erosion of the bed and banks of Wabamun Lake is biggest concern. Soil is sandy and high in phosphorus.<br>Proximity to the banks is more important than proximity to the lake particularly where the proposed corridor is right next to steep banks down into the lake along the NW edge. | Volume 5A - ESA - Biophysical |
| | Osprey nesting from the village to Gainford. Bald eagle nests on the transmission line poles. Swans and pelicans migrate through the area. | Volume 5A - ESA - Biophysical |
| | With the construction location so close to the highway, not sure how ungulates will be affected. Not many animals killed on the highway by Wabamun. Lots of roadkill by the golf course. | Volume 5A - ESA - Biophysical |
| | Endangered species identified:<br>· Leopard frog<br>· Stickleback<br>· Smaller birds | Volume 5A - ESA - Biophysical |
| Air | Concern about dust caused by construction | Volume 5A - ESA - Biophysical |
| | Concern about drilling and blasting noise, especially for directional drill under Pembina river.<br>Suggest a string-up area on east side of river – pull from east to west to minimize drilling noise in the community. | Volume 5B - ESA - Socio-Economic |
| Water | West end of the park is wet (specifically along the right-of-way). | Volume 5A - ESA - Biophysical |
| | Water reservoir is near north route option – proposed new waterline construction set for late fall 2013, but likely in June 2014 (will occur in 5 phases). | Volume 5A - ESA - Biophysical |
| | Proximity to lake Wabamun is a concern. Potential for spills, water quality and erosion. | Volume 5A - ESA - Biophysical Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | North alternate is better for spill containment – the highway acts as a berm. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Human Activity and Use | Summer use is important – most tourism / activities near the line occur in the summer, therefore a winter spread is preferred when park is closed. | Volume 5B - ESA - Socio-Economic |
| | Trail systems – paved through the park. Disturbance to hikers.<br>More use in the east quarter of the park. Other areas are wetlands. | Volume 5B - ESA - Socio-Economic |
| | Trail Seekers – trail system from the grazing lease off the southwest corner of the park to White Court. | Volume 5B - ESA - Socio-Economic |
| | Concern regarding commercial vehicle traffic – particularly speeding and observance of school zones and safety of children. | Volume 5B - ESA - Socio-Economic |
| | Need to educate the crews about being good neighbours | Volume 5B - ESA - Socio-Economic |
| | Protect infrastructure – particularly with regards to the heavy volume and weight of traffic on Wabamun roads | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.15

## COMMUNITY WORKSHOP – PARKLAND COUNTY, AB (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| | Recommendation to use existing facilities. Interest in location and size of construction camps. | Volume 5B - ESA - Socio-Economic |
| | Village has motel, hotel and apartments. | Volume 5B - ESA - Socio-Economic |
| | Online booking site for campgrounds – may be able to use this site to post Project-related notices. | Volume 5B - ESA - Socio-Economic |
| | Emergency preparedness and access to first responders.<br>Need to ensure that proper plans are in place and that local contacts are made aware of activities. | Volume 5B - ESA - Socio-Economic |
| | Sundance and other existing power plants east of the park result in heavy traffic around 7am and 3pm leads to potential cumulative effects. | Volume 5B - ESA - Socio-Economic |
| | Gravel mining and residences along north route option. Recommendation to stay in existing ROW. | Volume 5B - ESA - Socio-Economic |
| | Local residents don't consider the existing TMPL right-of-way to be part of the park because of the powerline. | Volume 5B - ESA - Socio-Economic |
| | Leave Coal Haul Road open for community use. | Volume 5B - ESA - Socio-Economic |
| | Important not to interrupt traffic when drilling under the highway. | Volume 5B - ESA - Socio-Economic |
| | Suggest HDD equipment set up on the west side of the river to stay away from the residential development. | Volume 5B - ESA - Socio-Economic |

### *1.7.9.4 Community Workshop – Edson, AB*

Table 1.7.16 provides information on the key topics, interests and concerns for the Edson Community Workshop.

**TABLE 1.7.16**

**COMMUNITY WORKSHOP – EDSON, AB**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Tree removal is a big concern. Needs to be major restoration on temporary work space if there is tree removal. | Volume 5A - ESA - Biophysical |
| | Replacement of grass and weed control in Vision Park (around the ball diamonds) – maybe first and second year after reseeding | Volume 5A - ESA - Biophysical |
| | Black bog west of town where revegetation takes a very long time. | Volume 5A - ESA - Biophysical |
| | Opportunities for beautification (in addition to restoration). Renderings and pre-planning would be helpful for the community. | Volume 5B - ESA - Socio-Economic |
| | Concern for wildlife migration and habitat (deer, moose, elk) | Volume 5A - ESA - Biophysical |
| | Geotechnical feedback concerning bedrock near Branch Inn | Volume 5A - ESA - Biophysical |
| | Rainy season in Edson – June | n/a |
| Air | Noise during construction<br>· Town is concerned about getting noise complaints<br>· Need to adhere to local noise bylaw (7am to 11pm)<br>· Potential to coordinate timing with other Projects to cut down on noise<br>· Noise travels farther in winter | Volume 5B - ESA - Socio-Economic |
| | Smoke from burning<br>· Would prefer chipping to burning of stumps and unsalable wood | Volume 5B - ESA - Socio-Economic |
| Water | Concern about water used to test pipe (withdrawal areas) | Volume 5A - ESA - Biophysical |
| | Municipal water wells near Vision Park | Volume 5B - ESA - Socio-Economic |
| | MacLeod River pipeline crossing. | Volume 5A - ESA - Biophysical |
| | Most streams have sport fish in them | Volume 5A - ESA - Biophysical |
| | Sucker Creek is a fishing spot | Volume 5B - ESA - Socio-Economic |
| | Strict regulations so no major concerns with watercourse crossings | n/a |
| | Ice-fishing in lakes to the west of Edson | Volume 5B - ESA - Socio-Economic |
| | Blasting may be necessary for bedrock near Branch Inn (note for wells) | Volume 5A - ESA - Biophysical |
| | Wetlands near pumping station (along Sundance Creek and Hornbeck Creek) | Volume 5A - ESA - Biophysical |
| | Bog area to the west of town is difficult to revegetate – other companies have routed around it | Volume 5A - ESA - Biophysical |
| | Won't be able to pull water from Sundance Creek in the winter | Volume 6 - Project Execution |

## TABLE 1.7.16

## COMMUNITY WORKSHOP – EDSON, AB (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Human Activity and Use | Cumulative effects of multiple Projects<br>· Vista Coal Mine Project about 40min from town<br>· Will construction coincide? | Volume 5B - ESA - Socio-Economic |
| | Timing of construction<br>· Baseball tournament (August long weekend)<br>· Baseball season May to October, diamonds used throughout<br>· Hunting | Volume 5B - ESA - Socio-Economic |
| | Need to be conscious of noise and light pollution, and safety in residential areas<br>· May be useful to have a Trans Mountain contact for complaints so that it doesn't go through the Town<br>· Careful that construction hours are within bylaw limits<br>· Ensure children and others cannot access unsafe areas | Volume 5B - ESA - Socio-Economic |
| | Trail north of 18th Avenue (treed area, homes back onto it)<br>· Should be proactive in letting community know about the restoration plan (post on signs)<br>· Restoration should make the trail even better than it is | Volume 5B - ESA - Socio-Economic |
| | Snowmobile areas (East Road crossing, Swanson Road) may be affected | Volume 5B - ESA - Socio-Economic |
| | Multi-use trails (concern and opportunity) | Volume 5B - ESA - Socio-Economic |
| | ATV and snowmobile users interested in a multi-use trail bordering the right-of-way<br>· They already use parts of the right-of-way and would like to continue | Volume 5B - ESA - Socio-Economic |
| | Snowmobiling on MacLeod River | Volume 5B - ESA - Socio-Economic |
| | Tubing and rafting on Pembina River | Volume 5B - ESA - Socio-Economic |
| | Safety<br>· For crews – lots of (deer, moose, elk) hunting in area<br>· Fence site and consider 24hr security<br>· Messaging about construction activities for community and Aboriginal groups | Volume 5B - ESA - Socio-Economic |
| | Housing for workers during construction (campgrounds, construction camps, hotels)<br>· Town is busy during the baseball tournament<br>· Overall, busiest in winter with other industry use of hotels<br>· Hockey tournaments have been cancelled in past winters due to no or low vacancies in hotels | Volume 5B - ESA - Socio-Economic |
| | Setting up a camp within Town is a political issue<br>· Don't want a camp if the hotels aren't full<br>· Camps don't contribute to the community | Volume 5B - ESA - Socio-Economic |
| | Burden on infrastructure (water, sewer) | Volume 5B - ESA - Socio-Economic |
| | Impact on hotels, groceries | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.16

## COMMUNITY WORKSHOP – EDSON, AB (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Human Activity and Use | Don't announce possibility of Edson being a hub community until you know for sure – don't want to raise false hope | Volume 5B - ESA - Socio-Economic |
| | Benefit to small local businesses/contractors – Project would be positive for the community<br>· Should provide information about how local businesses can get on the approved vendor list | Volume 5B - ESA - Socio-Economic |
| | Hornbeck campground west of town near the pump station is always full | Volume 5B - ESA - Socio-Economic |

### *1.7.9.5 Community Workshop – Hinton, AB*

Table 1.7.17 provides information on the key topics, interests and concerns for the Hinton Community Workshop.

**TABLE 1.7.17**

**COMMUNITY WORKSHOP – HINTON, AB**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Weeds along corridor after construction. | Volume 5A - ESA - Biophysical |
| | Cache Percotte forest will be impacted by corridor. This area is management by the crown and used for forestry training as part of the Hinton Training Centre. | Volume 5A - ESA - Biophysical |
| Air | Corridor is far enough from town that the greatest concern is dust from construction and traffic on Rob Road. Close to bike trail access points. | Volume 5A - ESA – Biophysical<br>Volume 5B - ESA - Socio-Economic |
| | Dust and noise at the Golf Course. | Volume 5B - ESA - Socio-Economic |
| | During Anchor Loop, brush piles were burned too close to some residences and there was no consideration of wind direction. Need to consider atmospheric conditions for burn planning. | Volume 6 - Project Execution |
| Water | Bull trout and nursery streams crossed by the selected study corridor. Underground creeks and springs along selected study corridor | Volume 5A - ESA - Biophysical |
| | Wet areas along the corridor. Boggy areas (layer of mineral soil about 2 feet down, high water table). | Volume 5A - ESA - Biophysical |
| Human Activity and Use | Multipurpose recreational opportunities: cross-country skiing, hiking, horses, cycling:<br>· Trails are used heavily for mountain biking, OHV, horseback riding, walking<br>· Corridor does cross bike trails in a few locations<br>· Could develop existing right-of-way for biking prior to construction, so that people have a place to ride during construction – legacy bike trail<br>· Swamp mats should be left in place after construction to facilitate trail use | Volume 5B - ESA - Socio-Economic |
| | OHV use on bike trails is a concern – hope that new pipeline doesn't attract OHV use<br>· Important for Trans Mountain to clearly state what is and isn't allowed on the rights-of-way | Volume 5B - ESA - Socio-Economic |
| | If construction occurs during bike season, access points to trails need to be closed:<br>· Public should be informed of safety and closures<br>· Excavation areas should be fenced | Volume 5B - ESA - Socio-Economic |
| | Construction on existing right-of-way would be more disruptive to neighbourhoods than on the selected study corridor. | Volume 4B - Project Design and Execution - Construction |
| | Would rather see the workforce using services in town than in a camp. Preference that Trans Mountain use local businesses, labour and equipment. | Volume 5B - ESA - Socio-Economic |

### *1.7.9.6 Community Workshop – Valemount, BC*

Table 1.7.18 provides information on the key topics, interests and concerns for the Valemount Community Workshop.

