2.7 Stakeholder Consultation, Aboriginal Engagement and Landowner Relations

Since the construction of the original pipeline in 1953, Trans Mountain has established and continues to maintain relationships with Aboriginal communities and Aboriginal groups, landowners and neighbours, and stakeholder communities and groups along the pipeline right-of-way.

Volume 3A provides information on the Stakeholder Engagement Program completed along the pipeline and marine corridors, and describes how stakeholder and public comments were gathered as well as how those comments have been incorporated into the application and the design of the Project. Where they have not been incorporated, Trans Mountain continues to strive for resolution while acknowledging that it is not always possible. Marine results can be found in Volume 8A of this application.

Beginning in the initial stages of the Project, Trans Mountain embarked on an extensive program to engage Aboriginal communities and to consult with landowners, government agencies (*e.g.*, regulators and municipalities), stakeholders, and the general public. Information on the Project is also available at www.transmountain.com.

With a guiding principle of open, honest, and transparent communications, engagement activities have been designed to reflect the diverse and varied interests of the various communities and areas along the proposed pipeline route. To date these activities have included:

- toll free telephone line and project inquiry email address;
- early and ongoing notification of the Project;
- ongoing distribution of Project updates, newsletters and communication materials, including information on the NEB process;
- print and digital advertising;
- Project website, complete with online engagement forums;
- social media through Twitter;
- videos on YouTube;
- hosting of open houses, facility tours, workshops, and meetings;
- facilitating open and meaningful dialogue, both face-to-face and online;
- responding to inquiries and emerging issues; and
- resolving issues and concerns.

Trans Mountain has contacted the following as part of its engagement programs:

- over 100 Aboriginal communities and Aboriginal groups;

- private landowners, freehold and crown occupants, and public landowners and occupants;
- municipal, provincial and federal governments;
- the Major Projects Management Office;
- industry and business development agencies;
- emergency response service organizations;
- environmental non-government organizations;
- special interest groups; and
- the general public.

Volume 3B provides information on the Aboriginal Engagement Program and the engagement activities conducted to date with each Aboriginal community and Aboriginal group. Detailed information on results stemming from Traditional Land Use studies, Traditional Marine Use studies, Traditional Ecological Knowledge and socio-economic research are detailed in Volumes 5A, 5B, and 8A.

Engagement activities with Aboriginal communities and Aboriginal groups, landowners and neighbours, and stakeholder communities and groups will continue through the regulatory and construction phases of the Project. The focus will continue to be on responding to specific questions or issues and following up with previously-engaged stakeholders.

Volume 3C describes the Landowner Relations Program, where Trans Mountain introduced and discussed the Project with landowners and occupants along the proposed pipeline corridor, and provides a summary of the issues and concerns raised. Trans Mountain has met with essentially all landowners along the proposed pipeline corridor. Meetings comprised discussions about the Project in general as well as requests for consent for Project-specific surveys. The meetings also provided an opportunity for landowners to ask questions and identify concerns regarding the Project.

The questions, issues, or concerns raised by landowners were categorized most frequently related to: compensation issues, land impacts, land values, site-specific pipeline location, and issues related to the existing TMPL line (Volume 3A).

On approximately 85% of all tracts of land, the owners or occupants raised no comments or concerns at this phase of the program. Of those that did comment, the two topics that were raised most frequently were related to compensation/financial and environmental/land issues. Along the study corridor, 1,325 landowners and 295 Crown rights holders in Alberta were contacted. In BC, 4,013 landowners and 615 Crown rights holders and pending land purchasers were also contacted.

Based on feedback received, landowner issues generally include: land rights, compensation, land-specific construction and restoration activities, as well as broader Project and policy issues.

2.8 Project Execution and Schedule

Following the filing of the application to the NEB and leading up to construction, Trans Mountain will continue to undertake a number of activities, including but not limited to:

- supporting the NEB application and the applications for other federal, provincial and municipal permits and continued participation in the TERMPOL process (Section 1.3 includes a more complete list);
- ongoing Aboriginal and stakeholder engagement;
- meeting with landowners for route refinement and other details, leading to acquisition of right-of-way;
- detailed environmental and socio-economic studies;
- detailed pipeline and facilities engineering, design and construction planning; and
- procurement of materials and equipment.

Subject to receiving the necessary regulatory approvals, preliminary plans provide for the pipeline to be constructed over three construction seasons: summer 2016; winter 2016/2017; and summer 2017 (Volume 4B provides details). In this context, the summer construction seasons will extend from May through October and the winter construction season will extend from November to April. Preparatory work for pipeline construction will begin in October 2015. Work on the facilities will take place starting in the late fall of 2015 and continue through 2017. The master schedule is provided in Figure 2.8.1. The project workforce is expected to peak at approximately 4,500 workers. The schedule is predicated on receipt of a CPCN by mid-2015 to allow for the final decision by Trans Mountain to proceed with the Project, the ordering of materials, securing provincial and local permits, utilizing the upcoming construction windows, and the awarding of major contracts.

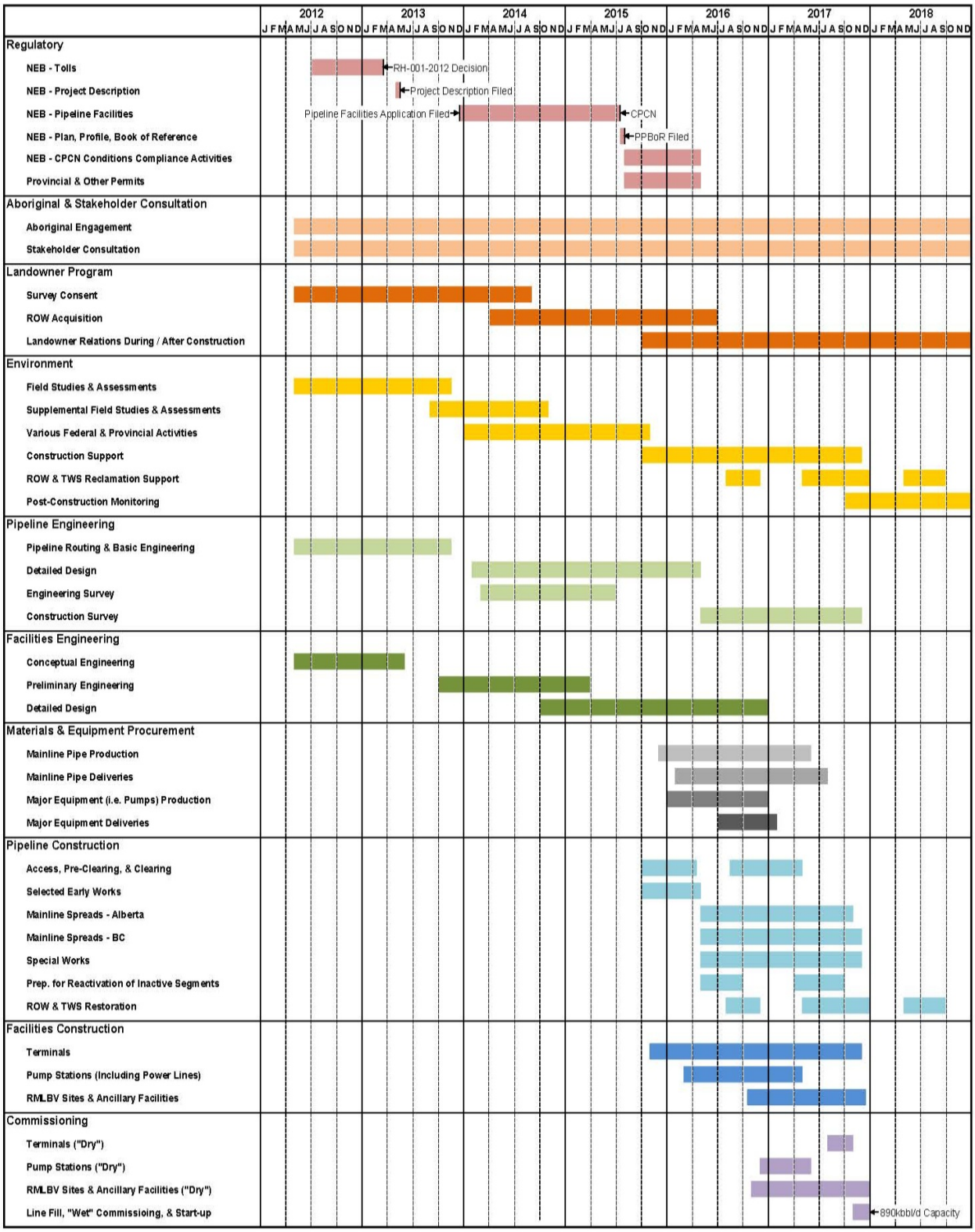

Figure 2.8.1 Master Project Schedule

2.9 Project Cost Estimate

2.9.1 Capital Cost Estimate

The $5.5 billion capital cost estimate (exclusive of the firm service fee credit) for the TMEP was included in RH-01-2012. The cost estimate has been re-sorted in Table 2.9.1 to be generally consistent with the breakdown indicated in the NEB Filing Manual. The cost estimate will be updated for the purpose of toll calculations at the conclusion of the regulatory proceedings and prior to the start of construction, and will include an Allowance for Funds Used During Construction (AFUDC) rate then in effect.

TABLE 2.9.1

PROJECT COST ESTIMATE

Item	Estimate (M$)*
Project Management	192.3
Engineering, Survey, and Environment	252.6
Pipeline Materials	674.7
Right-of-way and Other Land Costs	370.0
Pipeline Construction and Reactivation	2,267.6
· New Construction	2,217.7
· Reactivation	49.9
Facilities Materials and Construction	1,332.2
· Pump Stations	440.6
· Terminals	861.2
· Other Facilities	30.4
Other	94.6
Subtotal	**5,184.0**
AFUDC	322.3
Total	**5,506.3**

Note: *as spent Canadian dollars

2.9.2 Abandonment Cost Estimate

Following the end of its useful life, an application will be submitted to the NEB to decommission and abandon the pipeline and facilities, consistent with the practices of the day (Section 12 of Volume 4C). Pipeline segments and facilities constructed for the Project are not expected to be abandoned for more than 50 years.

A conceptual Abandonment Cost Estimate for the TMPL system, after the completion of TMEP, and the associated incremental cost for the abandonment of the TMEP pipelines and facilities is included in Table 2.9.2.

The conceptual Abandonment Cost Estimate was developed from the preliminary Abandonment Cost Estimate for the existing TMPL system, as approved by the NEB in MH-001-2012. Given that the TMEP pipelines and facilities are generally coincident with or adjacent to the existing TMPL system pipelines and facilities, an approach using factored quantities and unit costs was believed to be appropriate for the development of the conceptual Abandonment Cost Estimate.

