

**NATIONAL ENERGY BOARD**

**IN THE MATTER OF** the *National Energy Board Act, R.S.C. 1985, c. N-7*, as amended, ("NEB Act") and the Regulations made thereunder;

**AND IN THE MATTER OF THE** *Canadian Environmental Assessment Act, 2012, S.C., c. 19*, s. 52, as amended and the Regulations made thereunder;

**AND IN THE MATTER OF** an application by Trans Mountain Pipeline ULC as General Partner of Trans Mountain Pipeline L.P. (collectively "Trans Mountain") for a Certificate of Public Convenience and Necessity ("CPCN") and other related approvals pursuant to Part III of the NEB Act.

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**FINAL WRITTEN ARGUMENT of the CITY OF BURNABY**  
**January 12, 2016**

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To: The Secretary  
National Energy Board  
517 – 10<sup>th</sup> Avenue S.W.  
Calgary, AB T2R 0A8

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## **SUBMISSIONS of the CITY OF BURNABY**

### **1. The Project and this Process are not in the Public Interest and do not have Community Support**

#### **1.1 Introduction**

The City of Burnaby (“Burnaby”) is the third largest city in British Columbia with a population of over 223,000 people. Burnaby is a modern city with a thriving and diverse urban economy, not dependent on a single industry, and is known for its quality of life. The City is currently represented by an elected Council of 8 and a Mayor who has been re-elected for five consecutive terms with a significant majority to speak for its citizens. The City has been named by Maclean’s Magazine as the “Best Run City in Canada”.<sup>1</sup>

Burnaby has undergone significant development since the imposition of the original Trans Mountain pipeline system in 1952 – a time when the demographic landscape of the municipality was predominantly suburban-rural with a population of approximately only 58,000 people. Burnaby is surrounded on all sides by other municipalities, Burrard Inlet or the Fraser River, and cannot expand its boundaries for necessary growth and to avoid pipeline impacts. Given the existing and projected urban growth, Burnaby City Council is primarily concerned with managing development within its City so that public safety, environmental health, and economic growth are protected and encouraged.

On behalf of Burnaby and its residents, the democratically elected City Council advises the NEB that it has unanimously determined that this Project is not in the public interest and should not be approved. The Project does not have the community support necessary from Burnaby and its residents to proceed. The Project as proposed offers unacceptable risks, and insufficient benefits. Burnaby formally advises the Panel that it opposes the Project and asks the Panel to recommend that the Project not proceed and that it is not in the public interest.

The Project is also opposed by a majority of the municipalities and First Nations in the Lower Mainland and throughout British Columbia. The public opposition to the Project is overwhelming, and has only increased as the Project has been pushed through a review process that is designed to facilitate projects of this kind being approved with as little process as possible and as little public input as possible.

The public interest being evaluated cannot be reduced to the economic interest of a single pipeline company; the NEB must have regard to the broader public interest with a view to the long-term best interest of Canada, and in this case the broader Canadian public has clearly spoken in a united voice against the Project.

The NEB should not recommend that the Project is in the public interest without first ensuring that the Project has social licence from the communities and stakeholders that

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<sup>1</sup> Ken MacQueen, The best-run city in Canada, *Maclean’s* (22 July 2009) online:  
<http://www.macleans.ca/news/canada/the-best-run-city-in-canada/>

will be impacted by it and from the broader Canadian public. Social licence generally refers to community acceptance or approval of a project, or right of a company to operate in a particular area. Social licence is an essential requirement to not only obtaining regulatory approval in a democratic society, but also to reducing the risk of social conflict in regards to a project. Trans Mountain has not procured the necessary social licence for the Project, and the NEB review process has excluded the broader public from participating in the review of the Project, and has not provided communities or stakeholders with the confidence that this Project is being subject to an open, fair and thorough review process.

The lack of community support for the Project in Burnaby is a product of (1) an opposition to a Project of this magnitude being imposed in densely populated urban areas with the greatest relative risk and (2) a lack of credibility and support for the review process for the Project, particularly where potential alternative locations have not been adequately assessed, where the impacts to the public are potentially catastrophic, and where the risks have been deliberately minimized by the proponent and, to date, insufficiently examined by this process and the Panel.

Prime Minister Trudeau has recently stated in regards to the NEB process, and projects such as this one, that “[t]he one thing that we made very, very clear was there needs to be social licence, there needs to be public trust before projects like these can go ahead” and that “[w]e need to be consulting with communities, we need to be partnering with indigenous peoples, we need to be reassuring Canadians that the science and the environmental impacts and the risks are being properly monitored so that any project is truly in the best interest of Canadians.”<sup>2</sup> The review of this Project does not accord with these promises.

This Project cannot be recommended or approved based on the current process. No project of this magnitude could be reasonably considered unless and until there had been a broader assessment of the opposition to the Project through meaningful engagement with stakeholders and the broader community, a critical examination of the energy needs and policy of Canada, a thorough review of the need for a pipeline of this type and at this time, an evaluation of the potential alternative routes and locations for the Project, and a thorough assessment of the risks and impacts of those various locations and routes, with full public participation and a full public hearing. The process must also recognize that the public interest includes both upstream and downstream impacts.

The current NEB process has not provided the basis to undertake such an assessment and to begin to develop social licence for the Project. It is clear that the pipeline review process needs to be restructured before this Project is considered.

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<sup>2</sup> Ian Bickis, “Kinder Morgan presses on with review process while waiting on word from Ottawa”, *The Vancouver Sun* (17 December 2015) online:

[http://www.vancouversun.com/business/kinder+morgan+presses+with+review+process+while+waiting+word/11597130/story.html?\\_isa=4a15-d717](http://www.vancouversun.com/business/kinder+morgan+presses+with+review+process+while+waiting+word/11597130/story.html?_isa=4a15-d717)

The current NEB process, and Trans Mountain’s failure to engage in it in good faith, has only served to undermine the legitimacy and credibility of the Project, and the trust of the Canadian public. The NEB has lost its credibility as the arbiters of the public interest.

## **1.2 The NEB Pipeline Review Process is Broken**

### **1.2.1 The Pipeline Review Process Needs to be Restructured**

The NEB process is broken. Under the current process, the NEB assesses an individual application by a single pipeline company, rather than considering what type of project would be in the broader public interest. The pipeline company submits an application that is in its own commercial interest, not necessarily that of the general public in Canada or even the oil industry.<sup>3</sup> The NEB – a tribunal that is focused on regulation of the energy sector and lacks environmental expertise – then evaluates this individual application in regards to its environmental and social impacts and risks in a vacuum, as if this were the only potential project. The NEB weighs environmental and social risk against a notional “broader public interest” – assuming a national energy and economic need based in large part on the fact that a sufficient number of shippers have subscribed (each acting in their own commercial interests).<sup>4</sup> This process does not have the ability to consider the broader public interests of the Canadian public as to the need for projects of this kind, and needs to be restructured to be able to do so.

#### **1.2.1.1 *The Process is Proponent Driven***

The pipeline review process needs to be restructured so that it is no longer proponent driven. It must be driven by the public interest of all Canadians. The process cannot assume the “need” for a pipeline based on a single commercial application – in other words it should not assume that the need for a pipeline is the same as the need for this pipeline. The determination of whether there is a need for a pipeline to the west coast of Canada must be an independent process, not driven by a single proponent, and its shippers, and determined by an energy regulator whose primary focus is the health of the industry. Should such a determination be made, then a proper planning process would first evaluate potential routes or locations to determine the route and location with the lowest potential impacts and the lowest potential risks. It might then call for proposals from private companies on that route and location to be evaluated against environmental and social risk criteria. Alternatively, it might evaluate a range of pipeline proposals, one against another, to determine which might cause the least harm or otherwise be in the public interest.

The pipeline review process needs to take into account at the outset a broader energy strategy, one for all of Canada, including the west coast, and how individual projects fit into that strategy and will affect the public interest in the long term. Without considering these overarching policy issues from the beginning, the pipeline review process is

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<sup>3</sup> National Energy Board Act, R.S.C. 1985, c. N-7, s. 52 (the “NEB Act”)

<sup>4</sup> NEB Act, ss. 52(2) and 52(3)

artificially biased, and inevitably favours the interests of the applicant pipeline companies over the interests of the broader Canadian public. Individual companies should not dictate the direction of Canada's energy sector. This is the job of elected officials acting on behalf of all Canadians – not just the proponents' own commercial self-interest.