**TABLE 1.7.18**

**COMMUNITY WORKSHOP – VALEMOUNT, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Concern that road access to tourism and businesses during construction will be affected. Specific concerns around access to private campgrounds and residential area in north Valemount. | Volume 5B - ESA - Socio-Economic |
| | KP 485 Jackman flats is an unique ecosystem that includes dry vegetation (sandy) and is important to wildlife | Volume 5A - ESA - Biophysical |
| | KP 499 the wetlands are a wild bird habitat. Trumpeter Swans have been seen in this area for the first time in many years (2012 sighting) | Volume 5A - ESA - Biophysical |
| | Concern that construction will lead to increased or new access to hunting and loss of natural cover for wildlife | Volume 5A - ESA - Biophysical |
| | Residents are concerned about dust control during construction and impacts in the community. Suggest using mapping tools to learn about local wind patterns and direction prior to construction. | Volume 5B - ESA - Socio-Economic |
| Air | Residents expressed concern possible air quality impacts of vehicle emissions (heavy equipment). They also noted that this concern may be minimal in reference to highway traffic. | Volume 5B - ESA - Socio-Economic |
| Water | Concern around protection of Cranberry Creek and wetlands at the back (west) of town | Volume 5A - ESA - Biophysical |
| | Concerns about protection of fish and fish habitat in Swift Creek as well as Albreda and Thompson Rivers. – longest Chinook run, Coho in November. | Volume 5A - ESA - Biophysical |
| | Landowners are concerned that TMEP construction will disrupt the large number of underground wells or will disturb the aquifer in a way that reduces their potable water supply. Residents requested that Trans Mountain note the high groundwater table in area of Swift Creek – there are numerous of wells north of Swift Creek that could be disrupted during construction. There is a white clay layer protecting the aquifer. This layer has been studied west of KP 496 during a recent TELUS Project. | Volume 5A - ESA - Biophysical<br>Volume 5B - ESA - Socio-Economic |
| Human Activity Use | Valemount and Area Recreation Development Association (VARDA) expressed concerns about construction crew backcountry activity during the Anchor Loop Project. Requested opportunity to provide community orientation to construction crews if TMEP proceeds. | Volume 5B - ESA - Socio-Economic |
| | Campgrounds have limited allocation to offer crews for camping. Owners do not want to disrupt business from repeat campground customers. | Volume 5B - ESA - Socio-Economic |
| | Community requested that construction crews participate in community activities and recreational groups. Suggested a per head recreation fee for crew workers that provided full access to all community facilities and opportunities. | Volume 5B - ESA - Socio-Economic |
| | Residents expressed concern about the visibility of construction near the Swift Creek spawning channel / viewing platform through George Hicks Park. Economic tourism around viewing salmon spawning. | Volume 5B - ESA - Socio-Economic |
| | Owners expressed concerns about construction noise and lights near the campground. Yellowhead and Irvin's Park and Campground are located near the ROW and are busy from May-October. | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.18

## COMMUNITY WORKSHOP – VALEMOUNT, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| | Concern expressed about construction crew impact on emergency services – can the community manage increased workload | Volume 5B - ESA - Socio-Economic |
| | Concern expressed concern about unlicensed and uncontrolled camp/RV spaces developed in backyards of residential property during the Anchor Loop Project. Do not want this to happen again. | Volume 5B - ESA - Socio-Economic |
| | Unauthorized ATV on the existing right-of-way is already a management problem. Concern was expressed that new construction and access roads would increase unauthorized access. | Volume 5B - ESA - Socio-Economic |
| | The North Thompson Valley has a electrical single power line and lack of power has been cited as a limit to economic growth in the region. Stakeholders are concerned that TMEP facilities will place demands on the small amount of unallocated power supply in the region. | Volume 5B - ESA - Socio-Economic |
| | Right-of-way is used for snowmobiling (use agreement is in place). Users are concerned that this agreement might be impacted or that use of the ROW would be limited due to construction. Snowmobiling is an important economic driver in the winter. | Volume 5B - ESA - Socio-Economic |
| | A request was made for increased winter access to right-of-way for snowmobiles. A possible linear route to Blue River was discussed though the issue of private property was recognized. | Volume 5B - ESA - Socio-Economic |
| | A resident noted that there are three river rafting companies that use the section of the Fraser River near Rearguard pump station. Construction in that area would need to consider these activities. | Volume 5B - ESA - Socio-Economic |
| | Valemount residents expressed interest in a legacy of support including the identification of partnership opportunities or use of machinery for community Projects. | Volume 5B - ESA - Socio-Economic |

### *1.7.9.7 Community Workshop – Blue River, BC*

Table 1.7.19 provides information on the key topics, interests and concerns for the Blue River Community Workshop.

**TABLE 1.7.19**

**COMMUNITY WORKSHOP – BLUE RIVER, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land Use | Trail improvements are needed in area (especially in open space on west side of highway. Can Trans Mountain consider this as part of legacy? | Volume 5B - ESA - Socio-Economic |
| | Concern about the large number of dead pine trees in the area and how construction could potentially increase fire risk with so much forest fuel in area. Note that burning and campfire restriction in area are likely during construction period. | Volume 5A - ESA - Biophysical Volume 6 - Project Execution |
| | Concern that construction might impact caribou or moose rutting/calving seasons. | Volume 5A - ESA - Biophysical |
| | Concern that construction could impact the geothermal heating on MWHS property located between the Trans Mountain Pump Station and lodge at bend in road at Harwood Drive. Geothermal information is available through MHWS | Volume 5A - ESA - Biophysical |
| | Residents noted that wildlife is not habituated to people in this area. Moose in valley populations way down due to increased pressure from wolves. Concern that construction could change wildlife travel patterns or reduce natural protection. Residents note both black and grizzly bears are found in Blue River. | Volume 5A - ESA - Biophysical |
| | There are industrial restriction/management closures for wildlife from KP 554-550 | Volume 5A - ESA - Biophysical |
| | There is a black spruce bog protected area at KP 590 – MNFLRO has done some assessment here. | Volume 5A - ESA - Biophysical |
| | No active trap lines that are known in the Blue River area. Some lines may be active in Finn Creek area near Avola. | Volume 5B - ESA - Socio-Economic |
| Air | Concern was expressed about construction noise impact on commercial campgrounds near the right-of-way. | Volume 5B - ESA - Socio-Economic |
| | Concern about construction and traffic noise impact on birds and owls. Residents note that TMEP impact may be small compared to highway traffic | Volume 5A - ESA - Biophysical |
| | Air quality can be a concern in the winter due to a number of wood burning stoves. Air quality is good in the summer | Volume 5B - ESA - Socio-Economic |
| Water | Salmon spawning in Blue River 30m downstream of pipeline in October/Sept. | Volume 5A - ESA - Biophysical |
| | There are wells for the community and MWHS resort on the northwest side of Blue River. | Volume 5B - ESA - Socio-Economic |
| | The water line to the school and town is in front of the Trans Mountain pump station | Volume 5B - ESA - Socio-Economic |
| | Loons and fish are found in Eleanor Lake. | Volume 5A - ESA - Biophysical |
| | Salmon spawning as early as July/Aug and Chinook in Sept. There is Salmon habitat at Finn Creek provincial Park. | Volume 5A - ESA - Biophysical |
| | Mud Lake is not a concern. It is glacial water and there is not enough insect life to support large fish . | Volume 5A - ESA - Biophysical |

## TABLE 1.7.19

## COMMUNITY WORKSHOP – BLUE RIVER, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Human Activity and Use | Concern about disruption to the road access for River Safari and airport at KP 586 during construction | Volume 5B - ESA - Socio-Economic |
| | Concern expressed about integrating construction crew into community – managing expectations about community behaviour and backcountry activity | Volume 5B - ESA - Socio-Economic |
| | Note that Mike Wiegele Staff housing is available in summer months at Saddle Mountain and Mountain View motels | Volume 5B - ESA - Socio-Economic |
| | The Blue River airport has occasional summer use for private aircraft, as well as fire and emergency response. Higher use in the winter by MWHS guests. | Volume 5B - ESA - Socio-Economic |
| | Crew accommodation may be limited for workers during summer tourism seasons. Community is concerned about displacement of tourists and impacts on future business. | Volume 5B - ESA - Socio-Economic |
| | Concern raised about crew squatters illegally hooking into the grid. This has happened on other big Projects. | Volume 5B - ESA - Socio-Economic |
| | Concern raised about the impacts of temporary worker impacts on supplies in general stores, gas stations, hotels. Business owners can preplan but it takes very little to inundate/overwhelm the community. | Volume 5B - ESA - Socio-Economic |
| | Note that Commerce mine (at Bone Creek) may also have a large crew in the region at the same time. Concern about how this may impact resources. Additional concern that construction might affect road access to mine site. | Volume 5B - ESA - Socio-Economic |
| | There is a large parking lot at Finn creak that could be used for summer construction. | Volume 5B - ESA - Socio-Economic |
| | On the existing ROW there is a well used unofficial community park behind houses on Cedar Street. Concern that construction could limit park access during peak use period | Volume 5B - ESA - Socio-Economic |
| | There are no RCMP in Blue River. Response is typically from Clearwater and is 75 minutes away (though could be from Valemount – 60 minute response time) | Volume 5B - ESA - Socio-Economic |
| Human Activity and Use | Pipeline history is an important part of the culture in the North Thompson Valley. One resident suggested a heritage park to help tell the story of the valley development and industry. | Volume 5B - ESA - Socio-Economic |
| | Concern raised about response to disaster other than pipeline construction and/or operations (*e.g.*, fire). What are risks and Trans Mountain response? Has Trans Mountain identified and planned for things like highway closure due to fire? | Volume 5B - ESA - Socio-Economic |
| | At KP 622 there is an unofficial tourist stop on the highway. The curve of the road limits visibility of people crossing road | Volume 5B - ESA - Socio-Economic |
| | Many residents expressed interest in Blue River pump station employment. | Volume 5B - ESA - Socio-Economic |
| | Note that there is camp infrastructure already in place north of airstrip in Blue River | Volume 5B - ESA - Socio-Economic |
| | Mike Wiegele Helicopter Skiing is the largest employer and economic drivers in the community of Blue River. Residents are concerned that if TMEP follows the existing right-of-way through the Resort that economic activity may be disrupted. | Volume 5B - ESA - Socio-Economic |

### *1.7.9.8 Community Workshop – Clearwater, BC*

Table 1.7.20 provides information on the key topics, interests and concerns for the Clearwater Community Workshop.

**TABLE 1.7.20**

**COMMUNITY WORKSHOP – CLEARWATER, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Concerns were raised about protection of sensitive forested areas as well as vegetation removal and reclamation practices. | Volume 5A - ESA - Biophysical |
| | Residents with agricultural properties were concerned about interruption to seasonal activity / crop loss as well as reseeding of crops and pasturelands. Need for control of invasive species / weed control was also noted. | Volume 5B - ESA - Socio-Economic |
| | More information was requested about the separation of different soil layers during construction and recognition of clay areas near the river that may limit construction. | Volume 5A - ESA - Biophysical |
| | Waterfowl (swans and ducks) and wildlife corridors/crossing *e.g.*, at Raft River. | Volume 5A - ESA - Biophysical |
| | Concern about local archeological and heritage sites including Keekwillie for Simpcw First Nations. | Volume 5B - ESA - Socio-Economic |
| Air | Concern about heavy equipment vehicle emissions on air quality. | Volume 5A - ESA - Biophysical |
| | Concern about measures to control dust and blasting impacts in sensitive areas around Vavenby and Blackpool with sandy and rocky soils | Volume 5A - ESA - Biophysical |
| | Concern about construction noise effects on wildlife and livestock | Volume 5A - ESA - Biophysical<br>Volume 5B - ESA - Socio-Economic |
| | Concern about construction noise and vibration impacts on local businesses, residential areas in Weyerhaeuser Subdivision and Park Drive area and in North Thompson Park | Volume 5B - ESA - Socio-Economic |
| Water | Residents had questions about the use of HDD around sensitive river crossings and the management of borehole sediment. Concerns also raised about disruption to areas adjacent to river crossing needed to HDD | Volume 5A - ESA - Biophysical |
| | Concern about District water availability and ability to generate potable water with increased demand for construction crew and construction requirements | Volume 5B - ESA - Socio-Economic |
| | Construction impact of access to fishing creeks in North Thompson - Man Lake, Dum Lake Road, Thuya Creek, Darfield Creek and Darlington Creek. | Volume 5B - ESA - Socio-Economic |
| | Protection of salmon, spawning channels and salmon habitat in Raft River (and hatchery). Additional concern about Eakin Creek crossing. | Volume 5A - ESA - Biophysical |
| | Concern about protection of private water licenses / sources – there are 10 licenses at Montignay Creek | Volume 5B - ESA - Socio-Economic |
| | Areas of either side of the Raft River are highly valued by residents and the Aboriginal community. There is concern about disruption to previously undisturbed land and a mitigation request to consider a footbridge over the river to compete a travel corridor between Clearwater and Vavenby. | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.20

## COMMUNITY WORKSHOP – CLEARWATER, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Human Activity and Use | Concern that construction could limit potential tourism activity in area and access to areas like Raft River Falls | Volume 5B - ESA - Socio-Economic |
| | In Little Fort concerns were raised that construction could impact access to the cemetery as well as the viewscape from the cemetery. Residents a noted that the cemetery needed to be a tranquil place and had important heritage significance. | Volume 5B - ESA - Socio-Economic |
| | The North Thompson Valley has a single power line and lack of power has been cited as a limit to economic growth in the region. Stakeholders are concerned that TMEP facilities will place demands on the small amount of unallocated power supply in the region. | Volume 5B - ESA - Socio-Economic |
| | Concern that construction and access roads would create new unauthorized access to fishing and hunting areas. | Volume 5B - ESA - Socio-Economic |
| | Concern that construction would increase unauthorized ATV activity on right-of-way and provide ATV access to new areas. | Volume 5B - ESA - Socio-Economic |
| | Concern that construction could limit access for Aboriginal communities into traditional areas | Volume 5B - ESA - Socio-Economic |
| | Residents commonly use the North Thompson Park ROW for recreation (dog walking, XC skiing, and horseback riding) and are concerned that construction will limit those activities. Residents are also concerned about the preservation of the Park. | Volume 5B - ESA - Socio-Economic |

### *1.7.9.9 Community Workshop – Kamloops, BC*

Table 1.7.21 provides information on the key topics, interests and concerns for the Kamloops Community Workshop