TABLE 2.9.2

CONCEPTUAL ABANDONMENT COST ESTIMATE

Item		Estimate (M$)		
		16-Apr-13 Filing	**Conceptual Post-TMEP**	**Incremental Post-TMEP**
1	Engineering & Project Management	33.3	54.3	21.0
2	Abandonment Preparation	26.6	57.9	31.3
3	Pipeline Abandonment in Place	96.8	143.9	47.1
	3a Basic Abandonment in Place	35.2	56.2	21.0
	3b Post-Abandonment Provision	61.6	87.7	26.1
4	Special Treatment	0.0	0.0	0.0
5	Pipeline Removal	44.8	75.4	30.6
6	Facilities	85.0	176.6	91.6
	Subtotal	**286.5**	**508.2**	**221.7**
7	Contingency	53.6	94.6	41.0
	Insurance and Taxes	17.3	27.4	10.1
	Contingency	36.3	67.2	30.9
	Total	**340.0**	**602.7**	**262.7**

3.0 PROJECT NEED AND ECONOMIC FEASIBILITY

3.1 Introduction

Section A.3 of the NEB's Filing Manual states that "The overall purpose for filing information on facility economics is to demonstrate that the applied-for facilities will be used, will be useful, and that demand charges will be paid and that sufficient funds will be available for abandonment requirements". The Filing Manual also states that "Economics information must include details on: supply; transportation; markets; and financing".

Trans Mountain has organized this section as follows. Section 3.1 provides an overview of the essential purpose and need for the Project. Section 3.2 covers the commercial arrangements, the transportation service agreements and the anticipated financing arrangements. Section 3.3 discusses the market supply and demand outlook. Section 3.4 outlines the expected benefits, including the general economic and fiscal benefits, as well as the benefits to the energy sector. Finally, Section 3.5 discusses the overall economic feasibility, in view of the evidence provided in the preceding sections.

3.1.1 Purpose

The primary purpose of the Project is to provide additional transportation capacity for crude oil from Alberta to markets in the Pacific Rim including BC, Washington State, California, and Asia. The provision of enhanced access to growing Pacific Rim markets will provide a critical alternative market to Canadian crude oil producers. The additional capacity is required to meet both the needs of Trans Mountain's long-term contractual shippers and the general growth in demand for transportation service by all shippers.

3.1.2 Need

The marketplace has clearly demonstrated the need for the Project. The demand for transportation services exceeds the current TMPL system capacity and has resulted in the need to apportion the available capacity. This has also affected the quality of common carriage, as shippers have experienced increasing uncertainty that they will have adequate access to capacity on a month-to-month basis. The degree of apportionment and the willingness of shippers to pay large bid premiums to secure access to transportation service on TMPL to the Westridge Marine Terminal are clear indicators of the value shippers place on obtaining access to West Coast and offshore markets[1]. The high dock bid premiums, which totaled $163 million in 2012, also provide a market price signal that additional capacity is required.

The need for the Project has also been strongly demonstrated by the long-term financial commitments shippers have made through entering into firm contracts for 80 per cent of the nominal capacity on the expanded system. The tolling methodology, including all aspects of the transportation service agreements, was approved by the Board in its Reasons for Decision RH-001-2012, released on May 13, 2013. It can be reasonably assumed that shippers would not have freely entered into these contracts, which obligate them to make substantial financial commitments on a take-or-pay basis over the lifetime of their contracts, if they were not convinced of the need for the Project and that they would utilize the capacity.

Beyond the needs of the contracting shippers, there is a need for the Project to meet the demands of spot shippers. There are shippers that have a requirement to move crude oil and

[1] Westridge Dock Bid Premiums are collected in accordance with Tariff Revisions – Westridge Dock Capacity Allocation Procedure, NEB Reasons for Decisions, April 11, 2006.

products to markets, but did not for their own reasons, commit to firm contract space. The expanded pipeline system will reserve 20 per cent of the total nominal capacity on a spot basis for those shippers.

More generally, the Project is required to provide needed flexibility for Western Canadian producers. Oil markets are continually subject to changing market conditions, refinery shut-downs, supply interruptions and other events that impact markets. In order for Western Canadian producers to obtain access to the highest value markets, sufficient pipeline capacity to alternative markets is required. The Project is one of a group of pipeline projects being proposed by pipeline companies to meet the needs of Western Canadian producers for additional market access[2]. Trans Mountain responded to the requests of shippers to expand the TMPL system, which has resulted in the submission of this Application to the Board.

Finally, the Project is required from a broader public interest perspective to ensure that producers and governments obtain the highest value for their petroleum resources. Canadians are the ultimate owners of petroleum resources as represented through their provincial governments. The Canadian public is deprived of receiving the full market value for these resources when it is not possible to access the highest value end markets.

Since governments collect taxes based both on oil prices (provincial royalties) and corporate profits (provincial and federal corporate income taxes), higher revenues to producers also means that governments will also collect considerable revenues. As indicated in Section 3.4, oil producer revenues are forecasted to rise by $45.4 billion over the first 20 years of operations, as a result of the market access provided by the Project, and this is expected to generate total federal and provincial fiscal benefits of $14.7 billion. Therefore, the existing situation of inadequate access to markets is a matter of concern to Western Canadian oil producers and governments.

3.2 Commercial Arrangements

3.2.1 Transportation Agreements

The salient features of the approved transportation contracts from RH-001-2012 include:

- As a result of an open season process, 13 companies entered into binding 15- and 20-year transportation service agreements with Trans Mountain for a total of 707,500 bbl/d, equal to approximately 80 per cent of the expanded system's nominal capacity. The agreements provide for a sharing of risks between Trans Mountain and its shippers during the development stage, including the construction of the Project, and the long-term operations of the pipeline system.

- The service agreements provide each shipper with an entitlement to a certain amount of capacity each month, and the shippers are required to pay for this capacity whether or not they use it. These provisions provide a very strong incentive to shippers to maximize their use of the capacity, and help ensure that the expanded pipeline will be used at a high load factor.

- The transportation agreements also provide flexibility to the contractual shippers, which will enable them to manage their entitlements and associated

[2] The four projects are TMEP, Northern Gateway, Keystone XL, and Energy East.

financial obligations. Shippers can assign their shipping rights to third parties on a short or long-term basis, thereby reducing the risk of holding the contracts and helping ensure that the firm capacity is fully utilized. There are also make-up provisions in the event that shippers cannot use their full entitlements in any given month.

- The toll will be established according to a risk sharing formula and escalated during the lifetime of the contracts at a fixed rate. Therefore, the toll will not be adjusted according to actual costs incurred as would normally occur under a cost-of-service approach[3]. This arrangement provides toll certainty to shippers, reduces the risk of unanticipated increases in transportation costs over time, and enables producers and refiners to arrange their long-term business with confidence in their associated transportation costs.

- Approximately 180,000 bbl/d, representing 20 per cent of the expanded system's nominal capacity, will be reserved for spot month-to-month shipments. The toll for spot shipments is tied to the toll for long-term service and, as such, spot shippers benefit from all of the contractual provisions that protect long-term shippers from cost escalation.

The tolling methodology and transportation contracts, as already approved by the Board, provide strong assurances that the expanded pipeline will be used at a high load factor during the lifetime of the firm contracts and beyond. Further, the contractual arrangements incent Trans Mountain to build the Project and operate the pipeline efficiently, while maintaining the high standards for construction and operations that are outlined in this application. This will help ensure that the transportation service on the TMPL remains cost competitive during the first 20 years of operation and beyond.

3.2.2 Financial Capability of the Applicant

The expected capital cost for the Project is approximately $5.4 billion. Financing will be arranged by Trans Mountain's parent company KMP.

Kinder Morgan Energy Partners, L.P. is one of the largest midstream energy companies in North America with an enterprise value of more than US$48 billion[4]. Table 3.2.1 provides unaudited KMP consolidated balance sheets. KMP typically finances growth projects using a mix of 50 per cent debt and 50 per cent equity. Funding sources may include a combination of the issuance of long-term debt securities, bank financing, and the issuance of public equity at KMP.

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[3] The variable toll component will include and be adjusted accordingly for the recovery of uncontrollable costs, resulting from changes in operations that are not currently anticipated or cannot be reasonably included in calculating the toll. An example of such costs is the collection of pipeline abandonment costs pursuant to Board Order RH-2-2008.

[4] Kinder Morgan 2013 Analyst Conference, Corporate Overview, Page 10. Enterprise value is a measure of a company's value, often used as an alternative to straightforward market capitalization. Enterprise value is calculated as market capitalization plus debt, minority interest and preferred shares, minus total cash and cash equivalents.

TABLE 3.2.1

KINDER MORGAN ENERGY PARTNERS, L.P. AND SUBSIDIARIES CONSOLIDATED BALANCE SHEETS

(In Millions)
(Unaudited)

	September 30, 2013	December 31, 2012(a)
Assets		
Current assets		
Cash and cash equivalents	$ 534	$ 529
Accounts receivable, net	$ 1,236	$ 1,114
Inventories	$ 399	$ 338
Assets held for sale	—	$ 211
Other current assets	$ 283	$ 185
Total Current assets	$ 2,452	$ 2,377
Property, plant and equipment, net	$ 26,742	$ 22,330
Investments	$ 2,207	$ 1,864
Goodwill	$ 6,532	$ 5,417
Other intangibles, net	$ 2,448	$ 1,142
Deferred charges and other assets	$ 1,604	$ 1,846
Total Assets	$ 41,985	$ 34,976
Liabilities and Partners' Capital		
Current liabilities		
Current portion of debt	$ 702	$ 1,155
Accounts payable	$ 1,313	$ 1,091
Accrued interest	$ 206	$ 327
Accrued other current liabilities	$ 1,218	$ 674
Total Current liabilities	$ 3,439	$ 3,247
Long-term liabilities and deferred credits		
Long-term debt		
Outstanding	$ 18,910	$ 15,907
Debt fair value adjustments	$ 1,332	$ 1,698
Total Long-term debt	$ 20,242	$ 17,605
Deferred income taxes	$ 273	$ 249
Other long-term liabilities and deferred credits	$ 1,010	$ 1,113
Total Long-term liabilities and deferred credits	$ 21,525	$ 18,967
Total Liabilities	$ 24,964	$ 22,214
Commitments and contingencies (Notes 3 and 9)		
Partners' Capital		
Common units	$ 9,416	$ 4,723
Class B units	$ 9	$ 14
i-units	$ 4,054	$ 3,564
General partner	$ 3,073	$ 4,026
Accumulated other comprehensive income	$ 71	$ 168
Total KMP's Capital	$ 16,623	$ 12,495
Non-controlling interests	$ 398	$ 267
Total Partners' Capital	$ 17,021	$ 12,762
Total Liabilities and Partners' Capital	$ 41,985	$ 34,976

Source: KMP Third Quarter 2013 filing to the US Securities and Exchange Commission.

Kinder Morgan Energy Partners, L.P.'s long-term corporate debt credit rating is BBB (stable) at Standard & Poor's Ratings Services, Baa2 (stable) at Moody's Investors Service, Inc. and BBB (stable) at Fitch, Inc.

The success of a pipeline project and its related financing depends upon the economics of linking a supply basin with a major market region and the resulting transportation agreements between the pipeline carrier and shippers. As discussed in the sections on supply and markets below, at one end the Project will have access to the large reserves and growing crude oil production from the Western Canadian Sedimentary Basin (WCSB). At the other end, it will provide access to one of the largest petroleum markets in the world in the Pacific Rim region. The financial market recognizes that Canadian oil producers need to diversify their markets.