This is a commercial application. It is profit-driven. To assess "need" – as this Panel has largely done to date – solely by the fact that there are shippers ready to contract, and there is a market overseas for the oil – does not suffice, and does not substitute for a broader consideration of the public interest. What is in the interest of the oil industry is not the same as a "national interest". And yet, this Panel presumes to apply the constitutional doctrines of federal interjurisdictional immunity and federal paramountcy in over-riding Burnaby's bylaws<sup>5</sup>, as though this was a Project, like railways in the 19<sup>th</sup> century, with an all-encompassing nation-building purpose. If such doctrines are to be applied, then the Board must assess the "national interest" from a citizen-focused perspective. It is no longer appropriate, in the 21<sup>st</sup> century, to pretend that this is a national project, that has broad political approval and objectives – when this is only a commercial application, by a single company, who pretends to cloak itself in "Canadian interest".

The focus on a single commercial application – here by a Texas-based company motivated solely by profit and tax avoidance objectives completely unrelated to any Canadian public interest – has resulted in social and environmental risk being assessed in a vacuum. It has placed the NEB in the impossible position of determining an acceptable level of risk, in the absence of comparative projects. This flaw in the process is evident here – where a pipeline company is proposing to place a pipeline and expand facilities near major metropolitan areas of 2 million plus people in British Columbia. Is this really the least risky place in all of British Columbia for such facilities? And if it is not, or if the answer to that question is unknown, why has the review process continued without an assessment of alternative routes and locations? What planning professional could reasonably justify a decision that the best place for a tank farm is near communities and schools, and the best place for a new marine terminal would be at the back end of Burrard Inlet, necessitating shipping of oil in some of the most crowded shipping lanes in British Columbia, putting at risk the shorelines and tourism of the Province's largest municipality? Arguably, this is one of the worst possible places to put a project of this kind. And yet, because the NEB is assessing only the Project put before it by Trans Mountain, the NEB is forced to assess risk based on arbitrary standards and hypothetical percentages, not on any comparative terms, and potentially approve a project that is arguably the worst possible project in the worst possible location.

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<sup>5</sup> See Exhibit A97-1 National Energy Board – Ruling No. 40 – Trans Mountain notice of motion and Notice of Constitutional Question dated 26 September 2014 ([A4D6H0](#)). In Ruling 40, the NEB permitted the destruction of areas of the Burnaby Mountain Conservation Area, just so this company could gather data for its commercial purposes.

### **1.2.1.2      *The Panel lacks Diversified Experience***

The NEB currently has the sole responsibility for reviewing the Project under the *National Energy Board Act* (the “NEB Act”) and carrying out the environmental assessment for the Project. The NEB panel members do not have the diversified experience necessary to assess the broad and multi-faceted public interest that is at stake in the review of the Project. The NEB has expertise in the energy sector. That is only one aspect of the public interest at issue here.

The vesting of sole responsibility in the NEB for reviewing projects of this kind was the result of legislative amendments in 2012 – that made significant changes to the NEB Act and repealed the *Canadian Environmental Assessment Act*, and replaced it with the *Canadian Environmental Assessment Act<sup>6</sup>, 2012<sup>7</sup>* (the “2012 Amendments”).<sup>8</sup> The 2012 Amendments were an attempt by the old federal government to streamline the approval process for pipelines. The 2012 Amendments significantly changed the process for reviewing and approving proposed interprovincial pipeline projects, and resulted in the removal of joint reviews undertaken by the NEB and the Canadian Environmental Assessment Agency. As a result of these amendments, the NEB has been left to consider whether the Project is in the public interest of Canadians, without the necessary expertise to consider the broad public interests at stake.

The mandate letter from the new federal government for the Minister of Natural Resources, James Carr, recognized this problem and has as one of the top priorities:

Modernize the National Energy Board to ensure that its composition reflects regional views and has sufficient expertise in fields such as environmental science, community development, and Indigenous traditional knowledge.<sup>9</sup>

This modernization has yet to take place – leaving communities with the question of what gives this Panel the right to assess the public interest ahead of the democratically elected governments of over 2 million people.

**Given the recognition by the current federal government that the existing Board is inadequate to the task generally, and that change is necessary, it would be highly unfair to the residents of Burnaby to continue with this review under the current structure. Considering the magnitude of this Project, and its potentially significant and long-term impacts upon Burnaby and all of Metro Vancouver, we deserve at least a properly constructed and “modernized” Board before such a Project is imposed on us against our will.**

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<sup>6</sup> *Canadian Environmental Assessment Act*, S.C. 1992, c. 37 (“CEAA”)

<sup>7</sup> *Canadian Environmental Assessment Act*, S.C. 2012, c. 19, s. 52 (“CEAA 2012”)

<sup>8</sup> *Jobs, Growth and Long-term Prosperity Act*, S.C. 2012, c. 19

<sup>9</sup> Letter from the Honourable Justin Trudeau, Prime Minister of Canada to the Honourable James Carr, Minister of Natural Resources re: Mandate, online: <http://pm.gc.ca/eng/minister-natural-resources-mandate-letter>

The magnitude of the public interest at risk in this Project – which directly bisects many municipalities, creates environmental risks for waterways and has significant implications for coastal BC – is obviously immense. The desire to push interprovincial pipeline projects through a review process as quickly as possible, cannot be allowed to undermine the rigour of the review. A Panel with both experience in the energy sector and broader issues relevant to the public interest, including environmental issues, local community issues and aboriginal issues, needs to be appointed to review this Project. Without the necessary structural changes to the legislated interprovincial pipeline review process to allow a Panel with the necessary experience to be appointed, the recommendation as to whether the Project is in the public interest must not be made.

**The residents of Burnaby should not be the last victims of a flawed and outdated federal structure.**

#### 1.2.1.3      *The Public Interests to be considered need to be Broader*

Evaluating the “need” for any pipeline, should presumably evaluate that need against a wide range of social and environmental criteria to determine whether it is in the “public interest”. The NEB should not assume, as it has done, that energy and perceived economic value trumps all social and environmental interests. It should not limit its consideration by ignoring upstream and downstream effects.

The NEB in this hearing has refused to consider the environmental and socio-economic effects of upstream activities and of all downstream uses, including greenhouse gas emissions and the effects on climate change.<sup>10</sup> The decision to not consider climate change in modern day Canada is unacceptable – particularly when there have recently been commitments at the United Nations Conference on Climate Change to reduce global temperature rise.<sup>11</sup> The federal government platform specifically addressed this issue, noting that “we will also ensure that environmental assessments include an analysis of upstream impacts and greenhouse gas emissions resulting from projects under review.”<sup>12</sup>

The current legislation is broad enough to allow the NEB to look at these issues, and in fact, it was argued by the City of Vancouver in the motion before the Board, supported by Burnaby, that the legislation mandates it to have regard to these issues<sup>13</sup>, yet the NEB has declined to do so, noting that “the Board does not consider that upstream and

<sup>10</sup> Exhibit A63-1 - National Energy Board - Ruling No. 25 - Motions requesting that the Board include in the List of Issues the environmental and socio-economic effects associated with upstream activities and downstream use ([A3Z5I4](#))

<sup>11</sup> United Nations Framework Convention on Climate Change, Adoption of the Paris Agreement - FCCC/CP/2015/L.9/Rev.1 (12 December 2105) online:

<http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>

<sup>12</sup> Kyle Bakx, NEB changes stance, may consider GHGs in pipeline proposals, CBCnews (14 November 2015) online: <http://www.cbc.ca/news/business/neb-climate-change-pipelines-1.3318104>

<sup>13</sup> See CEAA 2012, ss. 5(1) and s. 5(2)(a); NEB Act, s. 52(2); Exhibit C77-4-1 - City of Vancouver - Notice of Motion Re Expanding the List of Issues ([A3X1I5](#))

downstream effects, including those of GHG emissions, are relevant".<sup>14</sup> There is currently no other forum for consideration of these impacts. As such, it is imperative that they are considered by the NEB, particularly for large-scale projects such as this one that have the potential to materially enable increased GHG emissions through oil sands production.

Consideration of the upstream and downstream effects, including those of GHG emissions is consistent with the precautionary principle and sustainable development. The precautionary principle was considered by the Supreme Court of Canada in *Castonguay Blasting Ltd. v. Ontario (Environment)*, [2013] 3 S.C.R. 323, where Madame Justice Abella noted (at para. 20):

This emerging international law principle recognizes that since there are inherent limits in being able to determine and predict environmental impacts with scientific certainty, environmental policies must anticipate and prevent environmental degradation (O. McIntyre and T. Mosedale, "The Precautionary Principle as a Norm of Customary International Law" (1997), 9 *J. Envtl. L.* 221, at pp. 221-22; 11495 7 Canada Ltée (*Spraytech, Société d'arrosage*) v. *Hudson (Town)*, 2001 SCC 40, [2001] 2 S.C.R. 241, at paras. 30-32).