**TABLE 1.7.21**

**COMMUNITY WORKSHOP – KAMLOOPS, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Concern that remediation should include a best practice approach using natural species. Note that there is little / no native seed stock and grasslands reclamation takes decades. | Volume 5A - ESA - Biophysical |
| | Request to consider expanding reclamation areas in Lac du Bois Park to include existing FOTS right-of-way if routing is approved by BC Parks. | Volume 5A - ESA - Biophysical |
| | Concern about soil compaction, shifting and erosion at Whispering Pines to Darfield (note no new construction is planned for this section) | Volume 5A - ESA - Biophysical |
| | Concern about visual impact and aesthetics of construction in grasslands (changes to contour of hillsides) | Volume 5B - ESA - Socio-Economic |
| | Concern about restricted access to recreational areas during construction - Skull Mountain range area, White Creek and North Thompson and Poison Creek | Volume 5B - ESA - Socio-Economic |
| | Wildlife habitat impacts – mule deer, grouse, burrowing owl, rattlesnake and badger | Volume 5A - ESA - Biophysical |
| | Transfer of noxious weeds and invasive species in grasslands and agricultural areas | Volume 5A - ESA - Biophysical |
| | Concern that construction may improve line-of-sight for hunting (negative impact) | Volume 5A - ESA - Biophysical |
| | Concerns about protection of Jacko Lake – access, water quality and recreational activity | Volume 5B - ESA - Socio-Economic |
| Air | Kamloops is windy. There is concern about dust near residences (Westsyde) | Volume 5B - ESA - Socio-Economic |
| | Noise impacts from construction or blasting on Westsyde residents and on wildlife | Volume 5A - ESA - Biophysical Volume 5B - ESA - Socio-Economic |
| | Emissions from vehicle traffic to work sites – construction crew and heavy equipment. | Volume 5A - ESA - Biophysical |
| Water | Concerns about spill impact on water quality and effectiveness of emergency procedures to respond to water emergency | Volume 5A - ESA - Biophysical Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Residents requested Trans Mountain develop a simple explanation of likelihood and consequence of spill. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | History of high water table and flash flooding in Westsyde. Concern about how this could potentially impact pipeline construction or integrity. | Volume 4B - Project Design and Execution - Construction Volume 5A - ESA - Biophysical |
| | Concerns about protection of all regional wetlands | Volume 5A - ESA - Biophysical |
| | Concerns about construction impact on water available for wildlife | Volume 5A - ESA - Biophysical |

## TABLE 1.7.21

## COMMUNITY WORKSHOP – KAMLOOPS, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Human Activity and Use | If BC Parks approval is gained for Lac du Bois routing all Project activity must be planned in consultation with grasslands stewardship groups and construction activity must take grasslands preservation into careful consideration. Community acceptance of Lac du Bois routing will be increased if restoration is planned and implemented in conjunction with the Grasslands Conservation Council and Thompson Rivers University. Many concerns were raised about the potential routing through Lac du Bois Protected Area including:<br>· Park disturbance<br>· Sensitivity regarding park purpose – what is a park for? If this is allowed what precedent does it set?<br>· Increase unauthorized access for ATVs in park due to construction activity and development of access roads<br>· Trouble with enforcing existing ATV use – some progress has been made. Will construction create a new problem?<br>· Impacts to cattle grazing<br>· Impacts to bike and cross-country trails<br>· Impact wildlife viewing – curlew, owls, eagles, falcons etc.<br>· Proximity of ROW to McQueen Lake Outdoor School<br>· Proximity to McQueen Creek Ecological Reserve | Volume 5B - ESA - Socio-Economic |
| | Concerns about pipeline integrity including risk of sabotage | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | There is widespread concern in the BC Interior about how construction could potential increase ATV access to previously restricted areas. This concern is highlighted in Lac du Bois Protected area and regional grasslands, but was raised in every region. | Volume 5B - ESA - Socio-Economic |
| | Concerns about construction impacts on outdoor recreation at Jameson Creek and in Lac du Bois – hiking, hunting, camping at Jameson Creek, dog walking, snowmobiling, Christmas tree collection, cattle drives, hunting of grouse and deer, fishing / icefishing | Volume 5B - ESA - Socio-Economic |
| | Some Westsyde residents strongly support the Lac du Bois route option in order to bypass the Westsyde neighbourhood. They have also requested the relocation of the existing lines to the Lac du Bois ROW. Specific Westsyde concerns include impacts to the Rivers Trail bike route, proximity to houses, increase in traffic and impact to businesses | Volume 4B - Project Design and Execution - Construction<br>Volume 5B - ESA - Socio-Economic |
| | Concerns about impacts traditional land use in Kamloops area no location specified) | Volume 5B - ESA - Socio-Economic |
| | Impacts on Ord Road bike trails north of airport | Volume 5B - ESA - Socio-Economic |
| | Questions raised about light -industry development near prison. (note issue reviewed with City of Kamloops and Economic Development Office – no actual conflict) | Volume 5B - ESA - Socio-Economic |

### *1.7.9.10 Community Workshop – Merritt, BC*

Table 1.7.22 provides information on the key topics, interests and concerns for the Merritt Community Workshop.

**TABLE 1.7.22**

**COMMUNITY WORKSHOP – MERRITT, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | The grasslands in the BC Interior region have been identified as a rare and endangered ecosystem with a prolonged restoration period. Stakeholders in Kamloops and Merritt are concerned about grasslands preservation. | Volume 5A - ESA - Biophysical |
| | Control and management of livestock if natural barriers are removed on ranches and tenured grazing lands | Volume 5B - ESA - Socio-Economic<br>Volume 6 - Project Execution |
| | Importance of timing for construction on agricultural properties – crop interruption and reseeding | Volume 5B - ESA - Socio-Economic<br>Volume 6 - Project Execution |
| | There are a large number of ranches and grazing leases in the Merritt region. Ranchers are concerned about the spread of invasive weeds from disruption of the soil and machinery use. Ranchers are responsible for the cost of weed control. Additional issues include containment of livestock, construction and crop timing as well as use of heavy farm equipment on the pipeline ROW.<br>Concerns include transport of invasive species seeds between ecosystems/geographical regions (*e.g.*, from AB to BC) – knapweed, dalmatian toad flax and thistles. | Volume 5B - ESA - Socio-Economic |
| | Protection of territorial bird habitat on ROW – Screech Owl and Yellow Breasted Sapsucker. In a recent Hydro Project construction was delayed to avoid breeding season. | Volume 5A - ESA - Biophysical |
| | Concern about protection of berry gathering area at area west side of Coquihalla – Juliette Creek, July Creek and trees north of Coquihalla lake | Volume 5B - ESA - Socio-Economic |
| | Concerns about potential effects on migratory patterns of wildlife | Volume 5A - ESA - Biophysical |
| | Concern about threatened species in creek bed area of Larsen Hill (no species identified) | Volume 5A - ESA - Biophysical |
| | Increased hunting access to previously restricted areas – impacts on wildlife food, areas to hide, hunting and poaching | Volume 5A - ESA - Biophysical |
| | Concerns about increased erosion after clearing for construction | Volume 5A - ESA - Biophysical |
| | Note that there is a Spade foot toad count underway at Douglas Lake area (note - out of ROW study corridor) | Volume 5A - ESA - Biophysical |
| | Note the presence of beavers and mountain beaver west side of Coquihalla near the summit | Volume 5A - ESA - Biophysical |
| | Request to protect the snowmobile club's shop and cabin beside Britton Creek rest area | Volume 5B - ESA - Socio-Economic |
| | Impact to wetlands and marshlands. There is a high level of seasonal runoff. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.22

## COMMUNITY WORKSHOP – MERRITT, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Air | Not concerned about construction noise - highway noise and impact on air quality maybe greater than construction. Request to respect noise bylaws. | Volume 5B - ESA - Socio-Economic |
| | Concern about dust and dust control measures. Very windy region and much of the soil is silty. The ROW is, close to residences at Sunny View and dust could affect traffic and air quality. Retain water trucks and include shutdown construction if winds exceed certain kilometres per hour to mitigate dust. | Volume 5A - ESA - Biophysical |
| Water | Impacts on spawning areas *e.g.*, Brookmere up Nicola and into Coldwater | Volume 5A - ESA - Biophysical |
| | Protection of wetland species including toads and frogs - natural wetlands at Nicola Crossing and Upper Coldwater | Volume 5A - ESA - Biophysical |
| | Impact of ability of watershed to manage rainfall after tree removal | Volume 5A - ESA - Biophysical |
| | Coldwater and fresh water BC – stocked lakes, trout (fences and berms) | Volume 5A - ESA - Biophysical |
| | Caution regarding construction near spring at southeast corner of Merritt | Volume 5A - ESA - Biophysical |
| | Construction impact on wells and irrigation (water licenses and infrastructure) | Volume 5B - ESA - Socio-Economic |
| | Construction impacts on fish habitat - Coho, Bull Trout and Rainbow Trout. Note rearing ponds for steelhead and summer run for steelhead near Coquihalla. | Volume 5A - ESA - Biophysical |
| | Concerns about product spills near creek and waterways. Impact and emergency response. | Volume 5A - ESA - Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Fish numbers are decreasing annually. Aboriginal communities have restricted fishing activities to increase stock but non-native fishers continue to deplete stock. Concern that construction crews or increase activity in the area will increasing fishing and further deplete stock | Volume 5A - ESA - Biophysical |
| | A water licence may be required for dust control | Volume 6 - Project Execution |
| Human Activity and Use | High recreational use of ROW for ATVs, biking, motorbikes, geocaching, cross-country skiing, sleds and hunting.. Request to provide alternative access and notification during construction. | Volume 5B - ESA - Socio-Economic |
| | Access for bird watching *e.g.*, Guichon area | Volume 5B - ESA - Socio-Economic |
| | Effect of forest company plans | Volume 5B - ESA - Socio-Economic |
| | Disruption to fly-fishing by construction traffic | Volume 5B - ESA - Socio-Economic |
| | Increased access points to backcountry could disrupt current uses, damage environment or create additional demand for search and rescue | Volume 5B - ESA - Socio-Economic |
| | Concerns about construction impact on ‘nature’ tourism – supports local economy | Volume 5B - ESA - Socio-Economic |
| | Concerns about construction impacts to stargazers at Loon Lake | Volume 5B - ESA - Socio-Economic |
| | Consider corrective measures to address existing invasive weed spread before creating an additional weed control issue. | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.22

## COMMUNITY WORKSHOP – MERRITT, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Human Activity and Use | Concern that restrictions of ROW use already create land management issues for rancher | Volume 5B - ESA - Socio-Economic |
| | Questions about location of gravel pit for construction. What impact will this have on community? | Volume 5B - ESA - Socio-Economic |
| | Concerns about impact to recreation activity in the Merritt to Hope region<br>Trans Canada Trail<br>Informal camping along Coquihalla River (use ROW for access)<br>Consideration of reducing recreation impacts by moving pipeline right-of-way to west side of Coquihalla Lakes | Volume 5B - ESA - Socio-Economic |
| | Approximately 30 per cent of the municipal population in Merritt is aboriginal. Negotiations with the 7 bands in the regions impact the entire community. | Volume 5B - ESA - Socio-Economic |

### *1.7.9.11 Community Workshop – Hope, BC*

Table 1.7.23 provides information on the key topics, interests and concerns for the Hope Community Workshop.

**TABLE 1.7.23**

**COMMUNITY WORKSHOP – HOPE, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Construction impacts on terrain stability especially in high rainfall seasons. Specific concerns include Othello Road, Othello Tunnel, and Popkum. | Volume 5A - ESA - Biophysical |
| | Impact of land disturbance and the ecosystem's ability to cope. | Volume 5A - ESA - Biophysical |
| | The Coquihalla canyon is identified as having a high recreation value and is perceived to be a difficult place to construct and protect a pipeline. Although the Project's proposed routing bypasses the canyon, it continues to be raised as a topic of concern in that community | Volume 5B - ESA - Socio-Economic |
| | Protection of native plant species and avoid spread of invasive species *e.g.*, Chinese Hogweed | Volume 5A - ESA - Biophysical |
| | Caution about construction impacts on hunting season (starting Sept 10). Hunting is important to local economy. | Volume 5B - ESA - Socio-Economic |
| | Concerns about impacts on wildlife and habitat - black bear, some grizzly habitat to east of region (data available) | Volume 5A - ESA - Biophysical |
| | Construction impacts on raptors and eagles around Kawkawa Lake. Data available through Skagit bird count. | Volume 5A - ESA - Biophysical |
| Air | Request for an urban construction schedule that restricts activity to daylight hours and minimizes impact of noise and vibration on residents. | Volume 5B - ESA - Socio-Economic |
| | Concerns about noise impact on tourism and camping (Flood Hope Road), hunting, wildlife | Volume 5B - ESA - Socio-Economic |
| | Global concern about GHG emissions from oil exports – impacts on climate change | n/a |
| | Air quality is an issue in Hope. Contaminants generated in Metro Vancouver and the Fraser Valley get trapped at end of air shed funnel in Hope. Any increase in air emissions will impact Hope. | Volume 5A - ESA - Biophysical |
| | Noise impact on bird nesting | Volume 5A - ESA - Biophysical |
| | Concern about dust impacts on mountain terrain and wetlands | Volume 5A - ESA - Biophysical |
| Water | Protection of District water source – District well is east of ROW | Volume 5B - ESA - Socio-Economic |
| | Concerns about impact on Nestlé Waters spring water source – construction or incident | Volume 5B - ESA - Socio-Economic |
| | Protection of fish habitat – Fraser River fishery and spawning, east shore of Kawkawa Lake | Volume 5A - ESA - Biophysical |
| | Protection of wetlands, freshlets and water bodies including Thacker marsh | Volume 5A - ESA - Biophysical |
| | Concerns about protection of water purity – no chlorine or filters for water currently used in the area. | Volume 5A - ESA - Biophysical |
| | Construction impact on aesthetics of riparian buffer zones | Volume 5B - ESA - Socio-Economic |
| | Concern about impact of seasonal flooding of Coquihalla River on Wardell Street – will this impact pipeline construction or integrity | Volume 4B - Project Design and Execution - Construction |