The long term financial commitments Trans Mountain has received are from a group of shippers[5] consisting of significant players in the energy industry that have investment grade or better credit ratings; this provides further assurance concerning the cash flow that will be generated by the Project and its ability to support the long term financing requirements.

Taking into account the financial capacity and credit quality of KMP, the value proposition that the Project brings to the market and the term, size, and quality of the long term shipper commitments, Trans Mountain does not anticipate that KMP will face any significant challenges in securing the funds required to finance the Project.

3.3 Market Supply and Demand Outlook

3.3.1 Supply and Demand

Trans Mountain commissioned independent expert evidence to provide an opinion on the outlook for oil market supply and demand, and related issues. The evidence of Mr. Steven Kelly of IHS Global Canada Limited (IHS) is provided in Appendix A. Mr. Kelly's evidence addresses: whether the Project will provide access to new markets; whether the Project will produce an economic gain for Canadian producers; and whether the Project will be highly utilized. Trans Mountain relies upon and adopts the evidence of Mr. Kelly in support of this application and his conclusions concerning market supply and demand, including:

- Total Western Canadian crude production is forecasted to grow at 3.0 per cent annually from 2013 to 2037, resulting in 3.43 million bbl/d of incremental production over the same period. Oil sands crude production is expected to grow by about 3.23 million bbl/d between 2013 and 2037, from 1.95 million bbl/d to 5.17 million bbl/d.

- Despite a lack of demand growth in US refining markets, Canadian crude exports to the US are expected to approximately double from 2013 to 2035, representing growth of more than 2.5 million bbl/d. Canadian crude exports will account for a growing share of US crude consumption, and will lead to a dramatic drop in US imports from other countries. This will occur despite an increase in US crude production. This suggests that there is a need for additional transportation capacity to provide access to both North American and offshore markets.

[5] BP Canada Energy Trading Company, Canadian Natural Resources, Canadian Oil Sands Limited, Cenovus Energy Inc., Devon Canada Corporation, Husky Energy Marketing Inc., Imperial Oil Limited, Nexen Marketing Inc., Statoil Canada Ltd., Suncor Energy Marketing Inc., Suncor Energy Products Partnership, Tesoro Refining & Marketing Company and Total E&P Canada Ltd

- Refineries on the West Coast and in Asian markets would gain increased access to Canadian crudes if the Project is constructed. In IHS's opinion, these are potentially large and viable markets for Western Canadian crudes.
- IHS estimates that if all of the major planned pipeline expansion capacity was built as planned by 2018, all of the capacity will still be needed to meet projected crude production by about 2029 as surplus pipeline capacity will be absorbed by supply growth.
- It is likely that the Project facilities will be utilized at a high rate, considering the forecast of continued long-term growth in Western Canadian crude oil production and the markets accessible from the Project.

3.3.2 Crude Oil Supplies from Contracting Shippers

Trans Mountain has entered into long-term firm transportation contracts with 13 shippers, for a total volume of 707,500 bbl/d. The shippers represent a mix of some of the largest producing companies in the WCSB, and a number of them represent some of the largest integrated oil companies in the world. These companies have direct access to large volumes of supply, either through their own production, or through their position in the market as a large marketer and/or refiner of crude oil. It can be reasonably concluded that none of these companies would have made the financial commitments entailed in the firm transportation service agreements, if they were not confident that they would have access to adequate oil supplies over the term of the contracts.

As discussed above in Section 3.2.1, the transportation service contracts enable a shipper to assign its capacity rights on a short or long-term basis. These provisions will allow shippers to respond to changing market conditions, including possible supply disruptions, by assignment to others, thereby ensuring that supply will be available and that the pipeline capacity will be used at a high load factor.

3.4 Project Benefits

The construction and operation of the Project will provide substantial economic and fiscal benefits to Canada and its regions. There will be significant benefits to the parties directly involved, to all Western Canadian oil producers, and to all Canadians and their governments.

3.4.1 Macroeconomic and Fiscal Benefits

To estimate the economic and fiscal benefits that can be expected from the construction and operation of the Project, Trans Mountain commissioned an independent study by the Conference Board of Canada, which was conducted under the direction of Mr. Glenn Hodgson. Mr. Hodgson's evidence is provided in Appendix B. Specifically, Mr. Hodgson assesses the impacts associated with: the capital investments required to build the pipeline and related infrastructure; the operation of the pipeline; and the higher netbacks to oil producers that are expected to result from the Project. Trans Mountain relies upon and adopts the evidence of Mr. Hodgson in support of this Application and his conclusions, including:

- The development (construction) period is forecasted to boost Canadian Gross Domestic Product (GDP) by approximately $4.9 billion[6], with $2.8 billion accruing to BC and $1.4 billion to Alberta. There will be a total of

[6] All of the figures cited from the Conference Board study are in constant $2012.

58,000 person-years of employment generated across Canada during development, with approximately 36,000 in BC and 15,000 in Alberta.

- There will be $646 million in federal taxes generated during the project development phase and an additional $568 million of provincial taxes, with $309 million received by BC and $168 million by Alberta.
- There will be an overall boost to employment of 50,000 to 65,000 person-years during the first 20 years of operations, with 60 per cent of the jobs being created in BC and 20 per cent in Alberta.
- The operations phase will boost Canadian GDP by at least $13.3 billion over the first 20 years. BC will see the largest impact with a boost of about $8.5 billion, followed by Alberta at almost $4 billion.
- The Project will generate about $1.4 billion in additional tax revenues for the federal government during the operations phase and an additional $1.1 billion in provincial taxes, with BC receiving about $727 million and Alberta receiving about $278 million.
- Oil producer revenues in the IHS study are forecasted to rise by $45.4 billion over the first 20 years of the pipeline's operations, as a result of higher netbacks that can be attributed to Western Canadian oil producers having access to new markets through the Project. This revenue associated with higher netbacks is expected to generate total federal and provincial fiscal benefits of $14.7 billion, with Alberta receiving $8.2 billion and the federal government $6.1 billion.

In addition to the tax benefits created at the federal and provincial levels, the Project will also yield benefits to communities along the right-of-way through employment and economic activity, and generating additional property taxes for the life of the pipeline. As part of the environmental and socio-economic analysis completed by TERA Environmental Consultants as presented in Volume 5B, it was estimated that the additional property taxes generated by the Project will be about $22.1 million (a 103 per cent increase) annually in BC and $3.2 million (a 119 per cent increase) annually in Alberta.

3.4.2 Energy Industry Benefits

The Project will help to realign Canada's pipeline system with changing supply/demand fundamentals. Trans Mountain relies on and adopts the evidence of Mr. Kelly (Appendix A) and Mr. Reed (Appendix C) concerning the benefits to the energy industry associated with the Project including:

- Delivery of a large volume of Canadian crude to new markets is expected to strengthen the price of Canadian heavy crude in Alberta. The effect of removing Canadian heavy crude from the North American market would be to ease the situation of excess supply in traditional markets, such as the US Midwest. By increasing market access for Canadian heavy crudes, infrastructure developments such as the Project should ensure that extraordinary price discounts are avoided in future.

- All Western Canadian producers would have the opportunity to realize higher netback prices through the Project, on production that is priced in the Asia/Pacific region rather than the US Gulf Coast region. Exports to California are expected to provide a $3 to $4 per barrel (constant US$2012) netback premium and exports to Asia/Pacific markets are expected to provide a $2 per barrel netback premium. These benefits would apply from 2018 through the end of the forecast period in 2037.

- Total revenues for Western Canadian oil producers attributable to market access provided by the Project are estimated to be approximately $45 billion, including both general industry benefits and higher netback prices on deliveries to Asia. This is based on a proportionate share of the total benefits associated with all of the major planned pipeline expansion projects.

- The Project represents a path to higher netback markets, and can be expected to produce an above-average level of netbacks. In addition, if one or more of the other new pipeline projects was assumed to not go forward or to be delayed, the benefits derived from the Project would increase. Therefore, the estimated netback benefits for the Project are considered to represent a conservative estimate of its likely standalone benefits.

- The Project would provide optionality benefits and market diversity for producers in a market characterized by uncertainty. There is no certainty regarding what the highest value market will be over the forecast period, so ensuring that multiple markets are accessible offers significant value to producers.

- The Project will provide firm service capacity for contract shippers, and generally improve the quality and reliability of pipeline access and transportation service for all shippers.

- The Project will improve the quality of the price signals in, and economic efficiency of, the market for transportation services, and position transportation market participants to compete on a level playing field for existing and incremental production. This includes enhancing secondary market competition to serve uncommitted volumes.

3.5 Economic Feasibility

Trans Mountain commissioned independent expert evidence to provide an opinion on the economic and financial feasibility of the Project. The evidence of Mr. John Reed of Concentric Energy Advisors, Inc. is provided in Appendix C. Mr. Reed's evidence addresses whether the Project meets the Board's standards for economic and financial feasibility, and the energy industry and economic benefits of the Project. Trans Mountain relies upon and adopts the evidence of Mr. Reed in support of this Application, and his conclusions concerning the economic feasibility, including:

- The Project is both economically and financially feasible. There is convincing evidence of: more than adequate supplies of oil; premium netbacks expected from access to California and Asia; market support through firm contractual commitments; and, the capability of Trans Mountain to finance the Project on reasonable terms.

- The Project is one of a group of pipelines that are being proposed to meet the market's need for additional pipeline capacity. However, the financial feasibility of the Project does not depend on the success or failure of any of those other projects; the shipper commitments are not contingent on what happens with other projects, and shippers have provided clear and convincing support for the development of this expanded path to high-value markets.

- Based on the analysis completed by IHS, there is a potential for some level of under-utilization of the region's aggregate pipeline capacity during the 2017 to 2030 period, if all proposed projects proceed as planned. However, that does not indicate that the Project, or any of the other proposed projects, is not economically feasible. The Project provides a feasible and efficient means of addressing the asymmetrical risk of too much/too little capacity. Some level of optionality in capacity markets promotes economic efficiency, reflects the likelihood of future additional demand and does not detract from the economic feasibility of the Project.

- The relative attractiveness of markets can change quickly, as supply and demand fundamentals shift. Having transportation infrastructure that accommodates shifts in market preferences creates value, by providing the option and ability to redirect flows as markets change. The willingness of producers to commit to take-or-pay demand charges for pipeline capacity to multiple markets makes economic sense when viewed in this context, and providing that optionality enables Canadian producers to maximize the value they derive from their production.

- As noted in the IHS report, the netback price for crude delivered to Asian or California markets is expected to be higher than the value of supplies delivered to US Gulf Coast markets. Therefore, spot service demand on the expanded TMPL system can be expected to be higher than on other pipelines, which access lower value markets. The availability of spot service and its economic advantage over competing routes can be expected to contribute to the economic feasibility of the Project.