The Board is obligated to take actions that promote sustainable development in the environmental assessment for the Project.<sup>15</sup>

In the platform of the current Liberal government<sup>16</sup>, they assured Canada that they would "immediately review Canada's environmental assessment processes and... ensure that environmental assessments include an analysis of upstream impacts..." (emphasis added).

Given the recent commitments by the federal government of Canada to address climate change, there has been a fundamental change in what is perceived as in the public interest of Canada that warrants the NEB reconsidering its stance on the need to consider the upstream and downstream effects of the Project, including those of GHG emissions. There is no question that there are GHG emissions generated by producing and extracting oil sands crude and, if more oil sands crude is produced and consumed, there will be an increase in these emissions.<sup>17</sup> This will have significant implications for future generations, and for Canada's ability to meet its climate change commitments. It is clear now, if it was not before, that these effects are directly relevant to any assessment of the Canadian public interest in relation to this Project.

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<sup>14</sup> Exhibit A63-1 - National Energy Board - Ruling No. 25 - Motions requesting that the Board include in the List of Issues the environmental and socio-economic effects associated with upstream activities and downstream use ([A3Z5I4](#)), p. 6

<sup>15</sup> CEAA 2012, s. 4(1)(h); see Exhibit C77-4-1 - City of Vancouver - Notice of Motion Re Expanding the List of Issues ([A3X1I5](#)), paras. 56-57; and, Exhibit C77-4-3 - City of Vancouver - Notice of Motion Re Expanding the List of Issues – Part 2 – Attachments H - M ([A3X1I7](#)), Attachments J and K

<sup>16</sup> <http://www.liberal.ca/realchange/environmental-assessments/>

<sup>17</sup> Exhibit C77-4-1 - City of Vancouver - Notice of Motion Re Expanding the List of Issues ([A3X1I5](#)); and, see the evidence of the City of Vancouver in this regard Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), pp. 14-20

#### **1.2.1.4      *The Canadian Public Needs to be able to Fully Participate in the review process for the Project***

The 2012 Amendments to the NEB Act also restricted who could participate in the review process for the Project. Rather than allowing any concerned member of the public to comment on the Project, the NEB Act restricts those who are allowed to participate to those directly affected or those that it deems to have ‘relevant’ information or expertise.<sup>18</sup> In this case, due to the high level of public concern the NEB applied the very narrow definition of “directly affected” of a property or financial interest that is affected – eliminating the vast majority of concerned public (only 400 initial applicants out of 2,118 were allowed to fully participate in the hearing). It cannot be that just because a project is controversial with extensive potential risks and impacts that the public that is allowed to participate in the review is significantly curtailed. That paradox results in a fundamental injustice.

The Panel has then used the number of intervenors, and the legislated 15 month timeline introduced with the 2012 Amendments, to refuse to hold full public hearings. This means that for non-controversial projects, where there is less public interest, the NEB will still hold community public hearings, with cross-examination and allow for sufficient time to review and respond to the application, but will not do so for larger projects – such as this Project – that are controversial. The Panel has referenced the legislated timeline in a number of its rulings that have undermined the participatory rights of intervenors or provided intervenors with compressed timelines in order to take significant steps in the hearing, including: the ruling to not allow cross-examination, the ruling to not allow additional information requests, the ruling to not allow sur-reply and the ruling to limit the time for oral argument – even for municipalities such as Burnaby representing its 250,000 residents.<sup>19</sup> The legislated timeline has further allowed the

<sup>18</sup> NEB Act, s. 55.2

<sup>19</sup> See the following NEB Rulings, in which NEB used the statutory timeline as an excuse to curtail participatory rights:

Exhibit A241-1 – National Energy Board - Ruling No. 105 Living Oceans Society and Raincoast Conservation Foundation - Notice of Motion to file late evidence - French attached ([A4X0Z7](#))

Exhibit A221-1 – National Energy Board - Ruling No. 96 ([A4U2A4](#))

Exhibit A129-1 – National Energy Board - Ruling No. 50 ([A4G5I9](#))

Exhibit A100-1 – National Energy Board - Ruling No. 43 - Metro Vancouver motion to compel full and adequate responses to the first round of intervenor information requests – other matters raised ([A4E3T0](#))

Exhibit A99-1 – National Energy Board - Ruling No. 42 - Letter from Pacheedaht First Nation dated 20 October 2014 regarding oral Aboriginal traditional evidence hearings ([A4E3S7](#))

Exhibit A94-1 – National Energy Board - Ruling No. 37 - Letter from Cheam First Nation and Chawathil First Nation dated 10 October 2014 regarding participant funding and oral traditional evidence ([A4D3U1](#))

Exhibit A84-1 – National Energy Board - Ruling No. 34 - Lynne M. Quarmby and others – Notices of motion dated 6 and 15 May 2014 ([A4C7D2](#))

Exhibit A32-1 – National Energy Board - Ruling No. 14 - Notices of motion from Ms. Robyn Allan and Ms. Elizabeth May to include cross-examination of witnesses - Trans Mountain Project ([A3W5J1](#))

NEB to let Trans Mountain get away with not consulting with communities or providing full answers to information requests – undermining the testing of the evidence for the Project.

In other words, the current review process for pipelines has set a new standard – the higher the degree of public concern and the more individuals and municipalities that want to oppose it, the lower the level of public scrutiny and technical examination of the evidence the NEB will allow.

Of course, the NEB has compounded this decision again in the oral argument phase with its unprecedented decision to exclude "the public" – by force presumably – from the so-called public hearing. The excuse given is indicative of the high level of public concern. The only justification for this extraordinarily step is that this NEB Panel knows very well that public concern and the public interest are against this pipeline, and the Panel has nevertheless set itself against the public.

The pipeline review process needs to be restructured so that the timeline and process for reviewing a project reflects the size of the project, the public concern with the project and the potential risks and impacts of the project. Allowing the review process to be tailored to the project, will allow complex projects to be scrutinized through full community consultation and full public hearings. It will also allow the time for participation by every interested member of the public in the hearing process. Given that the NEB is tasked with determining whether the Project is in the public interest of Canada, any Canadian resident must have the ability to comment on the Project. Only then will the review panel have the ability to analyze the public interest of all Canadians – not just a select few.

### **1.2.2 Procedural Concerns with the Review Process for the Project**

The current structure of the interprovincial pipeline review process in Canada has resulted in a number of procedural injustices with respect to the Project, and an undermining of the confidence of the public in the review process. Unless that confidence is restored, the Panel's authority to consider whether the Project is in the public interest cannot be relied upon, and no Project could be approved based on this process.

Exhibit A31-1 – National Energy Board - Ruling No. 13 - Requests to further extend the deadline for the first round of intervenor information requests to Trans Mountain - Trans Mountain Expansion Project ([A3W5H1](#))

Exhibit A29-1 – National Energy Board - Ruling No. 12 – Notices of motion to seek Chairperson's approval to extend the statutory timeline until Trans Mountain files and serves final detailed QHHRAs - Trans Mountain Expansion Project ([A3W3X6](#))

Exhibit A25-1 – National Energy Board - Ruling No. 9 - Requests to extend deadline for Round 1 intervenor information requests to Trans Mountain - Trans Mountain Expansion Project ([A3W0L0](#))

### **1.2.2.1        *The NEB is viewed as an Industry Captured Regulator***

The review of the Project has undergone intense criticism from the public. The public interest in the Project is immense and there have been serious questions raised about the appropriateness of the NEB – a board that is focused on regulation of the energy sector and that lacks environmental expertise – to scrutinize a Project of this nature, with the potential for catastrophic human and environmental consequences. In short, the NEB has lost the trust of the public.