## TABLE 1.7.23

## COMMUNITY WORKSHOP – HOPE, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Water | Construction impact on lake level of Coquihalla Lake | Volume 5A - ESA - Biophysical |
| Human Activity and Use | Construction impact on Kawkawa Lake and recreational uses of lake - chum fishing, tourism/ existing city park | Volume 5B - ESA - Socio-Economic |
| | Concerns about increasing unauthorized ATV access to backcountry through construction and new access roads | Volume 5B - ESA - Socio-Economic |
| | Trail access to Hope Lookout crosses the ROW. Construction will restrict access to this popular trail. Request to provide alternate access during construction. | Volume 5B - ESA - Socio-Economic |
| | ROW is used by ATV, dirt and highway bikes and snowmobiles. Construction will limit these activities. | Volume 5B - ESA - Socio-Economic |
| | Request to minimize disruption to tourists and local recreation areas. Hope is defined by its outdoor recreation opportunities (part of new community brand) - Needle Peak (busy in summer and winter), Falls Lake (ski touring and snowmobiling), Othello Tunnels, Thar Peak Zoa Recreation Area and Zopkias Rest Stop | Volume 5B - ESA - Socio-Economic |
| | Concern about impacts on Aboriginal communities culture, spiritual concerns and special places – Water Babies, Kawkawa Lake and Union Bar | Volume 5B - ESA - Socio-Economic |
| | Concern about Construction Crew impact on community - increased number of male workers in community, demands on infrastructure and services | Volume 5B - ESA - Socio-Economic |
| | Construction impacts on informal camping along Coquihalla - Peers Creek and Coquihalla River sites (supports local economy) | Volume 5B - ESA - Socio-Economic |
| | Concerns about Othello Road construction and impact on Nestlé Waters water operations as well as recreation use of Othello Road - Nestlé Waters trucking (20 per day), tourism, road cyclists and flood | Volume 5B - ESA - Socio-Economic |

### *1.7.9.12 Community Workshop – Abbotsford, BC*

Table 1.7.24 provides information on the key topics, interests and concerns for the Abbotsford Community Workshop.

**TABLE 1.7.24**

**COMMUNITY WORKSHOP – ABBOTSFORD, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Participant expressed concern regarding the potential for habitat destruction during construction. Species at risk noted: Oregon Spotted Frog, Red Legged Frog, Coastal Tail Frog, Coastal Giant Salamanders, Mountain Beaver, | Volume 5A - ESA - Biophysical |
| | Participant expressed concern regarding the spread of invasive species such as Japanese Knotweed which can be spread during ditching/excavating activities | Volume 5A - ESA - Biophysical |
| | Participant identified the potential for habitat fragmentation along the right-of-way during and post construction | Volume 5A - ESA - Biophysical |
| | Participant expressed concern with the potential for construction to impact the Phantom Orchid – a species at risk – during May/June – participant noted that it was hard to identify where the orchids exist as they do not bloom every year or even in the same location each season | Volume 5A - ESA - Biophysical |
| | Participant identified challenging topography in the greenspace near the Ledgeview Golf Course and noted that it may be an issue during construction (elevation changes) | Volume 5A - ESA - Biophysical |
| | Participant noted the need to consider climate change during infrastructure planning – specifically noted that topography may change and that industry needed to consider these factors, *i.e.,* anticipate changes to the environment which may have changing effects on pipeline and facilities infrastructure | Volume 4B - Project Design and Execution - Construction |
| | Participant expressed concern with geo-technical stability of the region (elevation changes) – which may cause sliding during pipeline construction, specifically the Bradner area | Volume 4B - Project Design and Execution - Construction |
| | Participant expressed concern with potential disruption to corn, dairy, sod farms, endives, bulbs in the Sumas Prairie region during construction | Volume 5B - ESA - Socio-Economic |
| | Participant identified that the region contains organically certified farm operations which would have specific concerns re: construction | Volume 5B - ESA - Socio-Economic |
| | Participant noted that construction and operation of the pipeline may impact the farmers' ability to dig connecting ditches to main drainage ditches | Volume 5B - ESA - Socio-Economic |
| | Participant noted concern with disturbance of sediment during construction, specifically the Clayburn Creek area | Volume 5A - ESA - Biophysical |
| | Participant noted that BC Agriculture is a $1.8 billion industry and provides jobs for British Columbians – concern with potential impacts to this industry and loss of jobs | Volume 5B - ESA - Socio-Economic |
| Air | Participant expressed concern with air quality and noted that there are levels of asbestos currently in the soil – noted that the use of tilling can cause it to release into the air (air quality concerns) | Volume 5A - ESA - Biophysical |
| | Participant expressed concern with elevated noise and dust during construction and how this might impact chicken farms in the area and their production | Volume 5B - ESA - Socio-Economic |
| | Participant sited the Elizabeth Wildlife Sanctuary which rescues and treats injured animals. Concern with noise during construction and that it may cause further irritation to animals already in distress. | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.24

## COMMUNITY WORKSHOP – ABBOTSFORD, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Air | Participant expressed interest in noise levels during construction (decibels) in comparison to existing agriculture industry noise levels. | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern with construction noise and the impact to Caves Court (urban development) | Volume 5B - ESA - Socio-Economic |
| | Participant noted that it was not just human health due to air emissions from tanker traffic, that plant, animals, crops would also be impacted | Volume 5B - ESA - Socio-Economic |
| | Participant sited a figure of $20 million damage to agricultural crops due to air pollution (no additional context available) | Volume 5B - ESA - Socio-Economic |
| | Participant expressed that they did not wish to see any increase to industrial activity (specifically tanker traffic) which would negatively impact the air shed in the Abbotsford region (Fraser Valley) | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern with additional odours associated with the twinning of the pipeline | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern with increased dust in the air during construction and the potential effect on berry crops | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern with air quality during construction and after and the effect on those who suffer from asthma | Volume 5A - ESA - Biophysical<br>Volume 5B - ESA – Socio-Economic |
| | Participant expressed concern with the Benzene content associated with a potential spill and the effect on air quality | Volume 5A - ESA - Biophysical<br>Volume 5B - ESA – Socio-Economic<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Participant expressed concern with the frequency of odours emitted from tank roofs at Sumas Terminal | Volume 5B - ESA - Socio-Economic |
| | Participant noted concern regarding ongoing residual odours associated with 2012 spill at Sumas Terminal | Volume 5B - ESA - Socio-Economic |
| Water | Participant expressed concern for Nathan Creek during construction and the potential effects on salmon spawning | Volume 5A - ESA - Biophysical |
| | Participant noted that infrastructure planning should take into consideration flooding and the effects of climate change, *i.e.,* 100 year events were potentially becoming 10 year events | Volume 4B - Project Design and Execution - Construction |
| | Participant noted interest in the track record of remediation in area, specifically Kilgaarde Creek, and the effectiveness of the remediation | Volume 5A - ESA - Biophysical |
| | Participant noted concern for personal (artesian) wells, specifically for the Mt. Lehman, Sumas Prairie, Bradner areas | Volume 5B - ESA - Socio-Economic |
| | Participant noted concern for the Sumas – Abbotsford Aquifer and the potential for damage to this fragile area in the event of a spill | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Participant noted that there is a Restricted Covenant (DFO) mandated to protect fish habitat | |
| | Participant noted concerns with spring ditching re: drainage and the potential impact due to construction and operations of the proposed pipeline | Volume 5A - ESA - Biophysical |
| | Participant noted concerns for the protection of the Vedder Aquifer both during and after construction of the pipeline | Volume 5A - ESA - Biophysical |

## TABLE 1.7.24

## COMMUNITY WORKSHOP – ABBOTSFORD, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| | Participant expressed interest/concern with protection of watersheds and noted that any water removed from these watersheds for the purpose of hydrostatic water testing should be returned to the same place and in the same condition as it was removed | Volume 5A - ESA - Biophysical |
| Water | Participant noted that 90 per cent of agriculture operations were dependent on well water and that this resource must be protected Spring ditching re: drainage from farms | Volume 5B - ESA - Socio-Economic |
| Human Activity and Use | Participant noted that there are twenty-three schools between Hope and Burnaby within 200-meters of pipeline (about seven or eight of the schools are in Abbotsford) and that proper safety precautions (in the event of a spill) and considerations should be in place as well as open line of communication with the school district; referenced the Pipe Up organization as a source of information to identify all schools if there was a need for further information | Volume 5B - ESA - Socio-Economic<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Participant referenced the urban residential development (in general and specifically Auguston and the area between Matsqui prairie and golf course) and the close proximity and potential high impact due to activities at Sumas Mountain Terminal | Volume 5B - ESA - Socio-Economic |
| | Participant identified the potential impact to forest and horse trails, greenspace and streams in the area and the need to minimize/mitigate construction impacts | Volume 5B - ESA - Socio-Economic |
| | Participant identified potential for disruption to local services during construction due to crew demands | Volume 5B - ESA - Socio-Economic |
| | Participant identified the potential for disruption to activities at the Ledgeview Golf Course both during construction and remediation | Volume 5B - ESA - Socio-Economic |
| | Participant requested that the Project team acknowledge that there could be a spill every meter (expressed the need for mitigation of risks along the entire length of the proposed pipeline) | Volume 5B - ESA - Socio-Economic |
| | Participant identified that aggregate mining is a risk to the existing and proposed pipeline due to blasting impacts and that this needed to be considered and planned for. | Volume 5B - ESA - Socio-Economic |
| | Participant noted concern with construction impacts to Ledgeview mountain biking area | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern regarding the ability for rowing club activities to continue year round during construction and suggested horizontal directional drilling process for under Sumas River Acknowledge that there could be a spill every meter | Volume 5B - ESA - Socio-Economic |
| | Participant noted that the Trans Canada Trail has the potential to be impacted during construction and that the trail is used more heavily in the summer | Volume 5B - ESA - Socio-Economic |
| | Participant noted that dairy trucks and other pickups and local traffic have the potential to be impacted by construction and that this needed to be mitigated | Volume 5B - ESA - Socio-Economic |
| | Participant indicated that there was the potential to impact/impede emergency access during construction and that this would need to be planned for. | Volume 5B - ESA - Socio-Economic |
| | Participant indicated concern for impact to feed truck traffic and the potential impact to delivery routes and crops during construction; need to identify and work with existing land use time frames | Volume 5B - ESA - Socio-Economic |

### *1.7.9.13 Community Workshop – Chilliwack, BC*

Table 1.7.25 provides information on the key topics, interests and concerns for the Chilliwack Community Workshop.

**TABLE 1.7.25**

**COMMUNITY WORKSHOP – CHILLIWACK, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Participant expressed concern with soil compaction post construction | Volume 5A - ESA - Biophysical |
| | Participant noted that consideration and protection of native medicine plants was important | Volume 5A - ESA - Biophysical |
| | Participant commented that it would be important that information about the mitigation process was adequately and accurately communicated to stakeholders communication re mitigation process | Volume 5A - ESA - Biophysical |
| | Participant commented that it was important for the Project proponent to seek local knowledge with regard to potential environmental and socio-economic impacts to the region as a result of construction or operation of the pipeline | Volume 5B - ESA - Socio-Economic |
| | Participant noted that it would be important to consider and protect the heron reserve when planning the Project, both during and after construction | Volume 5A - ESA - Biophysical |
| | Participant noted that it would be important to consider and mitigate impacts to agricultural operations during construction | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern with potential restrictions on farm land during and post construction – NEB safety zone and also TMEP right-of-way | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern with endangered species such as the Oregon snail and the potential for impact to their habitat | Volume 5A - ESA - Biophysical |
| | Participant expressed concern with the design of the proposed pipeline specifically where there was a drop in elevation on the Coquihalla | Volume 4B - Project Design and Execution - Construction |
| | Participant expressed concern with the seismicity of the region (faults) and the need to consider this when designing the pipeline, particularly whether or not the pipe would move or stay in place | Volume 4B - Project Design and Execution - Construction |
| | Participant expressed concern with the existing wildlife overpasses and how the proposed pipeline might impact them | Volume 5A - ESA - Biophysical |
| | Participant noted the importance of proper planning as it relates to any crossings of the Canada Trail, particularly during peak usage times | Volume 5B - ESA - Socio-Economic |
| | Participant noted Volcanic eruptions – Mount Baker | Volume 4B - Project Design and Execution - Construction |
| | Participant noted concern with a pipeline breach or spill and the effects to the soil | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Participant noted concern with tree removal on the right-of-way | Volume 5A - ESA - Biophysical |
| | Participant noted concern for the protection of wetlands, birds and nesting ground and wildlife during and after construction | Volume 5A - ESA - Biophysical |
| Air | Participant expressed concern with associated emissions due to increased tanker traffic | Volume 8A - Marine Transportation |
| | Participant noted concerns regarding GHG emissions from tar sands and the ability to meet air quality requirements (Federally); Global Climate Change | Volume 5A - ESA - Biophysical |
| | | |