- The Project is highly likely to be used and useful and it should be expected to operate at a high load factor. The Project is fully consistent with the Board's criteria for assessing economic feasibility, and consistent with the new market dynamics regarding the need for pipeline transportation optionality and flexibility.

Trans Mountain submits that the evidence presented in the foregoing sections and the sponsored expert evidence demonstrates that the Project is economically feasible.

The evidence on supply indicates that the Project will have access to large and growing crude oil supplies, as production from the WCSB is expected to grow significantly over the long-term.

The evidence on markets indicates that the Project will link the WCSB supply with large and growing Pacific Rim markets.

The evidence on the underlying transportation arrangements is that long-term commitments have been made that provide strong assurances that the Project will be well-used over the lifetime of these contracts. The shippers who have signed long-term contracts are well

capitalized, sophisticated market participants with access to large oil supplies. The transportation contracts provide strong incentives for them to use their capacity entitlements at a high load factor, while the overall contract terms provide a high level of assurance that all parties will remain committed to the Project.

The toll on the expanded TMPL will enable western Canadian oil producers to deliver crude oil to tidewater at a very attractive rate, both for long-term shippers and spot shippers. The evidence provided by IHS demonstrates that the Project will provide access to markets that yield attractive netbacks, and Trans Mountain is confident that the expanded TMPL system will attract considerable spot volumes during its operating life. In short, the transportation arrangements are clearly structured to ensure the maximum use of the pipeline over the lifetime of the Project.

Finally, the evidence on financing arrangements is unequivocal. Canadian oil producers need access to US Pacific Northwest and Pacific Rim markets and the Project will provide this access. The Project makes business sense and, hence, financial markets can be expected to provide the debt financing. The evidence on financing also demonstrates that Trans Mountain's parent KMP has the financial capability to finance the Project.

4.0 PIPELINE ROUTE AND FACILITY SITING

4.1 Alternatives

Section 4.2.2 of the NEB Filing Manual (NEB 2013a) asks the applicant to describe:

- Project need: outlined in Section 3.0 of Volume 2;
- Route and site selection: outlined in Section 4.0 of Volume 2 and Section 2.8 of Volume 4A; and
- Design and construction alternatives: outlined in Volumes 4A and 4B.

The *CEA Act, 2012*, in Section 19, states:

> *19. (1) The environmental assessment of a designated project must take into account the following factors:*
>
> *[...]*
>
> *(g) alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means;*

In developing the Project, Trans Mountain did not consider fundamentally different alternatives such as rail transportation rather than pipelines, or pipeline concepts to different destinations. The RH-001-2012 proceeding demonstrated the need and benefits of expanding the existing TMPL. For these reasons, no effort was made to consider the economic feasibility or environmental effects of these or other conceptual alternatives.

The scope of the Project is described in Section 2.0, Project Description, and more completely elsewhere in other volumes, particularly Volume 4A. That scope formed the basis of the environmental and socio-economic assessment. As described in Volumes 5A and 5B, the environmental and socio-economic assessment considers the mandatory factors listed in Section 19(1) of the *CEA Act, 2012,* the factors listed in the NEB Filing Manual (NEB 2013a), and pertinent issues and concerns identified through Aboriginal engagement and consultation with landowners, regulatory authorities, stakeholders, and the general public. As well, the “List of Issues for the Trans Mountain Expansion Project” was released by the NEB on July 29, 2013. The NEB also, on September 10, 2013, issued “Filing Requirements to Trans Mountain Pipeline ULC Related to the Potential Environmental and Socio-Economic Effects of Increased Marine Shipping Activities” specifically for the Project.

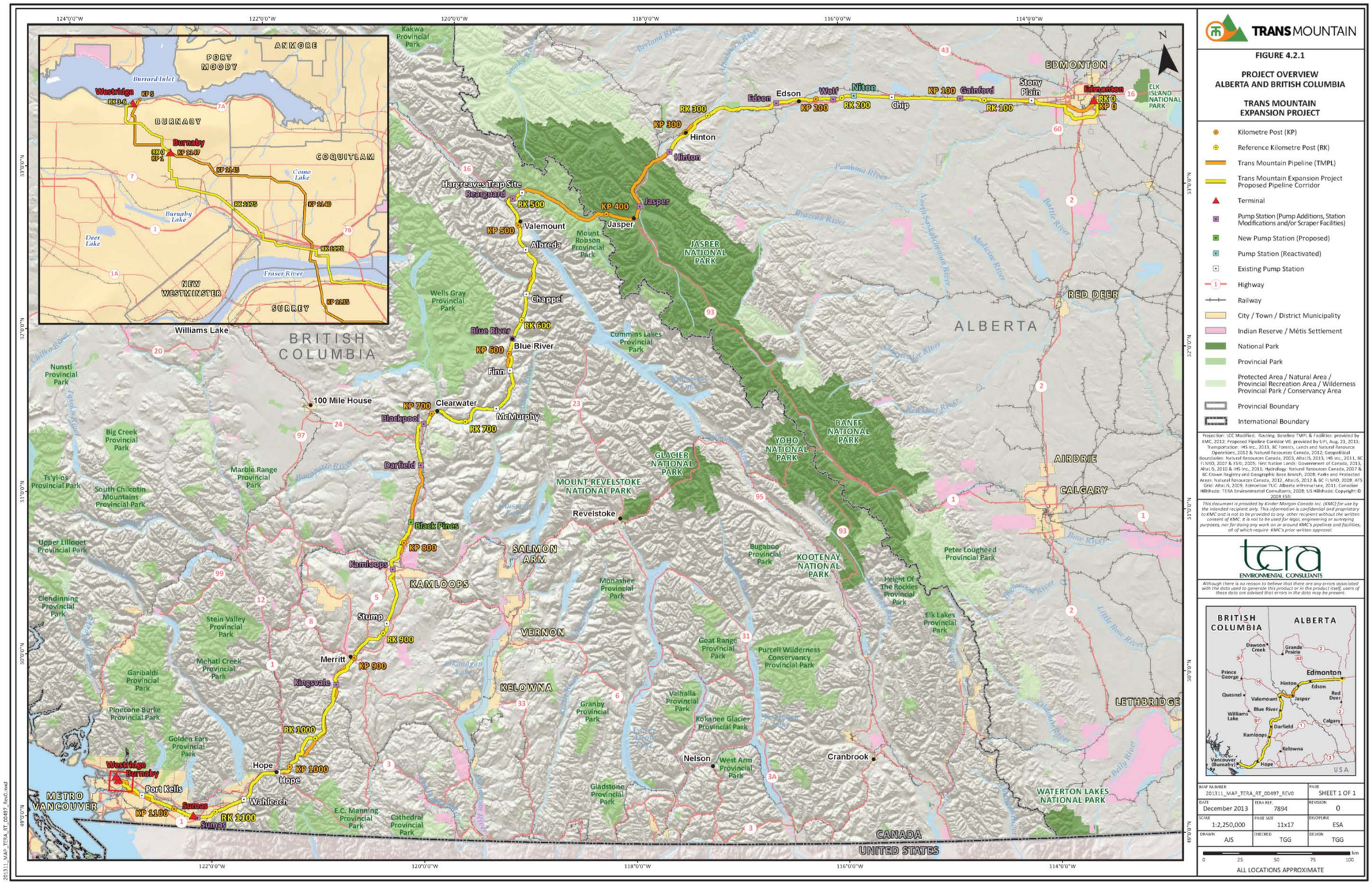
In response to Section 19(1)(g) of the *CEA Act, 2012,* Trans Mountain considered alternative pipeline corridors and pump station locations in the environmental and socio-economic assessment. These are described in Section 4.0 of Volumes 5A and 5B.

4.2 Pipeline Corridor Selection

4.2.1 Environmental Setting

The Project includes looping the remaining segments of the existing 1,147 km TMPL from Edmonton to Burnaby, built in 1953. Previously, 320 km of the system were looped including the 160 km Anchor Loop which was constructed in 2008 through Jasper National Park and Mount Robson Provincial Park. The 987 km of pipeline that will be looped as part of the Project

traverses a wide range of landforms from flat farmland to mountainous terrain. Land use varies from densely populated urban areas around Edmonton, Vancouver, and elsewhere to sparsely populated rural agricultural and forested Crown lands. The pipeline segments to be constructed as part of the Project will also potentially cross 500 rivers and streams, 8 provincial parks and 13 Indian Reserves (Figure 4.2.1).



Projection: LCC Modified. Routing: Baseline TMPL & Facilities: provided by KMC, 2012; Proposed Pipeline Corridor V6: provided by UPI, Aug. 23, 2013; Transportation: IHS Inc., 2013, BC Forests, Lands and Natural Resource Operations, 2012 & Natural Resources Canada, 2012; Geopolitical Boundaries: Natural Resources Canada, 2003, AltaLIS, 2013, IHS Inc., 2011, BC FLNRO, 2007 & ESRI, 2005; First Nation Lands: Government of Canada, 2013, AltaLIS, 2010 & IHS Inc., 2011; Hydrology: Natural Resources Canada, 2007 & BC Crown Registry and Geographic Base Branch, 2008; Parks and Protected Areas: Natural Resources Canada, 2012, AltaLIS, 2012 & BC FLNRO, 2008; ATS Grid: AltaLIS, 2009; Edmonton TUC: Alberta Infrastructure, 2011; Canadian Hillshade: TERA Environmental Consultants, 2008; US Hillshade: Copyright:© 2009 ESRI

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Although there is no reason to believe that there are any errors associated with the data used to generate this product or in the product itself, users of these data are advised that errors in the data may be present.

Figure 4.2.1 Project Overview – BC and Alberta

4.2.2 General Routing Objectives and Criteria

Early in the project planning process, Trans Mountain decided that the new pipeline segments should be contiguous with the existing 18 m wide TMPL easement to the greatest extent practical to minimize environmental and socio-economic effects and facilitate efficient pipeline operations. While this was determined to be possible for over 70 per cent of the distance, it was not possible in all locations. As engineering, environmental and other disciplines examined maps, completed field observations and consulted with stakeholders, landowners, and community representatives, a hierarchy of routing criteria was established. In descending order of preference, these were:

- Wherever feasible, install the Line 2 segments on or adjacent to the existing TMPL easement.
- Where that proves not feasible, install the Line 2 segments adjacent to easements or rights-of-way of other linear facilities including other pipelines, power lines, highways, roads, railways, fiber optic transmission systems (FOTS), and other utilities.
- Or if that is not feasible, install the Line 2 segments in a new easement (*i.e.,* not parallel to other easements) selected to balance a number of engineering, construction, environmental, and socio-economic factors.
- Lastly, in the event a new easement is necessary, minimize the length of the new easement before returning to the TMPL easement or other easements.

In the context of the hierarchy of routing criteria, feasibility includes consideration of a range of factors including constructability, long-term geotechnical stability, environmental and socio-economic suitability and others. Specific factors that could result in a deviation from the TMPL easement are listed on Table 4.2.1.

While the proposed Line 2 pipeline segments generally require a construction right-of-way of 45 m, Trans Mountain decided to study and apply for a wider corridor (generally 150 m). The wider corridor is intended to provide flexibility for minor alignment adjustments during the detailed engineering and design phase.