Marc Eliesen, the former CEO of BC Hydro, summed up the lack of public confidence in the NEB process stating that the NEB have become an “industry captured regulator.”<sup>20</sup> Mr. Eliesen pulled out of the NEB process as an intervenor, believing the process to be a “sham” and “not in the public interest”.<sup>21</sup>

Mr. Eliesen is not alone in his concern that the NEB cannot reasonably be viewed as an independent body that is not biased towards the energy sector. There are significant concerns about the politicization of the NEB and the NEB’s capacity to review pipeline projects, with human and environmental consequences, since the 2012 Amendments put the sole responsibility of reviewing those projects within the hands of the NEB, and since the appointees to the Board have predominately come from a small pool of energy industry insiders.<sup>22</sup>

Justin Trudeau, now Prime Minister of Canada, noted that:

It's obvious the Harper government's politicization of the National Energy Board, the process around approval for projects like this, is not working, and if there's any hope for projects like this and others to go forward, there needs to be a restoration of public trust. That's why we've announced we're going to engage in a new open process for all pipelines.<sup>23</sup>

And that:

The current approach by the National Energy Board is not in keeping with what it actually should be. The Conservative government, when it realized that they were being slowed down by environmental concerns on their ‘drill, baby, drill’ approach, politicized the NEB and removed its capacity to be a true independent arbiter. ... And the Liberal

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<sup>20</sup> Exhibit C118-6-1 - Marc Eliesen Letter of Withdrawal ([A4E1Q6](#)), p. 2

<sup>21</sup> Exhibit C118-6-1 - Marc Eliesen Letter of Withdrawal ([A4E1Q6](#)), p. 4

<sup>22</sup> Mychaylo Prystupa, “Breaking: Harper government appoints Kinder Morgan Consultant to NEB” *The National Observer* (1 August 2015) online: <http://www.nationalobserver.com/2015/08/01/news/harper-gov%20%99t-appoints-kinder-morgan-consultant-neb>

<sup>23</sup> Jennifer Moreau, “Trudeau tours Burnaby business, talks climate change” *Burnabynow* (30 June 2015) online: <http://www.burnabynow.com/news/trudeau-tours-burnaby-business-talks-climate-change-1.1984770>

Party is committed to restoring a measure of independence and non-interference from politics to the NEB.<sup>24</sup>

Elizabeth May, federal green party leader, further noted that:

Having appeared as legal counsel before the National Energy Board over the last 30 years, the right to cross-examine before the National Energy Board has been unquestioned. The truncated process imposed due to the 2012 omnibus budget bill is bad enough, these additional changes represent a breach of natural justice and if not corrected will end up before the courts.<sup>25</sup>

Another intervenor who actively engaged in the NEB review process for the Project at the outset of that process, Robyn Allan, economist and former ICBC president, pulled out of the process stating that “[t]he Panel is not an impartial referee. The game is rigged.”<sup>26</sup> In her view “[w]e are being conned by the very agency entrusted to protect us.”<sup>27</sup> Among her criticisms, Ms. Allan noted that “[t]he NEB has unconscionably betrayed Canadians through a restricted scope of issues, violated the rules of procedural fairness and natural justice, and biased its decision-making in favour of Kinder Morgan.”<sup>28</sup>

Other intervenors have also withdrawn en masse from the NEB review of the Project citing that the process is “biased” and “unfair”.<sup>29</sup> Recently, Watershed Watch Salmon Society withdrew noting “no confidence in the fairness, objectivity, and appropriateness of the NEB’s review process for this project.”<sup>30</sup>

The crisis of public confidence in the NEB has reached pandemic levels, with calls for a federal overhaul of the process and for B.C. to step in and conduct its own review of the Project. As Kai Nagata, Energy & Democracy Director, Dogwood Initiative, observed:

You've got citizens being arrested every day for the last week on Burnaby Mountain. First Nations and municipalities are battling the National Energy Board in court. Intervenors in the Kinder Morgan review are quitting in frustration. This would not be

<sup>24</sup> Pete McMartin, “Justin Trudeau pulls into port” *Vancouver Sun* (29 May 2015) online: [http://www.vancouversun.com/technology/Pete%20McMartin%20Justin%20Trudeau%20pulls%20into%20port/11094462/story.html?\\_Isa=4a15-d717](http://www.vancouversun.com/technology/Pete%20McMartin%20Justin%20Trudeau%20pulls%20into%20port/11094462/story.html?_Isa=4a15-d717)

<sup>25</sup> Green Party of Canada, News Release, “Greens call on Government to Stand Up for BC on Kinder Morgan Pipeline” (17 April 2014) online: <http://www.greenparty.ca/en/media-release/2014-04-17/greens-call-government-stand-bc-kinder-morgan-pipeline>

<sup>26</sup> Exhibit C9-31-1 - Robyn Allan - Withdrawal Letter ([A4L3S6](#)), p. 1

<sup>27</sup> Exhibit C9-31-1 - Robyn Allan - Withdrawal Letter ([A4L3S6](#)), p. 8

<sup>28</sup> Exhibit C9-31-1 - Robyn Allan - Withdrawal Letter ([A4L3S6](#)), p. 1

<sup>29</sup> Exhibit C387-2-1 - Wilderness Committee -Withdrawal Letter ([A4S1L8](#)); Jeff Lewis, “NEB suggests 145 conditions for Trans Mountain pipeline expansion” *The Globe and Mail* (12 August 2015) online: <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/dozens-drop-out-of-biased-energy-board-review-of-trans-mountain-pipeline/article25937208/>

<sup>30</sup> Watershed Watch Salmon Society, News Release, “Watershed Watch pulls out of NEB’s flawed review of Kinder Morgan pipeline” (3 June 2015) online: <http://www.watershed-watch.org/2015/06/watershed-watch-pulls-out-of-nebs-flawed-review-of-kinder-morgan-pipeline/>

happening if we had a fair, independent process – and right now only the B.C. government can provide that.<sup>31</sup>

Canada should not consider approval of this Project until the public confidence in the NEB process has been restored. No project, with potential impacts of this nature, through developed municipalities, should be imposed on citizens without a full and fair consideration in a proper public hearing process, and conducted by representatives with demonstrated community-focused values and recognized public trust.

### **1.2.2.2      *The NEB has Limited Public Participation in the Review***

The NEB's decisions for this Project review have only served to intensify the scrutiny of its process by severely limiting the public's ability to participate in the review process.

Carol Baird Ellen, former Chief Judge, BC Provincial Court noted that:

As chief judge of the Provincial Court, I applied the law in a balanced manner to ensure all involved within the legal system felt they were fairly treated. The National Energy Board pipeline review process completely fails this test. By cancelling the ability to cross-examine witnesses, allowing companies to change routes in mid-process, and compressing the review into mere weeks, and using industry insiders as adjudicators, the NEB has been turned into a rubber stamp in which no one has any confidence.<sup>32</sup>

The Sierra Club has echoed these concerns calling the NEB handling of the pipeline review process "chaotic," "deeply flawed," and "unfair."<sup>33</sup>

The Sierra Club's report details the public criticism and dissatisfaction with the NEB review process for the Project, including the following:

1. Public participation severely curtailed;
2. Participants denied adequate and timely funding;
3. Upstream and downstream impacts, such as climate change, not considered;
4. Kinder Morgan allowed to submit incomplete information;
5. The only evidence subject to cross-examination is First Nations oral evidence;
6. No cross examination of Kinder Morgan permitted;
7. Kinder Morgan is allowed to ignore or provide incomplete responses to written Information Requests;
8. Panel has accepted 80 per cent of the Kinder Morgan's motions, but only 11 per cent of intervenor motions;
9. Panel failed to ensure Kinder Morgan's environmental and risk assessment conformed to accepted best practices.<sup>34</sup>

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<sup>31</sup> Dogwood Initiative, News Release, "Premier Clark missing in action as calls grow for independent pipeline review" (24 November 2014) online: <https://dogwoodinitiative.org/media-centre/media-releases/missing-in-action>

<sup>32</sup> Notice to Supporters, June 14, 2015

<sup>33</sup> Larissa Stendie, "NEB review of Trans Mountain dangerously flawed" *Sierra Club Featured Story* (26 July 2015), online: <http://sierraclub.bc.ca/tag/kinder-morgan/>

Since the release of the Sierra Club report, the NEB has made further decisions that curtail the participatory rights in this hearing. The NEB has deferred consideration of key issues until after approval of the Project in the draft conditions, including a complete risk assessment for the Project, has restricted the time limits for the oral hearings to 40 minutes per intervenor and has forbidden the general public from attending the oral hearings.<sup>35</sup>

### **1.2.2.3        *Failure to Allow Cross-Examination***

It is a fundamental premise of any advocacy process that the evidence be tested by cross-examination in an open process. The decision by the NEB Panel to not allow cross-examination in this hearing is inexplicable, and further destroys the credibility of the process.<sup>36</sup> The Department of Justice Canada commented in relation to a motion in the hearing process challenging the constitutionality of s. 55.2 of the NEB Act as infringing upon the freedom of expression under s. 2(b) of the *Canadian Charter of Rights and Freedoms* that:

Cross-examination serves a vital role in testing the value of testimonial evidence. It assists in the determination of credibility, assigning weight, and overall assessment of the evidentiary record. It has been termed “the greatest legal engine ever invented for the discovery of truth.”<sup>37</sup>

In the Tolling hearing for the Project, the NEB Panel allowed full rights of cross-examination to the shippers and other oil companies<sup>38</sup> – why are the rights of oil companies more sacrosanct than the rights of the public? Why are environmental and social impacts and risks less deserving of rigorous examination than the financial interests of individual oil companies?