## TABLE 1.7.25

## COMMUNITY WORKSHOP – CHILLIWACK, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Air | Participant expressed concern about odours from Hope relief tank and the effect on air quality | Volume 5A - ESA - Biophysical |
| | Participant noted concern with vapours from pump station(s) | Volume 5A - ESA - Biophysical<br>Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern with increased emissions from vehicle traffic and machine emissions associated with the Project in urban areas; suggested use of electric powered backhoes | Volume 5A - ESA - Biophysical |
| | Participant expressed concern with additional light pollution associated with construction | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern with increased dust in the air associated with construction and the effect on air quality | Volume 5A - ESA - Biophysical |
| | Participant expressed interest in having chip material recycled instead of burning | Volume 6 - Project Execution |
| | Participant expressed concern with degradation of air quality due to increased terminal operations | Volume 5A - ESA - Biophysical |
| | Participant expressed interest in having tank emissions data quantified and put it into lay terms/something that is comparable and that stakeholders could relate to | Volume 5A - ESA - Biophysical |
| | Participant expressed concern with the effects of emissions from the tank is on humans when air quality tests don't indicate any impact to air quality; inquired as to whether or not the right tests were being taken and whether the proper test locations were being used | Volume 5B - ESA - Socio-Economic |
| Water | Participant expressed concern with the protection of the Vedder River Crossing (which contains salmon) during construction | Volume 5A - ESA - Biophysical |
| | Several participants commented about the Salish suckers which live off the channels of the Vedder River and other areas; some expressed concern for their protection and others expressed their dislike of this fish Vedder River Crossing (salmon) | Volume 5A - ESA - Biophysical |
| | Participant expressed concern with a spill, once the pipeline was operational, into an area which contained an aquifer | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Participant expressed concern for Big Ditch Little Chilliwack and Semi Elk Creek as this infrastructure needs to be maintained but this maintenance would not be possible as digging over the pipeline wouldn't be permitted | Volume 4B - Project Design and Execution - Construction |
| | Participant expressed concern with the potential obstruction of watercourses and crossings, shallow pipelines (water) and sited Yarrow as an example | Volume 5A - ESA - Biophysical |
| | Participant expressed concern for the aquifer as it is the City of Chilliwack's ground water source; noted geologic stability/rock seepage (pipe-rock-water) | Volume 5A - ESA - Biophysical |
| | Participant noted concern for the fish hatchery on Skowkale Reserve and the protection of this resource during and after construction | Volume 5A - ESA - Biophysical |
| | Participant noted concern for open drainage and channelized creeks and the effects of the pipeline construction and operation on this existing infrastructure | Volume 5A - ESA - Biophysical |
| | Participant expressed concern with the protection of spawning channels (salmon) around/through Bridal Veil Falls during construction and operation of the pipeline | Volume 5A - ESA - Biophysical |

## TABLE 1.7.25

## COMMUNITY WORKSHOP – CHILLIWACK, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| | Participant expressed concern with the contamination of Cheam Lake should there be a spill | Volume 5A - ESA - Biophysical Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Water | Participant expressed concern with existing drainage systems (fish waterways are still linked even where distant from pipe) | Volume 5A - ESA - Biophysical |
| | Participant expressed concern with the protection of Peach Pond spawning channel (fish species – this is the main spawn area) | Volume 5A - ESA - Biophysical |
| | Participant expressed concern with the maintenance of existing drainage system and the timing of such activities during the construction of the pipeline and after in operation | Volume 5A - ESA - Biophysical |
| | Participant expressed concern regarding the depth of the water tables in the area; shallow | Volume 5A - ESA - Biophysical |
| | Participant expressed concern with regard to the challenges associated with different jurisdictional responsibilities for the various water bodies; whether or not the resources could be adequately protected/managed | Volume 5A - ESA - Biophysical |
| | Participant expressed concern with seasonal water control, springs erosion and the ability to manage this during construction and once in operation | Volume 5A - ESA - Biophysical |
| | Participant expressed concern regarding the depth of cover over the pipeline under river crossings and the ability to protect the water body in the event of a spill or other incident | Volume 4B - Project Design and Execution - Construction |
| | Participant expressed concern regarding the product being transported through the pipeline and the tendency for bitumen to sink in water making remediation of a spill more difficult | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Human Activity and Use | Participant expressed concern regarding the impact of construction, and potential spill during operation of the pipeline to private residential neighbourhoods | Volume 5B - ESA - Socio-Economic Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Participant expressed concern regarding the impact of construction and operation of the pipeline to fishing and kayaking recreational activities which take place year round | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern regarding the impact of construction and operation of the pipeline to the enjoyment of nature, specifically Fred Tackle recreation trails | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern regarding the impact of construction and operation of the pipeline to snowmobiling activities in winter | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern with construction traffic and the associated tracking of mud onto streets | Volume 5B - ESA - Socio-Economic |
| | Participant noted that access to a historic train track and Canada Trail would potentially be impacted during construction | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern with access and potential damage to Minter Gardens during construction | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern regarding access to provincial campgrounds during construction | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.25

## COMMUNITY WORKSHOP – CHILLIWACK, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| | Participant expressed concern regarding potential impact to/safety of/access to school grounds during construction and in the event of a spill during operation | Volume 5B - ESA - Socio-Economic<br>Volume 4B,<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Participant expressed concern regarding the impact to Bridal Falls park during construction and after operation | Volume 5B - ESA - Socio-Economic |
| | Participant noted the need to clearly mark the pipeline route | Volume 5B - ESA - Socio-Economic |
| Human Activity and Use | Participant expressed concern with the potential for sabotage along the pipeline right-of-way and the potential impact to the surrounding area | Volume 5B - ESA - Socio-Economic<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Participant noted the importance of determining a construction window which would be appropriate for the area and work with existing/competing land uses already in the area | Volume 5B - ESA - Socio-Economic |
| | Participant expressed concern with the potential for increased traffic during construction and the impact to the surrounding community | Volume 5B - ESA - Socio-Economic |

### *1.7.9.14 Community Workshop – Coquitlam, BC*

Table 1.7.26 provides information on the key topics, interests and concerns for the Coquitlam Community Workshop.

**TABLE 1.7.26**

**COMMUNITY WORKSHOP – COQUITLAM, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Study corridors have pre-existing industrial contamination that may be disturbed by pipeline construction and may need to be remediated | Volume 5A - ESA - Biophysical |
| | Concern about the riparian areas impacts with all creek crossings required by pipeline through south Coquitlam | Volume 5A - ESA - Biophysical |
| | Study corridors will be in the Flood plain through Coquitlam, concern about pipeline integrity | Volume 5A - ESA - Biophysical |
| | Study corridors proximity to Fraser River – how stable is the ground over the long-term | Volume 5A - ESA - Biophysical |
| | Has Trans Mountain considered sea level rise due to climate change in the routing plans | Volume 4B - Project Design and Execution - Construction |
| | At risk species were identified via PMH 1 Project, and should be considered in pipeline expansion | Volume 5A - ESA - Biophysical |
| | Concern about negative economic impact to Burnaby Mountain Golf Course during construction | Volume 5B - ESA - Socio-Economic |
| | protect species at risk identified in Brunette River | Volume 5A - ESA - Biophysical |
| | Beedie group of developers have plans for Fraser Mills, concern about land use conflict | Volume 5B - ESA - Socio-Economic |
| | Prevent spills: Concern about oil spill impact on humans because oil leaches into soil | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Public health concerns of a potential oil spill in a transportation corridor/urban area | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Follow City of Coquitlam's invasive species –approach (is on their website). Will invasive species be removed during construction? | Volume 5A - ESA - Biophysical |
| Air | Concern about Dust during construction | Volume 5A - ESA - Biophysical |
| | Concern about Tanker emissions (increased air quality degradation) | Volume 8A - Marine Transportation |
| | Area between Lougheed and Trans Canada Highways = issues with traffic/dust | Volume 5B - ESA - Socio-Economic |
| | Concern that traffic control during construction will reduce air quality from idling cars | Volume 5A - ESA - Biophysical |
| | Cumulative impacts – development fatigue (highway one improvements, port mann bridge, pipeline construction) | Volume 5A - ESA - Biophysical |
| | odour impacts to local residents from Pipeline (during maintenance or spill)/mill | Volume 5B - ESA - Socio-Economic |
| | Public health concerns – spill prevention/air quality/operations/spill impacts | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |

## TABLE 1.7.26
## COMMUNITY WORKSHOP – COQUITLAM, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Air | Potential for Odours from maintenance at valve sites, nitrogen venting | Volume 5B - ESA - Socio-Economic |
| | Desire for communication with community about odours & health impacts | Volume 5B - ESA - Socio-Economic |
| | Desire for communication with community about odours & health impacts | Volume 5B - ESA - Socio-Economic |
| | Poor air quality in Lower Mainland causing respiratory issues (unrelated to pipeline operations at this point) | Volume 5B - ESA - Socio-Economic |
| | South Coquitlam area already affected by noise – construction of pipeline would increase noise | Volume 5B - ESA - Socio-Economic |
| | Construction – traffic congestion impacts | Volume 5B - ESA - Socio-Economic |
| Water | Public health concerns with contaminated water in event of an oil spill | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | South Coquitlam was built on landfill (broader than just Eagle Quest Golf Course). Landfill creates leachate, ground disturbance issues, and issues with methane controls | Volume 4B - Project Design and Execution - Construction |
| | Ensure Trans Mountain considers protecting the pipeline due to predicted rising levels of Fraser River | Volume 4B - Project Design and Execution - Construction |
| | Alternate study corridor runs along a lot of environmentally sensitive areas – including through existing compensation areas (as result of highway improvements) | Volume 5A - ESA - Biophysical |
| | Concern about impact on water from a pipeline failure resulting in a spill | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Brunette River is an environmentally sensitive area containing Nooksak Dace, Salmon spawning areas | Volume 5A - ESA - Biophysical |
| | Proposed study corridor is already very busy with existing development & associated impacts | Volume 5A - ESA - Biophysical |
| | Concern about impact to creeks (multiple crossings run north to south) through Coquitlam | Volume 5A - ESA - Biophysical |
| | Concern about water quality due to construction or spill into Fraser River | Volume 5A - ESA - Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Concern about pipeline integrity due to high groundwater levels in the south Coquitlam area | Volume 4B - Project Design and Execution - Construction |

## TABLE 1.7.26
## COMMUNITY WORKSHOP – COQUITLAM, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Human Activity and Use | Concern that pipeline construction will negatively impact businesses on United Blvd, who have already lost business due to previous road construction Projects | Volume 5B - ESA - Socio-Economic |
| | Concern that construction may affect local traffic (Lougheed/Brunette/Hwy 1/ North Road) | Volume 5B - ESA - Socio-Economic |
| | Concern that construction or an oil spill may impact viewpoints along Experience the Fraser (trail system along Fraser River foreshore) | Volume 5B - ESA - Socio-Economic<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | What is the risk to communities living near pipelines in the event of a spills | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Competing land use issues (*e.g.*, safety of pipelines near schools) | Volume 5B - ESA - Socio-Economic |
| | Concern about impact of pipeline on proposed Fraser Mills re-development | Volume 5B - ESA - Socio-Economic |

### *1.7.9.15 Community Workshop – Langley, BC*

Table 1.7.27 provides information on the key topics, interests and concerns for the Langley Community Workshop

**TABLE 1.7.27**

**COMMUNITY WORKSHOP – LANGLEY, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Concern about the additional width required for construction working space and the impact on nearby vegetation | Volume 5A - ESA - Biophysical |
| | There is continued unrestricted use of land (farming) in Langley | Volume 5B - ESA - Socio-Economic |
| | Consideration needs to be given towards an erosion plan for construction | Volume 6 - Project Execution |
| | There is concern for displacement of soil along the Salmon River floodplain as a result of pipeline construction activity | Volume 5A - ESA - Biophysical |
| | A park is located at the north end of Redwoods Golf Course | Volume 5B - ESA - Socio-Economic |
| | A re-route to Redwood Golf Course was suggested to avoid environmental sensitivities through the Salmon River Valley. | Volume 5A - ESA - Biophysical |
| | There is an active wildlife corridor in North Langley along proposed route with bears, cougars, deer, beaver, coyotes, racoons which includes nesting sites and dens | Volume 5A - ESA - Biophysical |
| | Wildlife are located along the south side of the CN railroad tracks and north of the existing TMEP right-of-way | Volume 5A - ESA - Biophysical |
| | The Mountain View Conservation & Breeding Centre has a piece of right-of-way that is used as a wildlife corridor for deer, coyotes and bear. | Volume 5A - ESA - Biophysical |
| Air | Concern raised over animal sensitivity to noise during the construction and operation of the pipeline. | Volume 5A - ESA - Biophysical |
| | Concern raised over air quality during construction from pipe welding and suggest air testing is undertaken by Trans Mountain. | Volume 5A - ESA - Biophysical |
| | Concern raised over the air quality impacts to the Fraser Valley from increased GHG emissions | Volume 5A - ESA - Biophysical |
| | It was noted that using other methods to remove material during construction (rail bed) instead of trucks would reduce GHG emissions | Volume 5A - ESA - Biophysical |
| | The noise from construction activities could affect bird nesting season (Mar 15 – July 15) therefore Trans Mountain should be doing vegetation clearing outside of these dates | Volume 5A - ESA - Biophysical |
| | Increase in vehicle emissions during construction could impact air quality | Volume 5A - ESA - Biophysical |
| | Increased tanker traffic could impact air quality | Volume 8A - Marine Transportation |
| | Dust and traffic related to construction could impact berry crops near by | Volume 5B - ESA - Socio-Economic |
| | The process of applying coating to the exterior of the pipe during construction could impact air quality | Volume 5A - ESA - Biophysical |
| | Noise from construction could impact nearby urban neighbourhoods (*i.e.*, Castle Hill) | Volume 5B - ESA - Socio-Economic |
| | Environmental sensitivities: dust, noise and air pollution from slash burning could impact wildlife during spawning. | Volume 5A - ESA - Biophysical |