TABLE 4.2.1

FACTORS THAT COULD RESULT IN DEVIATION FROM EXISTING TMPL EASEMENT

Factor
1. Safety - minimize areas posing hazards to: a. construction/operations workers – workspace, overhead hazards, geotechnical hazards b. public – traffic interaction, proximity to excavations and heavy equipment
2. Pipeline integrity – minimize crossing areas with geotechnical hazards, high potential for third-party contact, and poor maintenance access.
3. Environment – minimize environmental impacts by attempting to reduce the following as much as is practical: a. the total number of watercourse crossings b. length in the Riparian Reserve Zone c. difficult reclamation areas and unstable terrain d. length within provincial parks and other designated protected areas e. the total number of wetland crossings g. creating new access in areas considered to be ecologically important

TABLE 4.2.1

FACTORS THAT COULD RESULT IN DEVIATION FROM EXISTING TMPL EASEMENT (continued)

Factor
4. Constructability – avoid factors negatively affecting construction efficiency.
5. Terrain – minimize crossing side slopes, geohazards, rock, water bodies, wetlands, and high water table areas.
6. Infrastructure – minimize encroachment on existing and planned infrastructure.
7. Access –avoid limited or difficult existing access roads (stability, turn radius, local interference)
8. Stakeholders and socio-economic requirements: a. review and be consistent with land use policy documents b. landowner – consider landowner concerns c. parks – avoid where practical d. recreational areas – avoid where practical e. infrastructure – dependant on meetings with representatives of applicable utility f. residential density - reduce length in high density areas where other options are available
9. Aboriginal Impact; a. reserve Lands dependant on consultations; provide alternate routing for planning b. traditional Lands – dependant on consultation
10. Cost and Schedule – reduced length is preferred; schedule reduction due to improved constructability over a longer distance should be considered.

4.2.3 Proposed Pipeline Corridor

4.2.3.1 Introduction

The following describes the proposed pipeline corridor and provides a high level overview of the key issues that influenced its selection. Additional details are provided in Section 2.8 of Volume 4A and Sections 4.1 to 4.3 of Volumes 5A and 5B, respectively.

Looping (“twinning”) of the 1,147 km existing TMPL from Edmonton to Burnaby will require construction of 987 km of new mainline pipeline and two, parallel 3.6 km delivery lines from Burnaby Terminal to Westridge Marine Terminal. The new pipe segments will be within a proposed corridor on or adjacent to the existing 18.3 m wide TMPL easement (including areas where other linear facilities have pre-empted TMEP from being directly contiguous with the original TMPL easement) for 722 km, or 73 per cent of the total length. Approximately 170 km (17 per cent) follows beside other existing rights-of-way, making for a total parallel length of 892 km (90 per cent). A total of 98 km (10 per cent) of the TMEP will be on new corridor.

4.2.3.2 Alberta

Given that the TMPL Edmonton Terminal is on the east side of the City of Edmonton, it is difficult for a pipeline heading toward the West Coast to avoid traversing the city. The original TMPL 18 m easement bypassed the then southern limits of the city, but 60 years of urban growth have caused the city boundaries to move many kilometres further south (Plate 4.2.1). Rather than run adjacent to hundreds of residential properties, Trans Mountain chose to take advantage of the Edmonton Transportation/Utility Corridor (TUC) established by the Province of Alberta in the 1970s. Accordingly, a major deviation from the existing TMPL right-of-way to the south takes place in the first 45 km of pipeline corridor. Final placement of Line 2 within the TUC will be subject to specific direction by Alberta Infrastructure, the TUC administrator.

The proposed pipeline corridor rejoins the TMPL easement west of Edmonton, passing through less developed portions of the City of Spruce Grove and the Town of Stony Plain before entering more rural landscapes and scattered country residential developments in Parkland County. The existing TMPL easement traverses Wabamun Lake Provincial Park for several kilometres. The currently proposed corridor passes north of the park but recent discussions with Alberta Tourism, Parks and Recreation indicate that it may be possible to follow TMPL within the park. Further west, the proposed pipeline corridor generally follows the TMPL easement, passing near the Town of Edson, which is immediately to the south. For the remainder of the length in Alberta, the proposed pipeline corridor generally follows the TMPL easement, with the exception of passing south of the Town of Hinton following a proposed new Highway 16 bypass.

Plate 4.2.1 Existing TMPL easement surrounded by urban development within the City of Edmonton.

4.2.3.3 British Columbia

In general, the factors influencing selection of the proposed pipeline corridor are more complex in BC than Alberta. Although much of the route through the Rocky Mountains was crossed by the Anchor Loop project constructed in 2008, the proposed pipeline corridor must still cross several interior mountain ranges before entering the rich farmland and urban development in the Lower Mainland. A large portion of the urban development in the Lower Mainland, Kamloops and elsewhere occurred after construction of TMPL. Likewise, the seven provincial parks potentially encountered by the Project have been established since TMPL was built.

Commencing at Hargreaves on the west side of Mount Robson Provincial Park, the proposed new TMEP pipeline corridor generally follows the TMPL easement through the Fraser River valley except for a deviation to avoid crossing Rearguard Falls Provincial Park and a second crossing of the Fraser River. The proposed pipeline corridor then crosses a height of land to enter the Rocky Mountain Trench, bypassing the Village of Valemount to the west. Further south, the proposed pipeline corridor follows the existing TMPL easement through successive narrow, mountain valleys occupied by Camp Creek and the Albreda River, respectively.

As it continues to follow the existing TMPL easement, the proposed pipeline corridor then enters the upper reaches of the North Thompson River valley, which it generally follows for several hundred kilometres as far south as the City of Kamloops. In the upper part of the valley, the TMPL easement crosses the North Thompson River five times in less than 4 km. The proposed pipeline corridor deviates from the TMPL easement to parallel a nearby power line and forestry road for approximately 15 km as far south as Chappel Pump Station. Consequently, the proposed pipeline corridor crosses the North Thompson River once instead of five times. The proposed pipeline corridor continues to generally follow the existing TMPL easement, descending the narrow, forested North Thompson River valley towards the Community of Blue River. At Blue River, the proposed pipeline corridor is immediately west of the community where it is adjacent to the existing TMPL easement and the existing Blue River Pump Station. Further south, the proposed pipeline corridor continues to generally follow the existing TMPL easement in the North Thompson River valley as far as Finn Creek Provincial Park where there are alternatives to either go through the park beside TMPL or avoid the park to the east. Further south, the proposed pipeline corridor continues following the existing TMPL easement through the widening North Thompson River valley, passing by the communities of Avola and Vavenby and the District of Clearwater before encountering two portions of the North Thompson River Provincial Park. The northern portion of the park and the Clearwater River crossing is unavoidable, whereas there is an alternative to either transect the southern portion of the park along the TMPL easement or avoid it to the west. Further south, the proposed pipeline corridor continues to follow the TMPL easement as far south as Darfield Pump Station.

From the location of the new Black Pines Pump Stations, the proposed pipeline corridor follows the TMPL easement on the west side of the lower North Thompson River valley, which now averages 2 km in width and is becoming increasingly settled and agricultural. The community of Westsyde in the City of Kamloops has been recently built up on a broad terrace of the River (Plate 4.2.2). To avoid passing through Westsyde for several kilometres, an alternative to the west is being considered. This alternative would follow a FOTS right-of-way through Lac Du Bois Grasslands Protected Area (Plate 4.2.3). The proposed pipeline corridor then rejoins the TMPL easement and crosses the Thompson River just east of the Kamloops Airport, climbing the south slope of the river valley to eventually enter the Kamloops Pump Station on the south side of Highway 5.

The proposed pipeline corridor generally follows the existing TMPL easement across a semi-forested upland plateau from Kamloops to Merritt with three possible exceptions. The first is a jog to the west on the proposed Ajax Mine property to avoid Jacko Lake and a narrow valley where there is insufficient room to install a second pipeline. Further south, the TMPL easement crosses corners of two Indian Reserves north of Merritt (Zoht 5 and Zoht 4) where minor deviations avoiding the Reserves are being considered in addition to following beside TMPL through the Reserves.

Plate 4.2.2 Existing TMPL easement encroached by urban development through the community of Westsyde.

Plate 4.2.3 Existing FOTS right-of-way within Lac Du Bois Grasslands Protected Area.

The proposed pipeline corridor follows the existing TMPL easement through the eastern limits of the City of Merritt in the Nicola Valley, cutting the northwest corner of the Joeyaska Indian Reserve No. 2. A minor deviation avoiding the Indian Reserve to the north and west is also being considered. Further south, the proposed pipeline corridor continues to follow the existing TMPL easement up the Coldwater River valley. The TMPL easement traverses the Coldwater Indian Reserve No. 1 for 7 km. Trans Mountain has identified alternative corridors east and west of the Reserve and currently proposes a corridor which avoids the Reserve to the east. Further south, the proposed pipeline corridor rejoins the existing TMPL easement ascending the narrowing Coldwater River valley to just south of Kingsvale Pump Station. From this point, the proposed pipeline corridor leaves the TMPL easement several times to parallel the Spectra gas pipeline right-of-way which generally parallels TMPL in the Coldwater River valley area. These deviations are generally undertaken to take advantage of better terrain, to reduce the number of Coldwater River crossings or to minimize the length in the riparian reserve zone.

The terrain becomes increasingly mountainous as the proposed pipeline corridor moves further south through the Hozameen Range of the Cascade Mountains. A major deviation takes place near Coldwater River Provincial Park where the proposed pipeline corridor crosses Highway 5 (Coquihalla Highway) west of the Park, continues southwards beside the Spectra and highway rights-of-way, crossing the Coldwater River and the divide into the Coquihalla River drainage and the north end of Coquihalla Summit Recreation Area (Plate 4.2.4). At this point, the proposed pipeline corridor is approximately 1 km west of TMPL. The TMPL right-of-way continues southwards into the Coquihalla Lakes area into the narrow gorge locally known as Coquihalla Canyon, crossing the Coquihalla River 13 times in less than 20 km. There is limited working room for a second pipeline easement, and constructability is a concern. Instead of following the Coquihalla Canyon route, Trans Mountain elected to follow the Coquihalla Highway into the Boston Bar drainage approximately 6 km to the west. This corridor is also used by two Spectra gas pipelines and a FOTS cable and traverses the Coquihalla Summit Recreation Area for a shorter distance than the TMPL easement. The TMPL easement and the proposed TMEP pipeline corridor rejoin where Boston Bar Creek flows into the Coquihalla River. From this point to the District of Hope, the proposed pipeline corridor follows either beside the existing TMPL easement, Coquihalla Highway, Spectra or FOTS rights-of-way in the narrow and steep Coquihalla River valley, depending upon the most constructible terrain and other factors. For example, the TMPL easement traverses the Coquihalla River Provincial Park for 3 km, whereas the proposed pipeline corridor avoids the park altogether. Once in the District of Hope, the proposed pipeline corridor generally follows the TMPL easement or the Spectra right-of-way, avoiding the Kawkawa Lake Indian Reserve No. 16 before crossing the Coquihalla River upstream of its confluence with the Fraser River and entering Hope Pump Station. West of the District of Hope, the proposed pipeline corridor generally follows the existing TMPL easement and Highway 1 (Trans-Canada Highway) in the narrow strip of land between the Fraser River and the Skagit Range of the Cascade Mountains.