**In making the decision to preclude cross-examination, this NEB Panel has indicated its contempt for the public, and the lack of priority of environmental and social issues versus the financial ones of the oil industry. There is no rational justification for allowing cross-examination in a hearing about tolls for a Project, and then not allowing it in the hearing for whether the Project actually goes forward. This is fundamentally unjust, and has resulted in much of Trans Mountain’s evidence remaining untested.**

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<sup>34</sup> Sierra Club B.C., “Credibility Crisis” (29 June 2015), online: <http://sierraclub.bc.ca/wp-content/uploads/2015/08/NEB-Flaws-Report-June-27.pdf>

<sup>35</sup> Exhibit A229-1 – National Energy Board - Procedural Directive No. 20 ([A4V7T3](#))

<sup>36</sup> Exhibit A32-1 - Ruling No. 14 - Notices of motion from Ms. Robyn Allan and Ms. Elizabeth May to include cross-examination of witnesses - Trans Mountain Project ([A3W5J1](#))

<sup>37</sup> Exhibit E2-5-2 - Department of Justice Canada - LT NEB encl AGC's Written Answers in response to motion re Notice of Constitutional Question – Written Answer of the Attorney General of Canada

([A3Y6K7](#)) at para. 16, citing *Innisfil Township v. Vespra Township*, [1981] 2 SCR 145, at paras 166-167.

<sup>38</sup> Exhibit A3-1 – National Energy Board – Hearing Order RH-001-2012 – Trans Mountain Part IV Application ([A3A4F7](#)), pp. 5-6

#### **1.2.2.4      *Failure of the Information Request Process***

The NEB Panel justified its decision to preclude cross-examination by relying on the opportunity for written questions in the information request (“IR”) process. That process has turned out to have been a complete failure, and worthless as a substitute for cross-examination.

It should be noted that the information request process is useful not as an alternative to cross-examination or a full public hearing, but rather adjunct to it, as it was for the Tolling Hearing.<sup>39</sup> To the extent the proponent is prepared to be cooperative (knowing the questions can ultimately be asked in cross-examination), the written information request process can be a useful and timesaving way to ask technical questions and gather information in preparation for cross-examination. However, when a proponent knows there will be no cross-examination, the process is demonstrably inadequate, as there is no impetus for the proponent to give full answers.

Here, we faced a completely uncooperative proponent. The vast majority of questions put to Trans Mountain by intervenors in good faith were simply ducked with contemptuous and repetitive non-answers. In many cases they were not answered in any fashion, Trans Mountain unilaterally declaring them to be not relevant to the review process, or using similar excuses that would never succeed in any rational hearing process.

The problem was further compounded by the NEB’s refusal to direct Trans Mountain to provide full answers upon the application by intervenors for their assistance. In the first round of intervenor information requests, of the 2,501 questions for which residents, businesses and cities felt they had received inadequate responses, the NEB ordered Trans Mountain to provide adequate responses for only 115 – 4.5% of those requests.<sup>40</sup> The subsequent rounds of information requests resulted in many intervenors having to bring motions to demand full and adequate answers from Trans Mountain in light of their failure to provide full information and, for the most, the NEB again denying those motions.<sup>41</sup> The failure of Trans Mountain to provide full information and the failure of the

<sup>39</sup> Exhibit A3-1 – National Energy Board – Hearing Order RH-001-2012 – Trans Mountain Part IV Application ([A3A4F7](#)), p. 5

<sup>40</sup> Exhibit A81-3 - National Energy Board - Ruling No. 33 - Motions to compel full and adequate responses to the first round of intervenor information requests – Appendix 1 ([A4C4H7](#))

<sup>41</sup> The NEB made the following rulings on IR motions:

Exhibit A81-1 - National Energy Board - Ruling No. 33 - Motions to compel full and adequate responses to the first round of intervenor information requests ([A4C4H5](#)) – See also Exhibit A81-3 - Appendix 1 ([A4C4H7](#))

Exhibit A155-1 - National Energy Board - Ruling No. 63 - Motions to compel full and adequate responses to the second round of intervenor information requests ([A4K8G2](#))

Exhibit A160-1 - National Energy Board - Ruling No. 67 - Motions to compel full and adequate responses to intervenor Round 2(b) information requests and information requests on the TERMPOL Report ([A4K9U1](#)) – See also Exhibit A160-3 – Appendix 1 ([A4K9U3](#))

Exhibit A163-1 - National Energy Board - Ruling No. 69 - Motions to compel full and adequate responses to intervenor Round 2(c) information requests ([A4L1U5](#)) – See also Exhibit A163-3 – Appendix 1 ([A4L1U6](#))

NEB to direct that Trans Mountain provide full information denied intervenors a meaningful opportunity to test and clarify evidence, resulting in extreme frustration and further undermining of the fairness of the process.

The level of scrutiny for Trans Mountain's supplemental evidence was even worse. The original information request process was designed so that there would be two rounds of information requests on the evidence of Trans Mountain to allow for follow-up questions to be asked, and clarification of answers. However, Trans Mountain ended up filing a significant amount of evidence late, and as a result of the legislated timeline, this evidence was only subject to one round of information requests, resulting in a large portion of the evidence of Trans Mountain being subject to no scrutiny at all.

#### **1.2.2.5        *The NEB has favoured Trans Mountain in its Decision-making***

The NEB has overwhelmingly favoured Trans Mountain throughout the review of the Project. The NEB has granted 80% of Trans Mountain's applications for relief and in contrast has only fully granted 11% of intervenors applications.<sup>42</sup> Burnaby and many other cities, individuals, businesses and groups have tried to get critical matters addressed by the NEB, including: the review process and need for cross-examination, the broadening of the list of issues for the hearing, the deficiencies in the information provided by Trans Mountain and the need for full disclosure of the Emergency Management Plan. The NEB, for the most part, has denied intervenors the relief that they sought. This has bred further discontent with the NEB process, and a view that the scale is permanently tilted in Trans Mountain's favour.

#### **1.2.2.6        *The NEB has deferred consideration of key issues in the Draft Conditions***

Due to the timeline for the review and the failure of Trans Mountain to provide complete information, a number of key issues have not been assessed through this NEB process. Instead of addressing this deficiency by pausing the review of the Project, and directing that Trans Mountain provide full information, the Panel's conditions would make matters critical to the public interest the subject of conditions after approval.

Exhibit A173-1 - National Energy Board - Ruling No. 74 - Motions to compel full and adequate responses to intervenor Round 2(d) information requests ([A4Q2U5](#)) – See also Exhibit A173-3 – Appendix 1 ([A4Q2U6](#))

Exhibit A228-1 - National Energy Board - Ruling No. 99 - Motions to compel full and adequate responses from Trans Mountain to information requests on its replacement evidence ([A4V5K8](#)) – See also Exhibit A228-3 – Appendix 1 ([A4V5L0](#))

Exhibit A230-1 - National Energy Board - Ruling No. 100 - Calvin Taplay notice of motion to compel full and adequate responses from Trans Mountain to information requests on its reply evidence ([A4V8U8](#))

<sup>42</sup> City of Burnaby, News Release, "Kinder Morgan – NEB Shows Bias in First Year of Rulings, as Vast Majority of Substantive Rulings Favour Kinder Morgan" (11 February 2015) online:

[https://www.burnaby.ca/About-Burnaby/News-and-Media/Newsroom/NEB-Shows-Bias-in-First-Year-of-Rulings--as-Vast-Majority-of-Substantive-Rulings-Favour-Kinder-Morgan\\_s2\\_p5043.html](https://www.burnaby.ca/About-Burnaby/News-and-Media/Newsroom/NEB-Shows-Bias-in-First-Year-of-Rulings--as-Vast-Majority-of-Substantive-Rulings-Favour-Kinder-Morgan_s2_p5043.html)

The release of the Draft Conditions by the NEB Panel on August 12, 2015 confirms the significant flaws in this hearing process.<sup>43</sup> These “conditions” are not conditions at all, but rather a deferral of the most important issues to later “plans”. The list of issues deferred constitutes almost the entire list of issues relevant to the broad public interest mandate of the NEB, and Burnaby submits that those conditions indicate either:

- (a) a complete abdication of the Board’s public interest mandate; or
- (b) a clear indication that the Board is determined to approve the project, regardless of the evidence and the Intervenor arguments.

Of the so-called 145 “conditions”, the vast majority call for post-approval filing of plans (15 of these are even post-operation). Only four of the remainder could truly be called conditions (the remainder being simply information filing requirements for such matters as construction timing, manuals, employment reporting, etc.). Of those four conditions, two are technical in nature (power supply and welding), one deals with finance (Condition 108) and one with the Edmonton Terminal (Condition 130).