## TABLE 1.7.27

## COMMUNITY WORKSHOP – LANGLEY, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Water | Redwoods golf course is a year round wetland | Volume 5A - ESA - Biophysical |
| | The Salmon River flood plains fluctuates year round | Volume 5A - ESA - Biophysical |
| | Environmental sensitivities in the event of a spill or construction activities: there are 19 different crossing of streams, tributaries and rivers in the area | Volume 5A - ESA – Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Request for a Trans Mountain representative to contact during construction (after hours) to report sediment plumes | Volume 5A - ESA - Biophysical |
| | Environmental sensitivities: turbidity in creeks and streams during construction | Volume 5A - ESA - Biophysical |
| | Red Spotted Frog is located in the region | Volume 5A - ESA - Biophysical |
| | Silt/erosion control along the Salmon River, West Creek and Yorkson Creek | Volume 5A - ESA - Biophysical |
| | There is a risk of spill/scouring along the Fraser Valley flood plain | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Concern about pipeline weighting and buoyancy if it is installed in the flood plain | Volume 4B - Project Design and Execution - Construction |
| | Environment sensitivities: protection of well water in the event of a spill or leaching | Volume 5A - ESA – Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Mountain View Conservation area is located along existing TMPL and has a very unique Northern Spotted Owl conservation program, among others. | Volume 5A - ESA - Biophysical |
| | Concern for potential risk of Invasive species introduced through land clearing | Volume 5A - ESA - Biophysical |
| | Alteration of water patterns and habitat | Volume 5A - ESA - Biophysical |
| | West Creek wetlands | Volume 5A - ESA - Biophysical |
| | Langley Bog is located at KP 1156 (north of corridor) | Volume 5A - ESA - Biophysical |
| | Look at doing construction during the dry season (to protect streams) | Volume 5A - ESA - Biophysical |
| | Environmental sensitivity: general proximity of proposed pipeline to Salmon River and all associated creek crossings | Volume 5A - ESA - Biophysical |
| | If horizontal directional drilling is used many of the environmental restrictions will be avoided | Volume 5A - ESA - Biophysical |
| | The Salmon River is a Coho indicator stream. | Volume 5A - ESA - Biophysical |
| | Concern about potential silt running into streams | Volume 5A - ESA - Biophysical |

## TABLE 1.7.27

## COMMUNITY WORKSHOP – LANGLEY, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| | Environmental sensitivities in the context of a spill: the Salmon River Valley is largely underwater during the fall and late spring near the Hoppington area and there are several aquifers in the Glen Valley area. Nicomekl is a deep aquifer. There is concern that the impact of increased population drawing from the aquifer will not enable sufficient aquifer recharge | Volume 5A - ESA - Biophysical |
| Water | Trans Mountain was informed that the Agriculture Land Reserve want to look at top soil and soil handling procedures. The ALR see pipelines as a compatible use of agricultural land but have concern around how soil is handled and returned to agricultural capacity. | Volume 5A - ESA - Biophysical |
| Human Activity and Use | Any possible future residential development in Walnut Grove is a potential impact. | Volume 5B - ESA - Socio-Economic |
| | There is a bike path and walking trail along the Fortis Gas right-of-way (located at KP 1128). The trail also follows the Fortis right-of-way south of 96th Avenue. | Volume 5B - ESA - Socio-Economic |
| | There is recreational fishing on the lower Salmon River. | Volume 5B - ESA - Socio-Economic |
| | Potential impacts to the view from Belmont Golf Course | Volume 5B - ESA - Socio-Economic |
| | Concern about recreational access for dirt bikes and quads at end points along the right-of-way | Volume 5B - ESA - Socio-Economic |
| | Concern in general about increased access of pedestrians on right-of-way | Volume 5B - ESA - Socio-Economic |
| | There is an equestrian trail (Houston Trail) that runs north of the CN rail corridor | Volume 5B - ESA - Socio-Economic |
| | There is recreational use of canoes and kayaks along the Salmon River | Volume 5B - ESA - Socio-Economic |
| | There are heritage resources along Telegraph Trail Road | Volume 5B - ESA - Socio-Economic |
| | Horse, bike and walking trails run along the Southside of Golden Ears Way. TMEP is on the north. | Volume 5B - ESA - Socio-Economic |
| | There is a new suburban development (high end homes) in Castle Hill which is located along existing pipeline at KP 1115 – 1116. | Volume 5B - ESA - Socio-Economic |
| | There is a trail along the east side of the Castle Hill subdivision which runs north of 80th Avenue (along the watercourse). | Volume 5B - ESA - Socio-Economic |
| | It was suggested it is preferable to reroute outside of urban areas through Langley. | Volume 4B - Project Design and Execution - Construction |
| | Suggestion to ensure full restoration to its original condition | Volume 5B - ESA - Socio-Economic |

### *1.7.9.16 Community Workshop – Surrey, BC*

Table 1.7.28 provides information on the key topics, interests and concerns for the Surrey Community Workshop.

**TABLE 1.7.28**

**COMMUNITY WORKSHOP – SURREY, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | There are Pacific Water Shrews in Surrey Bend Park and east of the Port Mann Bridge | Volume 5A - ESA - Biophysical |
| | Concern regarding soils issues and erosion near a HDD crossing | Volume 5A - ESA - Biophysical |
| | Seismic stability: the mountain near Fraser Heights area is unstable and immature. It is solid granite approximately 20 miles underground for maybe 60 miles. | Volume 4B - Project Design and Execution - Construction |
| | Sediment will liquefy in event of an earthquake (bogs) | Volume 4B - Project Design and Execution - Construction |
| | Will need to plan for appropriate mitigation and handling of industrial heavy metal hydrocarbons and potential asbestos in the soil. | Volume 5A - ESA - Biophysical |
| | There are red legged frogs in Centre Creek and Surrey Bend Park | Volume 5A - ESA - Biophysical |
| | Surrey Bend Park is a restricted covenant and very highly sensitive environmental area. It is either provincial or federally controlled and is best to work with City of Surrey and Metro Vancouver Regional District on planning to construct through here. | Volume 5A - ESA - Biophysical |
| | There is flooding at 136th Street and 116th Avenue | Volume 4B - Project Design and Execution - Construction |
| | Landslides during construction (140th St and King Road) in Bolivar Heights neighbourhood | Volume 4B - Project Design and Execution - Construction |
| | Proper disposal of material moved | Volume 6 - Project Execution |
| | The City of Surrey has a draft Surrey Biodiversity Conservation Initiative Strategy in progress to highlight the areas that need to be protected versus what can be developed. | Volume 5A - ESA - Biophysical |
| | There are plans for a park near Daly Road | Volume 5B - ESA - Socio-Economic |
| | Traffic along the South Fraser Perimeter Road (SFPR) would need to be disrupted/re-routed during construction. There are many other Projects underway in that area (both current and planned for the near future) | Volume 5B - ESA - Socio-Economic |
| | Be aware of other infrastructure Projects underway and being planned for the area. It has been very difficult to find environmental compensation for existing Projects so ensure there is with other infrastructure Projects (*i.e.*, Highway #1). | Volume 5B - ESA - Socio-Economic |
| | Seismic stability (Surrey Ministry of Transportation has gathered info with Port Mann Bridge and land is not stable) | Volume 4B - Project Design and Execution - Construction |
| | Leorn Brook is a protected area | Volume 5A - ESA - Biophysical |

## TABLE 1.7.28

## COMMUNITY WORKSHOP – SURREY, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | There are important habitat corridors for deer and bear along the proposed corridor through Surrey – especially in Surrey Bend on south side of the SFPR. | Volume 5A - ESA - Biophysical |
| | If there were bio spills that would make the corridor narrow | Volume 5A - ESA - Biophysical |
| Air | Disruption to birds and animals during construction (due to noise) in Surrey Bend Park | Volume 5A - ESA - Biophysical |
| | Diminished air quality due to loss of trees during construction | Volume 5A - ESA - Biophysical |
| | Directional drills would be a noise issue, especially in Bolivar Heights neighbourhood, due to 24 hour operation | Volume 5B - ESA - Socio-Economic |
| | Lights from night construction will impact residents nearby | Volume 5B - ESA - Socio-Economic |
| | Surrey Bend peat bog is existing and is a loss of a carbon sink | Volume 5A - ESA - Biophysical |
| | Dust during construction | Volume 5B - ESA - Socio-Economic |
| Water | Fish habitat at 181st St (Leorne Brook) which is also an existing compensation area | Volume 5A - ESA - Biophysical |
| | Previous Projects at Centre Creek to South Fraser Perimeter Road had to do bridge/piles in order to not disturb the ground because it's such an environmentally sensitive area to work in. | Volume 5A - ESA - Biophysical |
| | There is an artesian well at 115A Ave and 139th Street in Bolivar Heights | Volume 5A - ESA - Biophysical |
| | Fraser River Flood plain and there is no dyke in most areas; a 200 year flood plain map exists | Volume 4B - Project Design and Execution - Construction<br>Volume 5A - ESA - Biophysical |
| | The Bog is the "show stopper" | n/a |
| | "Lagg" and bogg hydrology | Volume 5A - ESA - Biophysical |
| | North Vancouver sanitary sewer planned by Metro Vancouver Regional District west of the Port Mann to Bolivar Park | Volume 5B - ESA - Socio-Economic |
| | Study corridor is certainly the better route; west of existing right-of-way concern that pipeline could disrupt water flow and egress from the area | Volume 5A - ESA - Biophysical |
| | There are septic fields on some of the larger, older properties | Volume 5B - ESA - Socio-Economic |
| | Environmental sensitivities because the water table level is low in the Bog there is concern with a potential spill that the Bog will absorb hydrocarbons which would be very difficult to clean up | Volume 5A - ESA - Biophysical |
| | Bonnacorde Creek & Aboriginal interests (fish values, passage interests) | Volume 5A - ESA – Biophysical<br>Volume 5B - ESA - Socio-Economic |
| | There are cutthroat trout and salmon located in Bonnacord and East Bonnacord Creek that are stocked by Serpentine Hatchery | Volume 5A - ESA - Biophysical |

## TABLE 1.7.28

## COMMUNITY WORKSHOP – SURREY, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Human Activity and Use | There are plans for a Port Mann Bridge water line which would be drilled underneath the Fraser River | Volume 5B - ESA - Socio-Economic |
| | Metro Vancouver Regional District has plans to twin a interceptor sewer from Maple Ridge to west of Port Mann bridge. It would cross under the Fraser River into Surrey Bend Park and run in between the CN rail tracks and SFPR. | Volume 5B - ESA - Socio-Economic |
| | There are plans for the old landfill site (adjacent to the Port Mann Bridge) to become a future Port Mann Park (approx. 2016) | Volume 5B - ESA - Socio-Economic |
| | Avoid impact to trails through Surrey Bend Park as it is a zoned conservation area | Volume 5B - ESA - Socio-Economic |
| | School children travel to and from Barnston Island by small ferry which could impact travel during construction. Realign traffic on 104th Ave to Barnston Island. | Volume 5B - ESA - Socio-Economic |
| | There is a trail system (bike route) along the South Fraser Perimeter Road (SFPR) and there are plans to pave it. | Volume 5B - ESA - Socio-Economic |
| | "Experience the Fraser" –a Metro Vancouver Regional District program – is planned along the Fraser River to connect trails between neighbouring communities from Hope to the Salish Sea | Volume 5B - ESA - Socio-Economic |
| | The City of Surrey has a proposed regional park called the Riverside Greenway planned for south of the Fraser River. It is a 4 metre wide multi-use path | Volume 5B - ESA - Socio-Economic |
| | Surrey Bend is a bog and a very environmentally sensitive area. The whole area, including south of the tracks, might be designated a Species At Risk (SARA) area soon by the federal government (Environment Canada). | Volume 5A - ESA - Biophysical |
| | There is likely an archaeology site near the Port Mann bridge along the Aboriginal land on the Fraser River. | Volume 5B - ESA - Socio-Economic |
| | There is construction planned for the Golden Ears Connector so coordination with utilities and compensation- areas should be considered. | Volume 5B - ESA - Socio-Economic |
| | There will be temporary access during construction in the Port Kells industrial area which might present challenges getting in and out with a linear corridor. | Volume 5B - ESA - Socio-Economic |

### *1.7.9.17 Community Workshop – Burnaby, BC*

Table 1.7.29 provides information on the key topics, interests and concerns for the Burnaby Community Workshop.