The remainder of the proposed pipeline corridor traverses the rich agricultural lands of the Lower Mainland of BC, which becomes increasingly urbanized from the Fraser Valley Regional District west to Metro Vancouver. Most of the agricultural lands are part of the provincial ALR. The proposed pipeline corridor generally follows the existing TMPL easement unless otherwise specifically mentioned.

Plate 4.2.4 Existing TMPL easement within Coquihalla Canyon in foreground and proposed corridor beside Coquihalla Highway and FOTS in midground.

The proposed pipeline corridor continues further west into the Lower Mainland, although minor deviations are being considered to avoid Ohamil Indian Reserve No. 1, Peters Indian Reserve No. 1A and Popkum Indian Reserve No. 1. East of the City of Chilliwack, the proposed pipeline corridor crosses to the north side of the Trans-Canada Highway to parallel a BC Hydro power line in order to avoid a crossing of Bridal Veil Falls Provincial Park and Popkum Indian Reserve No. 2. A small portion of Cheam Lake Wetland Regional Park would be crossed although minor deviations are being considered in this area to avoid the park.

Further west, the proposed pipeline corridor passes through the City of Chilliwack, with minor deviations to the TMPL easement considered to avoid crossing Grass Indian Reserve No. 15 and Tzeachten Indian Reserve No. 13. The Vedder River is the major watercourse crossed in the Chilliwack area. Further west, the proposed pipeline corridor enters the City of Abbotsford, crossing the Sumas River and surrounding agricultural Sumas Prairie before ascending the forested south flank of Sumas Mountain. The existing TMPL easement provides for a branchline to access TMPL's Sumas Terminal. On the west side of Sumas Mountain, the proposed pipeline corridor crosses increasingly urbanized areas and a golf course in the vicinity of Clayburn. Towards the western end of the City of Abbotsford, the proposed pipeline corridor crosses the Matsqui Main Indian Reserve No. 2, although a minor deviation is also being considered to the south. The proposed pipeline corridor then enters the Township of Langley and continues along the existing TMPL easement until the vicinity of the Salmon River valley south of Fort Langley. From this point onwards to the Fraser River crossing, urbanization in Langley and the City of Surrey has sufficiently encroached on the existing TMPL right-of-way in the past 60 years to make contiguous looping not feasible (see 4.2.2). For this reason an alternative pipeline corridor was sought. Trans Mountain chose to take advantage of the existing Canadian National (CN)

railway right-of-way and new South Fraser Perimeter Road corridor on the south side of the Fraser River. Accordingly, the proposed pipeline corridor leaves the TMPL right-of-way near a golf course and heads north on new corridor a short distance across farmland before reaching the CN railway right-of-way. Other minor deviations are being examined to follow property lines and cross a second golf course further north before joining the CN railway right-of-way. From this point it parallels the CN railway right-of-way and later the South Fraser Perimeter Road in a westerly direction through Langley and Surrey before finding a location to cross the Fraser River near the Port Mann Bridge. The proposed pipeline corridor traverses the edge of the Surrey Bend Regional Park for about 3 km, although a minor deviation is being considered to reduce this length by taking advantage of surplus land released from the recent South Fraser Perimeter Road project.

Two primary locations are being considered to cross the main stem of the Fraser River between the cities of Surrey and Coquitlam using the horizontal directional drill (HDD) method (see Plate 4.2.5). Currently, the proposed pipeline corridor is located about 500 m east of the existing TMPL pipeline, but a second location is being considered on the east side of the Port Mann Bridge. On the north side of the Fraser River, urbanization in the cities of Coquitlam and Burnaby have sufficiently encroached on the existing TMPL easement in the past 60 years to make contiguous looping not feasible (Plate 4.2.6). The proposed pipeline corridor follows the Lougheed Highway although a deviation is being considered to traverse existing industrial lands and railway easements within the Brunette River Conservation Area. Both corridors eventually link up with TMPL's Burnaby Terminal via other city streets.

From the Burnaby Terminal to the Westridge Marine Terminal on Burrard Inlet, urbanization in the City of Burnaby has sufficiently encroached on the existing TMPL right-of-way in the past 60 years to make contiguous looping with twin 30-inch pipelines not feasible. Accordingly, an alternative corridor is being considered alongside Burnaby Mountain Parkway, Hastings Street, and Cliff Avenue before turning east into TMPL's Westridge Marine Terminal. Other more direct alternatives involving partial or total trenchless (HDD or tunnel) methods of construction are also under consideration.

Plate 4.2.5 Overlooking the existing crossing of the Fraser River looking east with existing TMPL easement (shown in yellow) in foreground, proposed pipeline corridor (shown in orange) in midground and Port Mann Bridge in background.

Plate 4.2.6 Looking south along the existing TMPL easement encroached by urban development in the City of Coquitlam.

4.3 Facility Siting

In general, the existing TMPL terminals and pump station sites are sufficiently large to accommodate TMEP facilities. The two pump stations at Black Pines, approximately 38 km north of Kamloops, will require a new site approximately 150 m × 150 m (2.25 ha) in size. Factors considered in site selection include:

- optimization of pipeline hydraulics;
- terrain suitability;
- environmental suitability;
- availability of road access and electrical power; and
- landowner considerations.

Three candidate sites are under consideration with the preferred location to be finalized in the coming months.

In addition, a small extension to the foreshore area at the Westridge Marine Terminal will be required.

Additional detail on siting methodology is provided in Section 4.4 of Volumes 5A and 5B.

5.0 LAND RELATIONS, RIGHTS AND ACQUISITION

5.1 Introduction

Trans Mountain will acquire the necessary easement interests, permits and rights from private land owners and Crown License agreements in both Alberta and BC for the construction, operation, and maintenance of the Project.

5.1.1 Purpose of this Section

This section provides information on the land required for the Project and includes summaries of:

- land areas required for the Project;
- land rights;
- service of notice; and
- land acquisition process.

This section has been prepared to meet the requirements of the NEB Filing Manual, Chapter 4, Section A.4, Lands Information.

5.1.2 Project Overview

The Project is fully described in Section 2.0, above, and elsewhere.

5.2 Land Requirements

To construct, operate, and maintain the pipeline, facilities and associated infrastructure for the Project, surface rights must be acquired from the Crown and private landowners in BC and Alberta.

The summary in Table 5.2.1 provides estimates at this time. The actual quantities will be determined at completion of engineering design and construction planning.

TABLE 5.2.1

LAND AREA SUMMARY

Requirements	Alberta		BC	
	Area (ha)	Comment	Area (ha)	Comment
Right-of-way	621.2	18.3 m wide combination of existing TMPL and new right-of-way. Proportion to be determined following engineering design.	1,178.9	18.3 m wide, combination of existing TMPL and new right-of-way. Proportion to be determined following engineering design.
Temporary Workspace	906.2	Average 26.7 m wide.	1,726.8	Average 26.7 m wide.
Temporary Construction Lands	26.0 (min)	Total is undetermined at this time.	50.0 (min)	Total is undetermined at this time.
Pump Stations	0.3 (min)	Total is undetermined at this time.	3.02 (min)	Total is undetermined at this time.

TABLE 5.2.1

LAND AREA SUMMARY (continued)

Requirements	Alberta		BC	
	Area (ha)	Comment	Area (ha)	Comment
Pump Stations TWS		Undetermined at this time.		Undetermined at this time.
Power Lines	0.3 (min)	Total is undetermined at this time.	129.5	Total is undetermined at this time.
Subtotal	1,554		3,088	
Total	**4,642 ha**			

5.2.1 Right-of-Way

The proposed pipeline route follows the existing TMPL (Line 1) alignment except where other developments, restrictions, impediments or environmental features require deviations. The route selection processes and routing options are described in Section 2.8 of Volume 4A.

Distance measurements along the Project (TMEP, Line 2) study corridor are described as reference kilometres (RKs). These RKs are measured along the centre line of the study corridor that is typically 150 m wide. Comparatively, distances measured along the centre line of the existing TMPL are referred as KPs. Alignment deviations between the TMPL and the Project's study corridor create differences in length; therefore, only the Project's RKs are used for reference through the following sections.

In Alberta, the Project begins at the Trans Mountain Terminal in East Edmonton (RK 0.0). The pipeline will be located within the south TUC to the west side of Edmonton. There it will converge with the existing TMPL and continue westward to the Hinton Pump Station (RK 339.4). The segment from the Hinton Pump Station, AB, and the Hargreaves Scraper Trap Site, BC, was previously looped.

In Alberta, approximately 69 per cent, of the TMEP right-of-way will about the TMPL. Approximately 23 per cent will abut other existing utilities and infrastructure. Along the remaining 8 per cent of the route, the right-of-way will not be contiguous with any other linear infrastructure. The width of existing TMPL easement is typically 18.3 m wide. Where practical, along those segments abutting the existing TMPL, the TMEP will be built within the existing easement when safe and practical. In some circumstances, no new easement will be required. In other cases, up to 18.3 m of additional width of new easement will be necessary. Through the TUC in Edmonton, AB, the width of easement is intended to be 18.3 m but may be restricted by Alberta Infrastructure to not more than 10 m.

The total land area required for right-of-way in Alberta will be approximately 621.2 ha based on a width of 18.3 m throughout. Until engineering design is complete, the full or partial use of existing TMPL right-of-way is undetermined. The combined width of the new and existing right-of-way will be minimized. The width of the new right-of-way will generally not exceed 18.3 m.

In BC, TMEP will begin at the Hargreaves Scraper Trap Site (RK 489.6) and continue to the Darfield Pump Station (RK 769). The segment between the Darfield Pump Station and the Kamloops Pump Station (RK 850.8) has been previously looped. This segment of Line 1 has been deactivated. Line 1 will be reactivated between the Darfield Pump Station and the new Black Pines Pump Station (RK 811.8). Acquisition of new permanent land rights is not

anticipated through this segment. The TMEP pipeline will begin again at the new Black Pines Pump Station (RK 811.8) and continue through to KMC's Burnaby Terminal (RK 1179.7). Extending beyond the Burnaby Terminal, two NPS 30 pipelines are proposed to connect to the Westridge loading facility (3.6 km).

Along the segment between Hargreaves and Darfield, approximately 73 per cent of the route will about the existing TMPL while 15 per cent of the TMEP right-of-way will abut other utilities and infrastructure. Approximately 12 per cent of right-of-way will not be contiguous with other linear infrastructure. Between Black Pines and Burnaby Terminal, approximately 61 per cent of the route will abut TMPL while 27 per cent of the route will abut other utilities and infrastructure. About 12 per cent of the TMEP route will not be contiguous to other linear infrastructure.