The proposal by this Panel to defer issues of importance to the post-approval stage must mean that the Panel has pre-emptively determined that those issues are not relevant to the “public interest,” and that evidence on those issues is not required to make the recommendation to the Governor in Council. And yet, an examination of those issues shows almost every aspect that the public would expect was part of the “public interest” determination. These issues include:

- (a) geotechnical and seismic risks (including for the Westridge Marine and Burnaby Terminals) (Conditions 25-27 and 71-72);
- (b) ‘risk assessments’ for boil-over, fire and safety risks at Burnaby Terminal Tank Farm (Condition 29);
- (c) final risk assessments for the terminal and pipelines (Conditions 111 and 112);
- (d) air emissions at Westridge Marine and Burnaby Terminals (Conditions 19, 23 and 95);
- (e) suitability of the Burnaby Mountain tunnel, and the question of relocation of the existing Westridge line (Conditions 36, 38 and 39);
- (f) the containment of oil spills at Burnaby Terminal and other tank farms (Conditions 31 and 32);
- (g) the methodology for emergency spills at Westridge Marine Terminal (Condition 76);

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<sup>43</sup> Exhibit A199-1 - National Energy Board - Procedural Direction No. 17 – Draft conditions for comment ([A4S1G0](#)) – See also Exhibit A199-3 – Appendix A ([A4S1G1](#))

- (h) ‘traffic control’ measures inside municipalities (Condition 61);
- (i) protection of municipal water sources (Condition 81);
- (j) firefighting capacity at terminals (Conditions 109 and 118);
- (k) confirmation of firefighting capacity (Condition 129);
- (l) emergency preparedness and response (and training) (Condition 119);
- (m) emergency response plan for the pipeline and the Edmonton, Sumas and Burnaby Terminals (Condition 123);
- (n) emergency response plan for the Westridge Marine Terminal (Condition 124);
- (o) evacuation plans (Condition 121);
- (p) the Westridge Marine Terminal environmental protection plan (Condition 64);
- (q) navigable water safety and fish habitat offsets (Condition 46);
- (r) wildlife species at risk and rare plant protection, and any mitigation measures (Conditions 78 and 79);
- (s) marine mammal protection (Condition 128);
- (t) “community benefits program” progress reports (Condition 138); and
- (u) aboriginal consultation (Conditions 83, 84 and 139).

The Panel’s requirement for future studies definitively indicates that the current information before the Board is inadequate to make determinations on these critical environmental and safety issues. These are issues that need to be examined, and information provided on them, prior to any recommendation of whether the Project is in the public interest. To assume, without evidence, that such matters can be dealt with through future plans is simply unacceptable.

These are matters central to the Board’s s. 52 public interest determination.<sup>44</sup> The failure of the Panel to require clear evidence and proper plans indicating solutions to the many safety and environmental issues put forward by intervenors is a failure in the process.

#### **1.2.2.7        *Restricted Oral Hearing***

The final phase of the hearing – oral argument – has been stripped of all significance, due to the NEB’s procedural decisions along the way. First, there will be no oral testing of the evidence. Second, the draft conditions make it clear that the NEB has already

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<sup>44</sup> NEB Act, s. 52

decided on certain issues, or is willing to defer deciding on those issues until after the decision on the Project is made. Third, the NEB has limited the time that intervenors have to make their argument to just 40 minutes – making it so that intervenors cannot address any particular issue in any substantive way. Fourth, the general public will not be able to attend the hearings. This is clearly not a true public hearing.

### **1.3 Summary**

The NEB review process is currently viewed by the public as a rubber stamp for industry, which is designed to serve the interests of pipeline companies' and not those of the general public. The Process has failed to subject evidence to a rigorous testing in a proper public hearing. Without addressing this perception of bias or lack of independence and relative expertise, and without submitting the Project to a review that is fair, thorough and rigorous, the Project will not be accepted, has no social licence, and cannot be recommended to be in the public interest.

Further, the government has announced plans to change the NEB and improve the process. This process must be put on hold until the changes have been implemented. Any recommendations made at this time will be irreparably coloured. The citizens of Burnaby should not be the last victims of a flawed or inadequate process.

## **2. Lack of Community Support**

### **2.1 Burnaby and its Residents are Opposed to the Project**

Burnaby's democratic representatives and the vast majority of Burnaby residents are opposed to the Project. Burnaby has conducted a number of information sessions and meetings with its residents, and has had extensive discussions with and received a great deal of input from residents. Burnaby has also conducted two independent polls in order to gauge residents' opinions on the Project. As a result of this engagement effort, it is clear that to recommend approval of this Project would be contrary to the collective will of Burnaby and its residents.

#### **2.1.1 Burnaby Formally Opposed to the Project**

Burnaby City Council has formally expressed their opposition to the Project. Burnaby is opposed to the Project due to, amongst other things, the significant negative impacts that construction and operation of the Project would have on Burnaby, the level of risk to Burnaby residents, additional costs to the City in undertaking its own infrastructure, and the limited potential for off-setting benefits at a local, regional, provincial or federal level. Burnaby has expressed their opposition to the Project to Trans Mountain, to federal and provincial senior levels of government, and to the NEB.

A decision by the democratically elected government of the most impacted municipality to oppose the project must be a factor weighed heavily in assessing the public interest. The members of the Panel -- who do not represent the residents of Metro Vancouver, do not have a mandate or the backgrounds to make decisions of this kind for Burnaby, nor any special vision into the public interest -- must therefore respect the views of the elected government of the affected citizens.

As the proposed terminus of the Project, it is critical that Burnaby City Council and Burnaby residents have trust in the review of the Project and that their concerns are addressed through that process. If the Project is recommended and approved, Burnaby will be subject to substantial impacts, and its residents will have to live with significant new risks and costs for many years to come.

Burnaby has participated in the NEB review of the Project. However, the NEB review process has failed to address Burnaby's concerns with the Project. As a result, Burnaby has a number of outstanding concerns with the Project, and remains opposed to the Project, and in particular opposed to the location of the Project in Burnaby.

The declared opposition of Burnaby is also a factor to be weighed in assessing whether the Project is feasible, can be built efficiently and operated safely. Burnaby has been clear that its opposition, in the absence of public support and social licence from its citizens, will continue to arise in many facets of the Project. To the extent that in construction and operation, many future matters that may require the co-operation of

local government will not have the support of the City. This opposition will be most pronounced given the failures of the process to meet acceptable standards or to engage the trust of its residents.

### **2.1.2 Information Sessions**

The majority of Burnaby residents continue to remain opposed to the Project. Burnaby residents are concerned about the risks and impacts of the Project, and the proposal to locate the Project in the dense urban environment of Burnaby.

On April 9 and April 15, 2014, Burnaby hosted information sessions in relation to the Project for Burnaby residents. These information sessions were held in the Westridge neighborhood (a neighbourhood close to the Westridge Marine Terminal and the neighbourhood that the current pipeline passes through) and the Forest Grove neighborhood (a neighbourhood close to the Burnaby Terminal Tank Farm). The information sessions were aimed at informing Burnaby residents about the Project and ensuring that Burnaby residents had a chance to share their views about the Project.

At these sessions, Burnaby residents were able to record their views about the Project for Burnaby to then present to the NEB. Burnaby has included a chart setting out the views expressed in the comment cards in its evidence.<sup>45</sup> The comments of the residents of Burnaby are in vast majority against the Project, and express a number of concerns about locating the Project in Burnaby, including the following:

- (a) "City is too densely populated! Tank farms should be phased out!"<sup>46</sup>
- (b) "Times have changed. When the pipeline and tanks were put up, Burnaby was sparse. Now, it is much more populated. Too much so for a pipeline or tanks. I think they should be removed, not increased. Plus, the [p]roposed tanker traffic is too risky."<sup>47</sup>
- (c) "I don't believe pipelines belong in neighbourhoods, especially my kid's school with no safety plan in place."<sup>48</sup>
- (d) "the wrong place for this operation to expand. It is inevitable there will be a spill. Destructive to the local environment, marine life and unhealthy for the population."<sup>49</sup>

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<sup>45</sup> Exhibit C69-44-14 - City of Burnaby - Comments of the Citizens of Burnaby about TM Expansion Project ([A4L8G8](#))

<sup>46</sup> Exhibit C69-44-14 - City of Burnaby - Comments of the Citizens of Burnaby about TM Expansion Project ([A4L8G8](#)), p. 1

<sup>47</sup> Exhibit C69-44-14 - City of Burnaby - Comments of the Citizens of Burnaby about TM Expansion Project ([A4L8G8](#)), p. 1

<sup>48</sup> Exhibit C69-44-14 - City of Burnaby - Comments of the Citizens of Burnaby about TM Expansion Project ([A4L8G8](#)), p. 2

<sup>49</sup> Exhibit C69-44-14 - City of Burnaby - Comments of the Citizens of Burnaby about TM Expansion Project ([A4L8G8](#)), p. 1

- (e) "High risk. No net benefits. Will affect our neighbourhood."<sup>50</sup>
- (f) "Had a spill before, bad for environment and safety of citizens. Burnaby does not gain enough to assume such large scale risks. Not a benefit."<sup>51</sup>
- (g) "I am very concerned about the potential damage the pipeline expansion would have on our city, given the fact that we have already had a damaging oil spill in the past. I respect the environment too much to approve of the expansion."<sup>52</sup>
- (h) "Greatly increased chance of oil spills on land in Burnaby, in Burrard Inlet. Fire danger at tank farm. No chance for full remediation in case of spill."<sup>53</sup>
- (i) "I live above the Westridge marina. Increased tanker traffic will result in an accident. It's just a question of when."<sup>54</sup>

The views of the residents of Burnaby represent a population that is deeply concerned about the impacts and risks of the Project and that do not view the current existence of the Trans Mountain pipeline system in Burnaby as a full answer to locating the expansion in Burnaby, or as a legitimate excuse to reducing the rigour of the review process required.