**TABLE 1.7.29**

**COMMUNITY WORKSHOP – BURNABY, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Land | Top soil in Burnaby is thin, covering hard pan clay. If construction causes siltation in the stream, clay in salmon stream will negatively affect salmon eggs. | Volume 5A - ESA - Biophysical |
| | Landslides from Burnaby Mountain may negatively impact physical support of pipeline, and could damage the pipeline | Volume 5A - ESA - Biophysical |
| | Concern that Trans Mountain will run out of money before environmental remediation and mitigation Projects are completed | n/a |
| | Concern about safety of containment structures at Burnaby Terminal in the event of an earthquake | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Request that the pipeline and other infrastructure be designed to withstand seismic effects | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Concern about geotechnical stability of Cliff Avenue (*e.g.*, sink holes) | Volume 4B - Project Design and Execution - Construction |
| | Concern that turtles in area of proposed corridor will be negatively impacted during construction or in event of spill | Volume 5A - ESA - Biophysical |
| | Concern about construction runoff impacting streams along alternate route (East Lake Ave. [in Lake City]) | Volume 5A - ESA - Biophysical |
| | Protect blue listed species – Western Red Cedar, original forest – during construction | Volume 5A - ESA - Biophysical |
| | Protect bears in the Burnaby Mountain Conservation Area | Volume 5A - ESA - Biophysical |
| | Burnaby Mountain conservation area is environmentally sensitive | Volume 5A - ESA - Biophysical |
| | Request to alter pipeline marker posts to fit in to aesthetic of Westridge neighbourhood, but still be visible | Volume 5B - ESA - Socio-Economic |
| | Desire for less obtrusive and ugly right-of-way warning signs (road markers (medallions) good. Fortis signs bad.) | Volume 5B - ESA - Socio-Economic |
| | Protect eagle nests near Shell | Volume 5A - ESA - Biophysical |
| | Bird sanctuary heron rookery, in ravine west of Cliff Avenue (from Hastings Street to Shell property) | Volume 5A - ESA - Biophysical |
| | Prefer alternative study corridor thorough Burnaby Mountain Conservation Area (Westridge pipeline) | Volume 5A - ESA - Biophysical |
| Air | Lighting on ships and dock operations is disruptive | Volume 8A - Marine Transportation |
| | Minimize noise and air pollution by providing electric plug ins for tankers so they don't run generators | Volume 8A - Marine Transportation |
| | Request to install scrubbers for odor control on all new tanks | Volume 5B - ESA - Socio-Economic |
| | Helicopters patrolling existing pipeline route are noisy and hover | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.29

## COMMUNITY WORKSHOP – BURNABY, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Air | Odours (sulphur smell) noticeable sometimes by Burnaby Terminal | Volume 5B - ESA - Socio-Economic |
| | Request to control odours at Westridge tank farm | Volume 5B - ESA - Socio-Economic |
| | Vapours released in event of spill | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Provide adequate communication to neighbours/public re: ERP | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Concern that light pollution from increased tanker traffic will negatively impact neighbours | Volume 5B - ESA - Socio-Economic |
| | Concern that there will be increased noise and air pollution during construction | Volume 5B - ESA - Socio-Economic |
| | Concern that there will be increased vapours downwind of new tanks | Volume 5B - ESA - Socio-Economic |
| | Participant suggested large concrete tank bay berms | Volume 5B - ESA - Socio-Economic |
| | How will you mitigate GHG during construction | Volume 5A - ESA - Biophysical |
| | Need greater control over tanker emissions in PMV (*e.g.,* participant noted that vessels are not supposed to burn Bunker C but a lot do) | Volume 8A - Marine Transportation |
| | keep dust/contamination from spreading off site by hosing off construction vehicle wheels before they leave the site | Volume 6 - Project Execution |
| | Control dust during construction | Volume 6 - Project Execution |
| | Ensure heavy equipment contractors meet emission standards | Volume 6 - Project Execution |
| | Noise from ships at berths is disruptive to neighbours | Volume 8A - Marine Transportation |
| | Concern about emissions (black smoke) and noise (less of an issue) from tanker generators | Volume 8A - Marine Transportation |
| | Monitor GHGs to see if they increase with new facilities | Volume 5A - ESA - Biophysical |
| | Port residential neighbours concerned about noise from ships at anchorage | Volume 8A - Marine Transportation |
| | concern that fumes (odours) from tank farm will increase with expanded terminal sites | Volume 5A - ESA - Biophysical |
| | Ensure construction follows bylaws of municipality (re: noise, hours) | Volume 6 - Project Execution |
| Water | Take plans for future development of settling ponds near park/SFU area along Stoney Creek into account in pipeline construction plans | Volume 5B - ESA - Socio-Economic |
| | Concern about distance of pipeline from the new City of Burnaby water line that runs along Burnaby Mountain Parkway in event of spill (possibility of water contamination) | Volume 5B - ESA - Socio-Economic |
| | Concern about contaminated water runoff from tanks/operations (filter through ground first) and impact local creeks | Volume 5A - ESA - Biophysical |

## TABLE 1.7.29

## COMMUNITY WORKSHOP – BURNABY, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| | Silver and Eagle Creeks start on Burnaby Mountain – protect cut throat species of interest | Volume 5A - ESA - Biophysical |
| | Concern that study corridor is close to Brunette River | Volume 5A - ESA - Biophysical |
| | Headwaters of Eagle Creek starts on road adjacent to/from Horizons | Volume 5A - ESA - Biophysical |
| | New water feed has just been installed on south slope Burnaby Mountain (avoid other infrastructure during construction) | Volume 5B - ESA - Socio-Economic |
| | Avoid negative impacts to Stoney Creek – fish, riparian habitat, lots of work done to restore creek. | Volume 5A - ESA - Biophysical |
| | Time of year to do directional drilling not September – water flow is low so risk of contamination is high | Volume 5A - ESA - Biophysical |
| | Suggestion that Trans Mountain monitor water quality / runoff into Eagle Creek (SFU does not monitor ) | Volume 5A - ESA - Biophysical |
| | Stormwater may be redistributed (SFU entrance) 1-2 years from now (avoid other infrastructure Projects) | Volume 5A - ESA - Biophysical |
| | Salt runoff from roads to SFU increases conductivity, and has negatively impacted Eagle and Stoney Creeks | Volume 5A - ESA - Biophysical |
| | Prefer selected study corridor to avoid Eagle Creek headwaters | Volume 4B - Project Design and Execution - Construction |
| | Interest in containment berms around tanks: Are they capable of containing a single or multiple tank breach. Are they constructed of concrete? | Volume 4B - Project Design and Execution - Construction |
| | Identify mitigation strategies to address issues | Volume 5A - ESA - Biophysical |
| | Control siltation and runoff from construction | Volume 5A - ESA - Biophysical |
| | Will Trans Mountain build settling ponds (*i.e.*, reeds) downstream from construction and operations to collect pollution runoff/silt, etc. | Volume 4B - Project Design and Execution - Construction |
| | Concern about integrity of Terminals in case of earthquake and multiple tank ruptures | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Can an oil interceptor be installed in storm sewer in case of spill | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Concern about operations noise for waterfront neighbours (Noise travel across water) | Volume 5B - ESA - Socio-Economic |
| | Mainland Coastal shoreline – protect in event of a spill | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Avoid impacts to Orca whales/seals (we know they are not fish) – sensitive species | Volume 8A - Marine Transportation |
| | Emergency response and clean up of an oil spill over or into water | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |

## TABLE 1.7.29

## COMMUNITY WORKSHOP – BURNABY, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| | Concern about Dredging/erosion of Mainland Coastal | Volume 5A - ESA - Biophysical<br>Volume 8A - Marine Transportation |
| | Protect Turtles in area of study corridor | Volume 5A - ESA - Biophysical |
| Human Activity and Use | Development fatigue/cumulative impact of development | Volume 5B - ESA - Socio-Economic |
| | Concern about interruption to businesses during construction (access and economic impact) | Volume 5B - ESA - Socio-Economic |
| | Concern about mortality of deer –on Burnaby Mountain Parkway | Volume 5A - ESA - Biophysical |
| | Suggest accelerated construction to speed up negative business impacts from construction | Volume 5B - ESA - Socio-Economic |
| | Neighbours expressed concern about past negative experience with spill on Westridge line in 2007 | Volume 5B - ESA - Socio-Economic |
| | Concern that constructing two 30” pipelines will disrupt transportation along Burnaby Mountain Parkway | Volume 5B - ESA - Socio-Economic |
| | Concern about impact of construction on Eagle quest Golf Course | Volume 5B - ESA - Socio-Economic |
| | Concern about access to SFU (already limited) during construction along Burnaby Mountain Parkway | Volume 5B - ESA - Socio-Economic |
| | Provide Accurate mapping and geo reference of pipeline to avoid pipeline strikes | Volume 4B - Project Design and Execution - Construction |
| | Suggestion to provide alternate access to lower Westridge neighbourhood from Bayview Drive so that neighbourhood has two access points (to counter concern there is only one way in and out in event of an emergency currently) | Volume 5B - ESA - Socio-Economic |
| | Concern about security (possible acts of vandalism from those who are strongly opposed to Project impacting innocent neighbours) | Volume 5B - ESA - Socio-Economic |
| | Concern about impact to mountain biking on Burnaby Mountain (three seasons/year) | Volume 5B - ESA - Socio-Economic |
| | Limited access to Lower Westridge neighbourhood (Cliff Avenue only way in/out) in event of an emergency or during construction | Volume 5B - ESA - Socio-Economic |
| | Concern about negative visual impact of terminal expansion on Horizons Rose Garden | Volume 5B - ESA - Socio-Economic |
| | Suggestion that Trans Mountain use latest available technology for leak detection systems | Volume 4B - Project Design and Execution - Construction |
| | Control access to Burnaby Mountain Park construction area to avoid public access that may damage the park | Volume 5B - ESA - Socio-Economic |
| | Concern about negative visual impact of Burnaby Tank Farm expansion sight lines | Volume 5B - ESA - Socio-Economic |
| | Use Local construction workers, they may have more “respect” for communities | Volume 5B - ESA - Socio-Economic |
| | Increased potential for crime/robbery during construction | Volume 5B - ESA - Socio-Economic |
| | How do you Access residential property during construction | Volume 5B - ESA - Socio-Economic |

## TABLE 1.7.29

## COMMUNITY WORKSHOP – BURNABY, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| | Concern about property devaluation with pipeline installation | Volume 5B - ESA - Socio-Economic |
| | Concern with whether Trans Mountain Company has adequate insurance coverage in event of a spill | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Concern about impact to Kayakers/boaters others recreational users in Mainland Coastal in event of spill | Volume 5B - ESA - Socio-Economic |
| | Concern about impact to Burnaby Mountain Golf course (on Greystone) | Volume 5B - ESA - Socio-Economic |
| | Concern about Burnaby Mountain development property devaluation due to Terminal expansion | Volume 5B - ESA - Socio-Economic |
| | Concern about ability to close valves during power loss | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Concern about access to SFU/Burnaby Mountain via Burnaby Mountain Parkway during construction | Volume 5B - ESA - Socio-Economic |
| | Use new technology to upgrade existing pipeline | Volume 5B - ESA - Socio-Economic |
| | Hard to focus on potential benefits when concerned about negatives | Volume 5B - ESA - Socio-Economic |

### *1.7.10 Routing Open Houses*

#### *1.7.10.1 Routing Open House – Edmonton, AB*

Table 1.7.30 provides information on the key topics, interests and concerns for the Edmonton Routing Open House.

**TABLE 1.7.30**

**ROUTING OPEN HOUSE – EDMONTON, AB**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Terrestrial Environment | Many attendees were residents and trail-users concerned with the vegetation management and visual aesthetics along the existing pipeline right-of-way. | Volume 5B - ESA - Socio-Economic |
| Routing | Attendees were happy to learn that the selected corridor for the new line is along the south TUC as opposed to the existing Trans Mountain right-of-way. Attendees indicated that the existing Trans Mountain right-of-way should be relocated to the TUC as well. | Volume 4B - Project Design and Execution - Construction |
| Terrestrial Socio-Economic | Attendees were supportive for the Project. | n/a |

#### *1.7.10.2 Routing Open House – Hinton, Alberta*

Table 1.7.31 provides information on the key topics, interests and concerns for the Hinton Routing Open House.

**TABLE 1.7.31**

**ROUTING OPEN HOUSE – HINTON, AB**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Terrestrial Environment | Attendees were concerned about the impact of construction and the new pipeline right-of-way on local mountain bike and walking trails around Happy Creek. This concern also includes municipal boardwalks and trails along Cache Percotte and Rob Roads. | Volume 5B - ESA - Socio-Economic |
| | Attendees were concerned with erosion and mud due to the clearing of the new pipeline right-of-way. | Volume 5A - ESA - Biophysical |
| Terrestrial Socio-economic | STDs and teen pregnancies with pipeline construction. Noted problems during the TMX Anchor Loop Project. | Volume 5B - ESA - Socio-Economic |
| Routing | Attendees were concerned about the new pipeline right-of-way will increase the opportunity for off-highway vehicle use. Mitigations will need to be implemented for trail users during and after construction. | Volume 5B - ESA - Socio-Economic |
| Nuisance | Concern regarding the season and duration of construction. Attendees prefer a winter construction spread | Volume 4B - Project Design and Execution - Construction |
| Terrestrial | Concern regarding bitumen's chemical content and properties, proportion shipped, and clean-up methods. | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Operations and Maintenance | Concern about the visual impact of the right-of-way if it is left too exposed increasing the potential for erosion and mud. | Volume 5A - ESA - Biophysical |

### *1.7.10.3 Routing Open House – Kamloops, BC*

Table 1.7.32 provides information on the key topics, interests and concerns for the Kamloops Routing Open House.