Between the Burnaby Terminal and the Westridge Facility, approximately 17 per cent of the length of the route will be on or adjacent to the existing TMPL right-of-way while 19 per cent of the length will abut other existing infrastructure. Sixty-four per cent of the length will not be contiguous with other linear infrastructure.

In BC, as in Alberta, the width of new easement will vary. Where the pipeline is built on the existing easement, it may be possible that no new easement will be required. The width of the new easement will vary up to 18.3 m. Where the pipeline is to be installed within municipal streets, no easement is expected but instead, the pipeline will be operated and maintained under permit or license from the municipal authority. Due to physical limitations within municipal streets, the effective width of license areas may be approximately 3 to 5 m.

The total land area required for right-of-way or license in BC will be approximately 1,178.9 ha based on a width of 18.3 m or less as limited by licenses. Until engineering design is complete, the full or partial use of existing TMPL right-of-way is undetermined. The combined width of the new and existing right-of-way will be minimized. The width of the new right-of-way will generally not exceed 18.3 m.

5.2.2 Temporary Workspace and Construction Facilities

5.2.2.1 Temporary Workspace

During construction and installation of the Project, the average width of the construction footprint will be approximately 45 m (includes permanent right-of-way and temporary workspace [TWS]). Where TMEP is constructed on lands not contiguous with TMPL, the construction footprint may be reduced to a width of 40 m.

The width of TWS will vary depending on the nature of terrain, construction season and on the specific features encountered or crossed by the pipeline. The total area of TWS (area beyond new or existing easement of 18.3 m width) will be approximately 2,633 ha based on the preliminary length of 987 km (Edmonton to Burnaby Terminals) plus 3.6 km between the Burnaby Terminal and the Westridge Marine Terminal. The average width of TWS is estimated to be 26.7 m.

The width of TWS will be reduced to mitigate land impacts as required and also in respect of physical limitations such as within urban streets or proximity to other linear infrastructure. The width of TWS may be increased to provide additional workspace for:

- watercourse crossings;
- highway, road, and utility crossings;

- grading along sloping terrain;
- timber storage; and
- other special circumstances.

Temporary workspace lands are expected to be required for the construction and reclamation phases of the Project only and will not be required for the longer-term operational needs.

5.2.2.2 Other Construction Infrastructure

5.2.2.2.1 Construction Lands

Land will be required by the Project on a temporary basis, for staging and stockpiling of equipment and material, construction yards, work camps and borrow pits. Wherever practical, these temporary facilities will be located within previously disturbed areas. The specific requirements for such lands will be finalized during detailed engineering design and construction planning.

Temporary lease and permitting arrangements will be made with the respective Crown or Municipal authority or private landowners.

Construction access to the Project, where it is not contiguous with the existing TMPL, will be from existing public access points/roads, rights-of-way of others (*e.g.*, CN railway, TELUS) and existing or temporary access roads (shoo-flies). Where new access is required, arrangements will be made with Crown authorities, occupants and private landowners for construction, reclamation and long-term pipeline operations.

Existing borrow pits will be utilized to the extent practical. Locations will be determined during detailed engineering design and construction planning.

The estimated requirements for construction infrastructure are listed in Table 5.2.2.

TABLE 5.2.2

ESTIMATED LAND AREA REQUIRED FOR CONSTRUCTION INFRASTRUCTURE

Construction Infrastructure		Area (ha)
Construction camps:	Alberta one site	3 to 5
	BC two sites	6 to 10
New Access		Undetermined at this time
Stockpile sites:	Alberta four sites	23
	BC eight sites	44
TOTAL		**76 to 82**

5.2.2.2.2 Pump Stations, Valves, Cathodic Systems, and Terminals

The Project includes the acquisition of land for the installation, construction, operation, and maintenance of one new electric drive pump station along the TMPL system. It is located in BC at Black Pines (approximately RK 811.8). The preliminary footprint for the new pump station compound is approximately 150 × 150 m (2.25 ha). The required size is to be confirmed during detailed engineering design. A typical pump station is located within a fenced area and contains:

pumps and motors housed in a building; an operator's building; and electrical substation and an electrical equipment building. The pump station will be connected to the provincial electrical power grid via new power lines, and access will be by newly constructed permanent graveled access road within a 15 to 20 m wide right-of-way. The parcel acquired for the new station will be purchased on a fee simple transfer value. Excess lands will be left as an undisturbed buffer around the station site.

The new Black Pines Pump Station will be located approximately 28 km north of the City of Kamloops, BC. Trans Mountain has investigated the availability of three possible site locations on freehold lands. Final site selection has not been completed and negotiations for land acquisition have not concluded.

Modification planned for three other existing pump stations will require additional lands for expansion. This will include permanent and temporary-use land on adjacent properties. The following land areas are preliminary estimates based on pre-design assumptions. The values are likely to change. Permanent Lands will be required at:

- Darfield Pump Station BC 0.07 ha freehold land;
- Rearguard Pump Station BC 0.7 ha crown land; and
- Hinton Pump Station Alberta 0.3 ha freehold land.

To facilitate the operations, maintenance, repair, and shutdown of the pipeline system, valves will be installed at various locations along the new pipeline loop. These valve sites will consist of a small gravel pad, a small building or cabinet to house instrumentation, and will be fenced. The typical footprint for a valve site is approximately 5 m × 12 m. Most valve sites will not require additional land acquisition since they will be located either within permanent pipeline easement or within pump station sites.

Additional cathodic systems will be required but the types and locations will not be determined until the detailed design phase. Each cathodic bed will be included in requirements for appropriate easement.

5.2.2.2.3 Terminals

No additional permanent land is expected to be required at the Edmonton, Kamloops, Sumas, and Burnaby terminals. Temporary offsite staging/parking areas may be required which will be determined during construction planning.

At the Westridge Marine Terminal, an expansion of the foreshore is expected to be needed. The size of the expansion is estimated to be about 1.4 ha. Temporary offsite staging/parking areas may also be required. This will be determined as construction plans are developed.

5.2.2.2.4 Power Lines

Power lines will be constructed to supplement electrical power to three existing pump stations and provide service to one new pump station. Electrical power will also be required at each automated valve site as well as new cathodic rectifier locations. Electrical power will be provided from existing provincial power grids. Investigations have been initiated with provincial power suppliers to determine appropriate power service and interconnection sites to existing power lines.

For pump stations in BC, power lines of 138 or 69 kV within a 40 to 50 m wide right-of-way, will be constructed from the interconnection sites to each of two pump stations.

Power requirements at valve and rectifier sites will range between 12.5 and 25 kV. These will be located on the margin of the existing or new pipeline right-of-way. Alternatively, where it is not possible to co-locate the power lines on pipeline rights-of-way, new rights-of-way will be acquired, which may be between 20 and 30 m wide.

In BC, Trans Mountain will initially acquire the land rights for power lines and later transfer those interests to the power service utility company.

Additional power to the pump stations in Alberta will be either 25 or 138 kV depending on future studies by power service utility companies. In Alberta, the utility companies will complete design, regulatory applications and acquisition of required lands. Electrical power to valve and cathodic sites will be similarly located within the pipeline right-of-way or new power line rights-of-way of 20 to 30 m wide.

Interconnection sites and routing are to be determined by power service utility companies. Detailed studies are not yet compete.

- Supplemental overhead power service will be required at existing facilities:

<u>Alberta</u>		
Edson Pump Station RK 247.1	power line route unknown at this time	
Edmonton Terminal RK 0.0	approximately 100 m at 30 m wide right-of-way	0.3 ha
<u>BC</u>		
Kingsvale Pump Station RK 955.5	approximately 24 km at 50 m wide	117.5 ha

- New overhead power service will be required at new pump station:

<u>BC</u>		
Black Pines Pump Station RK 811.8	approximately 2.4 km at 50 m wide	12.0 ha

5.3 Land Rights

To construct, operate and maintain the pipelines, facilities and associated infrastructure for the Project, surface rights must be acquired from the Crown and private landowners in BC and Alberta.

5.3.1 Type of Land Rights

Types of land rights required by the project include:

- Easement (Statutory right-of-way): Easements provide a partial right to the land for a specific activity (*i.e.*, access, preconstruction activities pipeline construction, operation, repair and maintenance). Easements have been registered against land titles for the existing TMPL. In most cases, the existing easements provide for installation, operations and maintenance of pipelines on the right-of-way. New statutory right-of-way agreements will be registered against land titles. Agreements will identify requirements for above-ground appurtenances as required. Easements will be sought for all privately owned lands as well as Provincial, Federal and Indian Reserve Lands in BC.

- An application for right-of-way and TWS on Indian Reserves will be submitted where required.
- Pipeline Lease Agreements will be acquired for those portions of Crown lands in Alberta from AESRD. These agreements will apply to the construction, operation and maintenance of the pipeline loop and Project. This interest will be granted following the receipt of consent agreements from the disposition holders (occupants) as directed by AESRD. The form of Lease Agreement will be prescribed by AESRD.
- In BC, applications will be made to the BC OGC for tenure on Crown lands.
- For those lands within BC provincial parks, the appropriate authorities will be consulted regarding the statutory process that must be followed to acquire the necessary land tenure.
- Statutory right-of-way agreements will also be required for power lines and permanent access roads. The easements shall provide for access, construction, operations, repair, and maintenance.
- Temporary workspace: Temporary land use agreements will be entered into with Crown authorities and private landowners for construction of pipelines, power lines, valves, cathodic beds and other facilities. These agreements are to provide temporary rights for the use of lands for construction and reclamation. Agreements related to TWS will be registered onto respective land titles.
- Fee simple land ownership: Provides absolute ownership of the land (preferable for facility and facility expansions). Alternatively, if purchase of required lands is not possible, long-term lease arrangements may provide a viable alternative. Lease agreements must provide exclusive land right granted by the land title owner for use of the land. Lease agreement will be registered on respective land titles.
- Leased Lands: Lease agreements will be made with Crown authorities and private landowners for temporary land use for construction and reclamation activities. The scope includes pipe/material and equipment storage yards, construction yards, and camps.

5.3.2 Land Ownership

Land ownership along the Project corridor is a mixture of privately owned lands held in fee simple, provincial Crown lands, federal Crown lands and Indian Reserve lands.

Table 5.3.1 summarizes land ownership within the study corridor which is typically 150 m wide. The final centre line location of the pipeline will be defined in 2014. At that time, the summary of land ownership will be refined.

In Alberta there are 989 tracts of land within the study corridor, of which 673 are privately owned and 316 are owned by the Crown. In BC, there are 2,952 tracts within the study corridor, of which 2,293 are privately owned, 645 are Crown parcels, and 12 are Aboriginal communities.