In contrast to Burnaby's extensive efforts to engage with its residents about the Project, Trans Mountain has avoided directly engaging with the residents of Burnaby (see s. 2.2).

### **2.1.3 Burnaby Polls**

To gauge Burnaby residents' opinions on the Project, two polls were conducted in June and September 2014 on behalf of Burnaby by Insights West of Burnaby residents' knowledge of and position in relation to the Project.

The most recent poll in September 2014 indicated that 68% of the residents polled, who had an opinion on the matter, opposed the Project, which is an increase from 61% of the residents polled, who had an opinion on the matter, that were opposed to the Project in June 2014.<sup>55</sup>

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<sup>50</sup> Exhibit C69-44-14 - City of Burnaby - Comments of the Citizens of Burnaby about TM Expansion Project ([A4L8G8](#)), p. 1

<sup>51</sup> Exhibit C69-44-14 - City of Burnaby - Comments of the Citizens of Burnaby about TM Expansion Project ([A4L8G8](#)), p. 2

<sup>52</sup> Exhibit C69-44-14 - City of Burnaby - Comments of the Citizens of Burnaby about TM Expansion Project ([A4L8G8](#)), p. 1

<sup>53</sup> Exhibit C69-44-14 - City of Burnaby - Comments of the Citizens of Burnaby about TM Expansion Project ([A4L8G8](#)), p. 9

<sup>54</sup> Exhibit C69-44-14 - City of Burnaby - Comments of the Citizens of Burnaby about TM Expansion Project ([A4L8G8](#)), p. 9

<sup>55</sup> City of Burnaby, "Independent Poll Shows that Number of Burnaby Residents Opposed to Kinder Morgan Pipeline Proposal is Increasing" (22 September 2014) online: [https://www.burnaby.ca/About-Burnaby/News-and-Media/Newsroom/Independent-Poll-Shows-that-Number-of-Burnaby-Residents-Opposed-to-Kinder-Morgan-Pipeline-Proposal-is-Increasing\\_s2\\_p4780.html](https://www.burnaby.ca/About-Burnaby/News-and-Media/Newsroom/Independent-Poll-Shows-that-Number-of-Burnaby-Residents-Opposed-to-Kinder-Morgan-Pipeline-Proposal-is-Increasing_s2_p4780.html).

In addition, in November 2014, a Dogwood Initiative poll conducted by McAllister Opinion Research found 71% of those surveyed in the provincial riding of Burnaby North agree the Province of B.C. should hold its own independent review of the Project.<sup>56</sup>

From these polls, and the information sessions, it is clear that a majority of residents of Burnaby are opposed to the Project, which includes any routes for the Project in Burnaby, including the route through Burnaby Mountain.

#### **2.1.4 Other Polls**

Other institutions and municipalities have conducted polls to gauge public opinion on the Project. The results of these polls are consistent with polls conducted by Burnaby and are a stark representation of the level of opposition to the Project.

The Simon Fraser Student Society at Simon Fraser University (SFU), a student-led organization that represents more than 26,000 undergraduate students at SFU, and the Graduate Student Society a student society and government for all graduate students at SFU that represents over 4,500 students, conducted a university wide survey that determined that 94% of survey respondents were opposed to the Project.<sup>57</sup> This overwhelming opposition is consistent with feedback that the Society has received from members by other means.<sup>58</sup>

The SFU students expressed a wide variety of concerns about issues 1, 2, 4, 5, and 9-12 on the list of issues in Hearing Order OH-001-2014.<sup>59</sup> Many students question the need for the project, as renewable energy is increasingly competitive with crude oil on price, reliability, and environmental impact (Issue 1).<sup>60</sup> SFU students have also highlighted a significant problem with the economic feasibility of the Project: its impact on the campus environment and reputation of SFU, locally and globally, with some students stating that they would reconsider attending SFU due to the risks, including the risk of a tank fire (Issue 2).<sup>61</sup> Students have also responded with concerns about the

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<sup>56</sup> Dogwood Initiative, “Premier Clark missing in action as calls grow for independent pipeline review” *Media Release* (24 November 2014) online: <https://dogwoodinitiative.org/media-centre/media-releases/missing-in-action>

<sup>57</sup> Exhibit C405-1-1– Graduate Student Society at Simon Fraser University - Written Evidence of GSS and SFSS ([A4L9R4](#)), para. 21

<sup>58</sup> Exhibit C405-1-1– Graduate Student Society at Simon Fraser University - Written Evidence of GSS and SFSS ([A4L9R4](#)), para. 21

<sup>59</sup> Exhibit C405-1-1– Graduate Student Society at Simon Fraser University - Written Evidence of GSS and SFSS ([A4L9R4](#)), para. 6

<sup>60</sup> Exhibit C405-1-1– Graduate Student Society at Simon Fraser University - Written Evidence of GSS and SFSS ([A4L9R4](#)), para. 7

<sup>61</sup> Exhibit C405-1-1– Graduate Student Society at Simon Fraser University - Written Evidence of GSS and SFSS ([A4L9R4](#)), para. 8

impacts of marine shipping in Burrard Inlet, adjacent to SFU (Issue 5).<sup>62</sup> On this point, one student wrote that:

In light of the recent oil spill in English Bay, it is evident that the presence of more tankers and the expansion of this pipeline is detrimental to our ecosystem. I strongly encourage the NEB to take a stand against this project, and other of its kind, and invest in a sustainable means of attaining clean energy.<sup>63</sup>

Any expansion of the current tank farm poses a danger to SFU students, both on an ongoing basis from chemical fumes and in the case of malfunctions, fires, and emergencies (Issues 11 and 12). The Student Societies expressed that there is a serious concern for students, who do not know how they would get off the mountain in the case of a serious fire.<sup>64</sup> These concerns have been confirmed by the studies filed in evidence. The SFU students were further concerned about the failure of the NEB to consider climate changes in its review of the Project.<sup>65</sup> SFU students have also drawn attention to the fact that many impacted Aboriginal communities have repeatedly and publicly stated their opposition to this proposed Project (Issue 9).<sup>66</sup>

The City of Victoria is also officially opposed to the Project “in light of the substantial risk to the economy and ecology.”<sup>67</sup> The City conducted a survey of its residents that determined that 88% of survey respondents were opposed to the Project.<sup>68</sup> A significant majority of survey respondents (89%) were concerned about the increase in shipping traffic off the waters of Victoria.<sup>69</sup> Key concerns included:

- impacts to marine mammals and birds (89% very concerned);
- impacts to fish populations (87% very concerned); and,
- impacts to water quality (85% very concerned).<sup>70</sup>

An even greater majority of survey respondents (92%) were concerned about the potential effects of accidents or malfunctions that may occur in shipping.<sup>71</sup>

<sup>62</sup> Exhibit C405-1-1– Graduate Student Society at Simon Fraser University - Written Evidence of GSS and SFSS ([A4L9R4](#)), para. 12

<sup>63</sup> Exhibit C405-1-1– Graduate Student Society at Simon Fraser University - Written Evidence of GSS and SFSS ([A4L9R4](#)), para. 12

<sup>64</sup> Exhibit C405-1-1– Graduate Student Society at Simon Fraser University - Written Evidence of GSS and SFSS ([A4L9R4](#)), para. 15

<sup>65</sup> Exhibit C405-1-1– Graduate Student Society at Simon Fraser University - Written Evidence of GSS and SFSS ([A4L9R4](#)), para. 16

<sup>66</sup> Exhibit C405-1-1– Graduate Student Society at Simon Fraser University - Written Evidence of GSS and SFSS ([A4L9R4](#)), para. 13

<sup>67</sup> Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 8

<sup>68</sup> Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 12

<sup>69</sup> Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 14

<sup>70</sup> Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 14

<sup>71</sup> Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 15

In addition to the concerns about the impacts of the Project, Victoria City Council and members of the community expressed concerns with the NEB hearing process. These concerns include the lack of opportunities for oral cross-examination and the limited scope of the NEB's list of issues for the hearing, without consideration of the environmental and socio-economic effects associated with upstream activities, the development of oil sands, or the downstream use of the oil transported by the pipeline. Victoria City Council has requested that the British Columbia conduct its own environmental assessment of the Project.<sup>72</sup>

### **2.1.5 Broad Municipal Opposition to the Project**

Burnaby is not alone in its opposition to the Project and in its concerns about the sufficiency of the current NEB process. Municipalities throughout British Columbia and Canada have united against the Project and have called on the federal and provincial governments to address the deficiencies in the NEB review process, and to establish a separate process with proper public hearings.