**TABLE 1.7.32**

**ROUTING OPEN HOUSE – KAMLOOPS, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Terrestrial Environment | Westsyde attendees were concerned with construction, operations and spill risk to residents. | Volume 5B - ESA - Socio-Economic<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Attendees were concerned with the effect on the grasslands ecosystem in Lac du Bois Grassland Protect Area | Volume 5A - ESA - Biophysical |
| Policy | Attendees expressed global concerns related to terminals and marine tankers. | Volume 8A - Marine Transportation |
| Stakeholder Engagement | Landowner consultation – notification process and concerned about lack of awareness by the public on the Project's impact to landowners. | Volume 3C – Landowner Relations |

### *1.7.10.4 Routing Open House –Burnaby, BC*

Table 1.7.33 provides information on the key topics, interests and concerns for the Burnaby Routing Open House.

**TABLE 1.7.33**

**ROUTING OPEN HOUSE – BURNABY, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Routing | Attendees concerned with access on Cliff Avenue and Westridge in the event a pipeline incident occurs blocks travel. Alternative way out of the community is required. | Volume 5B - ESA - Socio-Economic |
| | Concern that Cliff Avenue routing option with limit beach access. | Volume 5B - ESA - Socio-Economic |
| | Concern for location of Burnaby Terminal and proximity to schools and risk in the event of an earthquake. | Volume 5B - ESA - Socio-Economic |
| | Northcliff landowners prefer alternate corridor and do not approve of pipeline routing through their property. Concerns regarding expropriation and devaluation of property values. | Volume 5B - ESA - Socio-Economic |
| | Concerns about viewscapes for Westridge neighbours with terminal changes. | Volume 5B - ESA - Socio-Economic |
| Terrestrial Environment | Concern near Salmon River (KP 1116) and ALR land – potential for construction to interfere with crop activity. | Volume 5B - ESA - Socio-Economic |
| | Concerns about air emissions from tankers for nearby residents. | Volume 8A, Section 4.2.3 – Marine Air Emissions |
| | Northcliff area is a highly sensitive wildlife & environment area (on the waterfront). | Volume 5A - ESA - Biophysical |
| Terrestrial Socio-Economic | Attendees desire monetary compensation for property devaluation.<br>Issues regarding lights and noise around terminal – possibility of putting trees or shrubs to obscure the noise/lights from trucks.<br>Landowners at 458 Northcliff Crescent (1/2 acre) have lived there for 25 years and have put their property up for sale for their retirement. Want a residential meeting with their neighbours.<br>Karen Ward Corcoran | Volume 5B - ESA - Socio-Economic |
| | Concerns regarding lights and noise around terminal and discussed the possibility of putting trees or shrubs to obscure the noise/lights from trucks. | Volume 5B - ESA - Socio-Economic |

### *1.7.10.5 Routing Open House – Abbotsford, BC*

Table 1.7.34 provides information on the key topics, interests and concerns for the Abbotsford Routing Open House.

**TABLE 1.7.34**

**ROUTING OPEN HOUSE – ABBOTSFORD, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Terrestrial Socio-Economic | Concerns regarding the benefit of the twinning to BCns/locals | Volume 5B - ESA - Socio-Economic |
| | Concerns that the benefits of the Project do not outweigh the disadvantages | Volume 5B - ESA - Socio-Economic |
| | Concern regarding land compensation policy | Volume 5B - ESA - Socio-Economic |
| | Questions regarding the economic benefit | Volume 5B - ESA - Socio-Economic |
| | Concerns regarding property value assurance | Volume 5B - ESA - Socio-Economic |
| | Inquiry re: donation of $5K from KMC Foundation following January incident (implied timing was a 'pay off') | Volume 5B - ESA - Socio-Economic |
| | Noted that having a refinery in BC or Alberta would be advantageous | Volume 5B - ESA - Socio-Economic |
| Terrestrial Environment | Concerns regarding environmental impact | Volume 5A - ESA - Biophysical |
| | Odours the week prior to the open house which were outside of notification timeframe | Volume 5B - ESA - Socio-Economic |
| | Concern over the possibility of the easement being widened | Volume 5A - ESA - Biophysical |
| Routing | Concerns regarding routing and the ensuing safety | Volume 4B - Project Design and Execution - Construction |
| | Concern re: safety and earthquakes, security | Volume 4B - Project Design and Execution - Construction |
| | Concern with the amount of sand contained in the crude coming from the oilsands and that the sand would cause internal erosion of the pipe resulting in leaks. | Volume 4A, Section 3.2.21 Corrosion Control |
| Stakeholder Engagement | Support from local attendee and suggestion that more information should be provided in Abbotsford, *i.e.,* Ledgeview and at City Hall | Volume 5B - ESA - Socio-Economic |
| | Chamber representation – very supportive, interested in ongoing discussions | Volume 5B - ESA - Socio-Economic |
| | Feeling that the 'consultation and community engagement' appeared to be 'sanitized' | |
| | FVRD representative indicated a desire to work with Trans Mountain to ensure that we can address the concerns of his constituents | Volume 5B - ESA - Socio-Economic |
| | Comment received regarding use of TMEP logo vs. Trans Mountain – caused confusion | |
| | Emotional comments received from south Surrey resident who was opposed due to the increased tanker traffic; offended that we would share information in a "family friendly" manner; felt format should be town hall | Volume 5B - ESA - Socio-Economic |

### *1.7.11 Terminal Open Houses*

#### *1.7.11.1 Terminal Open House – Edmonton, AB*

Table 1.7.35 provides information on the key topics, interests and concerns for the Edmonton Routing Open House.

**TABLE 1.7.35**

**TERMINAL OPEN HOUSE – EDMONTON, AB**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| **Safety** | | |
| Emergency response (terminal), cumulative effects | Fire response capacity for all industrial lands and activities in Sherwood Park – interest in seeing increased equipment, capacity and collaboration amongst all companies | Volume 5B - ESA - Socio-Economic |
| Security | Pipeline and facility security (especially due to the amount of information on Google) | Volume 5B - ESA - Socio-Economic |
| **Socio-economic** | | |
| Employment opportunities | Interest in bid lists and process for contracting and consulting contracts; construction schedule | Volume 5B - ESA - Socio-Economic |
| Human health | Location of Westridge terminal and impacts to people there | Volume 5B - ESA - Socio-Economic |

#### *1.7.11.2 Terminal Open House –Burnaby, BC*

Table 1.7.36 provides information on the key topics, interests and concerns for the Burnaby Routing Open House.

**TABLE 1.7.36**

**TERMINAL OPEN HOUSE – BURNABY, BC**

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Environment – Terrestrial | Inquiry as to whether or not there are frogs in tertiary containment pond at Burnaby terminal – request for spring breeding survey | Volume 5A - ESA - Biophysical |
| | Interest in planting of tress to screen the view of the tanks at Burnaby Terminal and improve aesthetics | Volume 5B - ESA - Socio-Economic |
| | Concern with spill over land and/or water | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Environmental - Marine | Interest in environmental impacts from increased tanker traffic - odours, GHG emissions, spills into water, water quality changes, *i.e.*, noise impacts to aquatic wildlife (mating movement) | Volume 8A - Marine Transportation |
| Corporate Responsibility | Concern about globalization, corporate responsibility | |
| Liability – Risk Assessment | Concern expressed about increase in chance of an incident at Westridge Marine Terminal due to the expansion proposed | Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills<br>Volume 8A - Marine Transportation |

## TABLE 1.7.36

## TERMINAL OPEN HOUSE – BURNABY, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Operations & Management | Inquiries about vibrations during HDD and depth of HDD through park | Volume 4B - Project Design and Execution - Construction |
| | Interest in how oil is staged for Westridge | Volume 4B - Project Design and Execution - Construction |
| | Concern about congestion on roads | Volume 5B - ESA - Socio-Economic |
| | Concern about how construction of new berths will be managed; how much material is going to be brought in by water and how much by land | Volume 4B - Project Design and Execution - Construction |
| | Construction Schedule | Volume 4B - Project Design and Execution - Construction |
| Noise and Air | Interest in emissions, emission controls and odour abatement strategies | Volume 5A - ESA - Biophysical |
| | Noise from construction activity and fog horns, residents concerned about increased noise at Westridge (operations); can hear in evenings, suspect it is a tanker loading | Volume 5A - ESA - Biophysical |
| | Air quality - domes, will all Burnaby have domed roofs; concern with carcinogenic vapours | Volume 5A - ESA - Biophysical |
| Routing | Significant interest in/support for the proposed “third” option – tunnelling from Burnaby Terminal to Westridge Marine Terminal | Volume 4B - Project Design and Execution - Construction |
| | Concern regarding the distance from new Westridge dock to north shore of Burrard Inlet | Volume 4B - Project Design and Execution - Construction |
| | Interest in why study corridor is wider near Stoney Creek and about the proximity to strata - worried about trees | Volume 4B - Project Design and Execution - Construction |
| | Opposition to the route proposed down Cliff Avenue | Volume 4B - Project Design and Execution - Construction |
| | Landowner - Concern with property devaluation | Volume 3 C – Landowner Consultation |
| Safety | Concern with product being transported; properties of dilbit, increased volumes and spills | Volume 5A - ESA – Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | Concern about pipeline explosions | Volume 5A - ESA – Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| | City of Vancouver interest in emergency preparedness, seismic prep and training for simulations, interest in involvement with City of Burnaby, fire tanks and berms, seismic stability | Volume 5A - ESA - Biophysical |

## TABLE 1.7.36

## TERMINAL OPEN HOUSE – BURNABY, BC (continued)

| Topic | Summary Concern or Issue | Application Volume |
|---|---|---|
| Safety | Interest in fire detection and protection equipment (fire eyes on tanks, foam pourers and dams, full surface fire-fighting, releases and fines within tank secondary containment) | Volume 5A - ESA - Biophysical |
| | Interests in systems which prevent spills from getting outside the facility | Volume 5A - ESA – Biophysical<br>Volume 7 – Risk Assessments and Management of Pipeline and Facility Spills |
| Socio-Economic | Interest in HHRA<br>especially accidents and malfunctions – air; protection measures, incident management, interest in modelling of effects on health | Volume 5B - ESA - Socio-Economic |
| | Interest in procurement opportunities | Volume 5B - ESA - Socio-Economic |
| Stakeholder Engagement | Request for a Q&A format event | |

## 2.0 REFERENCES

Alberta Agriculture. 2008. Alberta Clubroot Management Plan. Developed by Alberta Clubroot Management Committee. Edmonton, Alberta. Revised February 2008. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex11519/$file/140_6382.pdf?OpenElement

Canadian Energy Pipeline Association. 2012. About Pipelines: Corrosion. Website: http://www.cepa.com/wp-content/uploads/2012/11/FINAL-Corrosion.pdf. Accessed: June 2013.

Canadian Energy Pipeline Association. 2012. About Pipelines: Diluted Bitumen in Pipelines. Website: http://www.cepa.com/wp-content/uploads/2012/09/CEPA_Diluted-Bitumen3.pdf. Accessed: June 2013.

Canadian Energy Pipeline Association. 2012. About Pipelines: Emergency Response. Website: http://www.cepa.com/wp-content/uploads/2012/10/FINAL-CEPA-Emergency-Response.pdf. Accessed: June 2013.

Canadian Energy Pipeline Association. 2012. About Pipelines: Safe Pipeline Operations. Website: http://www.cepa.com/wp-content/uploads/2012/10/FINAL-CEPA-Safe-Pipelines.pdf. Accessed: June 2013.

Canadian Energy Pipelines Association. 2013. State of the Art Report, Dilbit Corrosivity. Document Number: 12671-RPT-001 REV 1. February 2013.

Canadian Standards Association. 2011. Z662-11, Oil and Gas Pipeline Systems. Canadian Group.

Canadian Association of Petroleum Producers. 2013. Technical Publication, Alberta Oil Sands Bitumen Valuation Methodology. 2013-9995.

Clague, J.J. and J. Orwin. 2005. Tsunami Hazard to North and West Vancouver, British Columbia. Centre for Natural Hazard Research, Simon Fraser University. 25 pp.

National Energy Board. 1999. Onshore Pipeline Regulations. SOR/99-294. Government of Canada, National Energy Board, Calgary, Alberta. Current to October 1, 2013.

National Energy Board. 2010. Pipeline Regulation in Canada: A Guide for Landowners and the Public. Website: http://www.neb-one.gc.ca/clf-nsi/rthnb/pblcprtcptn/pplnrgltncnd/pplnrgltncnd-eng.pdf. Accessed: June 2013.

National Energy Board. 2013. National Energy Board Filing Manual. NEB Act s.52 and s.58. National Energy Board Publishing Office, Calgary, AB. ISBN 0-662-36977-7. Release 2013-02.

National Energy Board. 2011. Focus on Safety and Environment, A Comprehensive Analysis of Pipeline Performance, 2000-2009. December 2011.

National Energy Board. 2010. Focus on Safety and Environment, A Comparative Analysis of Pipeline Performance, 2000–2008. August 2010.

National Transportation and Safety Board. 2012. Pipeline Rupture and Oil Spill Accident Caused by Organizational Failures and Weak Regulations. NTSB Press Release. July 10, 2012. Website: http://www.ntsb.gov/news/2012/120710.html

The Administrator of the Ship-source Oil Pollution Fund. 2012. The Administrator's Annual Report 2012-2013. Website: http://www.ssopfund.gc.ca/documents/AnnualReport2012-2013-en.pdf

Transport Canada. 2001. Termpol Review Process 2001, Marine Safety. Website: http://www.tc.gc.ca/publications/EN/TP743/PDF/HR/TP743E.pdf