TABLE 5.3.1

LAND OWNERSHIP DETAILS – TMEP

Location		Land Ownership Details
Alberta		
RK From	**RK To**	
0.0	2.2	Lands owned by industrial corporations.
2.2	42.0	Alberta Crown, TUC administered by Alberta Infrastructure.
42.0	134.0 Entwistle	Mostly private landowners. Crown lands administered by Alberta Transportation and AESRD.
134.0	228.8	Mostly private land ownership. Crown lands administered by AESRD.
228.8	339.4 Hinton Station	Near equal proportion of private land ownership and Crown parcels c/o AESRD.
BC		
RK From	**RK To**	
489.6	523 Valemount	Distribution of private land ownership and crown parcels care of BC OGC.
523	614.7 Blue River Station	Mostly Crown care of BC OGC; some private land ownership.
614.7	721 Clearwater	Distribution of private land ownership and Crown parcels care of BC Oil and Gas and BC Provincial.
721	769 Darfield Station	Mostly private land ownership, some Crown lands care of BC OGC and BC provincial parks.
769	850.6 Kamloops Station	Distribution of private land ownership and Crown parcels care of BC OGC. Ministry of Transportation and BC Protected Areas.
850.6	930 Merritt	Distribution of private land ownership and Crown parcels care of BC OGC. Also, lands to Aboriginal communities.
930	1043.7 Hope Station	Distribution of private land ownership and Crown parcels care of BC OGC, Ministry of Transportation, and BC Recreational Areas. Also, lands to Aboriginal communities.
1043.7	1097 Chilliwack	Distribution of private land ownership and Crown parcels care of BC OGC, Ministry of Transportation and BC provincial parks. Also, lands to Aboriginal communities.
1097	1179.6 Burnaby Terminal	Mostly private land ownership. One parcel to Aboriginal communities.
Burnaby Terminal	KP 3.6 Westridge	All private land ownership.

5.4 Lands Acquisition Process

5.4.1 Process

The primary program goal of the TMEP Land Program is to deliver land access on a timely basis to support survey, construction, reclamation, operations, and maintenance. More specifically, the program objectives are obtaining landowner acceptance and land rights grants for survey, construction, restoration and transition to operations by providing fair compensation and addressing non-monetary issues in a respectful, sincere, and honest manner.

Trans Mountain will implement the following land acquisition process for the new pipeline, one new pump station site, additional lands for expansion of three existing pump stations and for TWS for the pipeline, power lines, and cathodic systems.

- The pipeline right-of-way will be acquired by application to the appropriate Crown agency in Alberta and BC, and by way of an easement agreement or statutory right-of-way agreement on privately owned lands. Licenses or permits may be acquired from municipal authorities for construction within some municipal lands. Similarly, a form of TWS agreement or disposition will be used for TWS on privately owned lands and Crown lands. Trans Mountain plans to acquire a fee simple interest in the one new pump Station at Black Pines and for the expansion of three existing pump stations. Crown Disposition will be acquired for expansion of one additional pump station in BC. All land will be acquired with strict adherence to, and accordance with, the provisions and regulations of the NEB and, in particular, Section 87(1) of the *NEB Act*.

- Individual Ownership Sketches (IOSs) will be prepared for all lands required for the Project. The IOSs will define the location of the right-of-way lands (easement and TWS), new pump station, land for pump station expansion, and cathodic beds. The IOSs will define the areas required, and provide title and ownership information. Pursuant to Section 87(1) of the *NEB Act*, Trans Mountain will complete a real estate market analysis for the proposed right-of-way lands, the new pump station and expansion areas at existing stations and lands for cathodic beds. The values determined as a result of this process will be used to complete the market value of the Section 87(1) notice.

- Land agents acting on behalf of Trans Mountain will make personal contact with the landowners, occupants, and tenants of the lands required for rights-of-way, TWS, the new pump station, pump station expansions, and cathodic beds necessary for the Project. A Section 87(1) notice and a copy of the NEB's "Pipeline Regulation in Canada, a Guide for Landowners and the Public." Along with the NEB pamphlet, "A Proposed Pipeline or Powerline Project: What you Need to Know", will be provided to and reviewed with the landowners, occupants and tenants.

- The negotiation for a voluntary purchase or right-of-way agreement will continue until such time as an alternative course of action is necessary (*e.g.*, Appropriate Dispute Resolution, Detailed Route Hearing, application to NEB, pursuant to Section 104 of the *NEB Act*, for a right of entry order).

5.4.1.1 Existing Easements

Under most existing easement agreements, Trans Mountain has the ability to place one or more pipelines within the existing 18.3 m wide easement. In certain easements, the practicability of utilizing this right is questionable because the existing line was not placed in a consistent offset location within the easement, meaning that either additional easement would be required or additional undercrossings would be required to locate the new line entirely within the existing easement. In addition, the easement agreements are silent respecting TWS or compensation for placing an additional line within the existing easement. For those reasons, Trans Mountain may be acquiring additional land rights from landowners. This includes the payment for equivalent easement rights (or rights-in-kind), in addition to payments for TWS, damages and

inconvenience as described in the *NEB Act* Section 97(1). This approach means that under certain circumstances, landowners will be compensated for the right to place a second line on their land, irrespective of any rights in the existing easement agreement.

5.4.1.2 Land Valuation

The Section 87(1) land values in Alberta and BC can be estimated by completing independent market valuation or relying on existing appraisals or market values available from government sources. For Alberta, the proposed approach is the use of independent market valuation developed for similar land types in similar areas. The approach is recognized as the Pattern of Dealing (POD). In BC, the Provincial Assessments are generally considered to be good indicators of market value and can be relied upon to provide efficient, objective land valuations. Preliminary study indicates sales values may exceed the provincial assessment values; therefore, an uplift amount will be considered.

5.4.1.3 Compensation Framework

The Compensation Framework needs to address two sets of values: the values Trans Mountain will use in the Section 87(1) Notices to satisfy the NEB requirements and the values Trans Mountain will use as the basis for calculation of the consideration offered to landowners for easement, working space, and fee-simple land purchases.

For the purposes of 87(1) notice, Trans Mountain proposes to use bare land values. Bare land market values will be determined in Alberta through POD for bare land prepared by a registered or accredited appraiser. In BC, market values will be based on BC assessment values plus uplift as may be required. A competent real estate valuator will review and comment on value to determine if adjustments are appropriate.

Typically, Trans Mountain would have to make payments for easements, working space, inconvenience, and signing consideration in advance of construction. Damage payments can be paid in advance (under a formulaic approach where included damages are defined, with any extra damages compensated for following restoration) or following restoration, based on actual damages.

Land acquisition agreements between Trans Mountain and landowners will provide Trans Mountain an interest in the required lands. Landowners will receive a payment at the time of entering into a land acquisition agreement. Once the agreement is executed, the agreement is to be registered with land titles to protect Trans Mountain's interest in the event of a sale or transfer of land title. The terms of the agreements are concluded with the full payment of the remaining amounts by a set date or within a set timeframe after the issuance of approval to construct in the area the land is located.

In calculating the full consideration offered to landowners as an inducement to agree to grant Trans Mountain the required easement and working space, the following approach is used:

- For re-entry and reuse of existing easement, where the pipeline can be constructed wholly within the existing easement, a re-entry fee will be paid for each hectare of land within the existing easement (*i.e.*, an impacted width up to 18.3 m by the length of the pipeline within the land parcel).

- For new easement, where some or all of the easement needs to be located on previously unencumbered lands, the easement value will be based upon an

examination of historic PODs for right-of-way prices in areas that the pipeline right-of-way traverses in Alberta and the assessment value plus consideration to uplift in BC. The difference in approach reflects patterns of use in both Alberta and BC. At most, the new easement area on any one parcel will be a maximum of 18.3 m wide by the length of the pipeline within the land parcel. This new easement area will be reduced to the extent practical, where portions of the existing easement can be re-used.

- Working space will be calculated as a percentage of the fee value of the affected lands used for construction and be based upon a three-year term to allow construction and restoration to be completed. For the purposes of compensation, lands required for working space will not include easement, and the payment for easement will provide full compensation for temporary construction use as well as permanent easement rights.
- Compensation for damages will be based upon actual damages, determined following construction and will be paid upon completion of restoration as part of the landowner sign-off process.
- Inconvenience payments will be paid to owners who have demonstrated an inconvenience.

5.4.2 Surface Rights Process

Acquisition of surface rights will comply with the provisions and regulations of the NEB, including Section 87 of the *NEB Act*. Disagreements over compensation payments, if not settled through negotiation, will be resolved according to the negotiation or arbitration procedures set out in the *NEB Act*. In addition, the surface rights acquisition agreements with Trans Mountain will adhere to Section 86(2) of the *NEB Act*.

5.4.3 Timing and Status

Communications with landowners and tenants began in April 2012. First efforts focussed on landowners along the existing TMPL and were later expanded to include other landowners and tenants within the 150 m wide study corridor. The communications provided notification of the Project and information of related NEB regulations. Trans Mountain collected landowner comments and concerns, and acquired landowner consent to enter their lands for subsequent engineering and environmental study.

At this time, the Land Acquisition process has not commenced. Engineering design and construction planning will be completed to determine the specific land parcels affected. The Land Acquisition Process is planned to begin in the middle of 2014.

5.4.4 Section 87 Notice

Notices will be served according to Section 87(1) of the *NEB Act*, describing the lands required, compensation offered and other details pursuant to the *NEB Act*. Along with this notice, landowners will receive a copy of the NEB's Pipeline Regulation in Canada: A Guide for Landowners and the Public.

5.4.4.1 Status

To date, no notices pursuant to Section 87(1) of the *NEB Act* have been served.

5.4.4.2 S.87 (1) Notice Sample Copy

Sample copies of the notice proposed to be served on all owners of land pursuant to Section 87(1) of the *NEB Act* are attached within Appendix D.

The form of Section 87(1) notice varies between provinces. They also vary to reflect minor differences between Crown and private lands. The notices for private lands include greater explanation of the detailed route hearing and arbitration process.

5.4.5 Section 34 Notice

Once the CPCN has been issued by the NEB, Trans Mountain will prepare and submit to the NEB a Plan, Profile and Book of Reference of the pipeline of which certified copies, when approved by the NEB, will be deposited in the appropriate land titles/registry office. In addition, all landowners will be personally served with a notice pursuant to Section 34(1) of the *NEB Act*.

5.5 Land Acquisition Agreements

5.5.1 Surface Rights Acquisition Agreements

5.5.1.1 List of Notice and Agreements

Samples of the following surface rights acquisition notices and use agreements are provided as appendices:

- Notices Pursuant to Section 87(1) of the *National Energy Board Act* for BC and Alberta (Appendix D);
- Agreement for Easement, Province of Alberta (Appendix E);
- *Land Title Act* Form C and Statutory Right of Way Agreement, Province of British Columbia (Appendix F);
- Agreement for Temporary Working Space, Province of Alberta (Appendix G);
- Agreement for Temporary Working Space, Province of British Columbia (Appendix H); and
- Option to Purchase Agreements for BC and Alberta (Appendix I).

5.5.2 Other Sample Agreements

Damage release has not been included but will be used after construction is completed.

6.0 REFERENCES

6.1 Literature Cited

National Energy Board. 2013a. Filing Manual. Release 2013-03. ISBN: 0-662-36977-7. The Publication Office, National Energy Board, Calgary, AB. 236 pp.

National Energy Board. 2013b. Operations and Maintenance Activities on Pipelines Regulated under the *National Energy Board Act*: Requirements and Guidance Notes. Calgary, AB.

7.0 APPENDICES