#### **2.1.5.1 *Mayors' Declaration***

The mayors of Vancouver, Burnaby, New Westminster, City of North Vancouver, City of Victoria, City of Port Moody, District of Squamish and Municipality of Bowen Island signed a declaration of non-confidence in the NEB process.<sup>73</sup> The mayors called on the federal government to put the review of the Project on hold until an adequate process is in place, and called on the provincial and federal governments, through their appropriate and respective roles, to develop, in consultation with local governments, First Nations, and citizens, the restoration of a full public hearing process to be applied to the NEB's consideration of all applications for major industrial project proposals.<sup>74</sup>

The declaration states that “[i]t has become apparent that the NEB process does not constitute a ‘public hearing’ and is completely inadequate to assess the health and safety risks of a proposed pipeline through major metropolitan areas, and the potential risks of shipping bitumen oil to Burnaby and through Burrard Inlet, the Salish Sea, and along the coastline of British Columbia.”<sup>75</sup> It is further noted that “[t]he loss of the standard public hearing from the application review process constitutes a significant erosion of the democratic rights of local governments, First Nations, and citizens to cross-examine evidence presented, articulate concerns, and voice opposition to applications.”<sup>76</sup>

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<sup>72</sup> Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), paras. 16-20

<sup>73</sup> Exhibit C69-44-13 – City of Burnaby - Mayors Declaration on Kinder Morgan National Energy Board Process ([A4L8G7](#))

<sup>74</sup> Exhibit C69-44-13 - Mayors Declaration on Kinder Morgan National Energy Board Process ([A4L8G7](#)); Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 19

<sup>75</sup> Exhibit C69-44-13 - Mayors Declaration on Kinder Morgan National Energy Board Process ([A4L8G7](#)); Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 19

<sup>76</sup> Exhibit C69-44-13 - Mayors Declaration on Kinder Morgan National Energy Board Process ([A4L8G7](#)); Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 19

The declaration raises the concern that the NEB is not independent from the energy industry, noting that “[w]e have serious concerns that the current NEB panel is neither independent from the oil industry proponents nor ready or able to assess the ‘public interest’ of British Columbians.”<sup>77</sup> The NEB process is described as “no longer a credible process from either a scientific evidentiary basis, nor from a public policy and public interest perspective.”<sup>78</sup>

The declaration concludes by calling on the Government of British Columbia to re-assert its role in the environmental assessment process and to establish a provincial process with proper public hearings to assess the Project. This would require B.C. withdrawing from the Equivalency Agreement between the B.C. Environmental Assessment Office and the NEB.<sup>79</sup>

#### **2.1.5.2      *Union of British Columbia Municipalities***

The Union of British Columbia Municipalities (UBCM) is a union of all the local governments in B.C., which provides a common voice for local government in B.C. In September 2014, the UBCM passed an emergency resolution related to the NEB’s review process for the Project.<sup>80</sup> The resolution called on the Province of B.C. to withdraw from the Equivalency Agreement between the B.C. Environmental Assessment Office and the NEB, which accepts that the NEB assessment of a pipeline constitutes the equivalent of an assessment under the *British Columbia Environmental Assessment Act*, 2002 S.B.C., c. 43, and undertake its own environmental assessment for the Project with sufficient opportunity for meaningful participation for all interested British Columbians.<sup>81</sup>

The UBCM requested that B.C. establish its own process for reviewing the Project, due to the lack of confidence in and serious failings of the NEB process. Concerns expressed in the resolution about the NEB process include: the lack of oral hearing, the lack of cross-examination, limited opportunities to voice concerns, and Trans Mountain’s failure to respond to information requests.<sup>82</sup>

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<sup>77</sup> Exhibit C69-44-13 - Mayors Declaration on Kinder Morgan National Energy Board Process ([A4L8G7](#)); Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 19

<sup>78</sup> Exhibit C69-44-13 - Mayors Declaration on Kinder Morgan National Energy Board Process ([A4L8G7](#)); Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 19

<sup>79</sup> Exhibit C69-44-13 - Mayors Declaration on Kinder Morgan National Energy Board Process ([A4L8G7](#)); Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 19

<sup>80</sup> City of Burnaby, “UBCM Delegates Support Burnaby, Vancouver and Victoria Emergency Resolutions Focused on Concerns about Kinder Morgan’s Pipeline Proposal” (26 September 2014) online: [https://www.burnaby.ca/About-Burnaby/News-and-Media/Newsroom/UBCM-Delegates-Support-Burnaby-Vancouver-and-Victoria-Emergency-Resolutions-Focused-on-Concerns-about-Kinder-Morgan-s-Pipeline-Proposal\\_s2\\_p4794.html](https://www.burnaby.ca/About-Burnaby/News-and-Media/Newsroom/UBCM-Delegates-Support-Burnaby-Vancouver-and-Victoria-Emergency-Resolutions-Focused-on-Concerns-about-Kinder-Morgan-s-Pipeline-Proposal_s2_p4794.html)

<sup>81</sup> Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 18

<sup>82</sup> Exhibit C84-2-2 - City of Victoria Evidence Submission ([A4L8Y1](#)), para. 18

### **2.1.5.3      *Lower Mainland and Local Government Association***

The Lower Mainland and Local Government Association (LMLGA) is one of the 5 area associations of the UBCM, and includes 33 local governments (from Pemberton to Hope) and 3 regional districts: Squamish Lillooet Regional District, Metro Vancouver and Fraser Valley Regional District. The LMLGA passed a resolution opposing the Project and calling on the federal and provincial governments to develop a comprehensive pipeline and energy transport plan, including adequately funded provisions for emergency response, and for the movement of related goods.<sup>83</sup>

### **2.1.5.4      *The Federation of Canadian Municipalities***

The Federation of Canadian Municipalities (FCM), an advocacy group representing almost 2,000 municipalities across Canada, passed a resolution in March 2015 that questioned the decision of the NEB to remove from the standard public hearing for a major pipeline project long-standing protocols that provided opportunities for public review through open meetings, oral hearings and cross-examination. It was noted that the current review process constitutes a “significant erosion of the democratic rights of provinces, territories, local governments, First Nations and citizens to cross-examine evidence presented, articulate concerns and voice opposition to applications.”<sup>84</sup>

The FCM called on “the federal government and National Energy Board, and other avenues as appropriate, to oppose the loss of the standard public hearing process from the National Energy Board’s application review and tribunal process”. The FCM further called on the provincial and federal governments, through their appropriate and respective roles, to develop, in consultation with local governments, First Nations, and citizens, the restoration of a full public hearing process to the NEB’s consideration of all applications.

### **2.1.5.5      *First Nations Opposition to the Project***

There is significant First Nations opposition to the Project, and concern about whether the current NEB review process is able in any way to discharge the constitutional duty to consult First Nations in regards to the potentially significant negative impacts of the Project to their rights and title.

On November 28, 2014, 12 First Nations released a letter expressing their “grave concerns” with the NEB review process for the Project, calling it “fatally flawed” and questioning the constitutionality of the federal government’s approach to First Nations

<sup>83</sup> Lower Mainland Local Government Association, 2014 Resolutions Disposition, A2 Comprehensive Pipeline & Energy Transport Plan online:

<http://www.lmlga.ca/media/2014%20AGM/LMLGA%20Resolutions%20Disposition-2014.pdf>

<sup>84</sup> Federation of Canadian Municipalities, National Energy Board Public Hearing Process Resolution (March 2015), online: <http://www.fcm.ca/home/about-us/corporate-resources/fcm-resolutions.htm?lang=en-CA&resolution=420cd9ef-04cf-e411-b64a-005056bc2614&srch=%kindermorgan%&iss=&filt=false>

consultation.<sup>85</sup> The concerns raised with the NEB review process include the lack of consultation about the NEB framework for the review process, the inability of that process to address First Nation concerns, the lack of cross-examination, the inadequate substitute of information requests that have resulted in a superficial review and the woefully inadequate amount of capacity funding to participate in the NEB review of the Project. Among the First Nations that signed on to the letter are the Squamish Nation, Tsleil-Waututh Nation and Musqueam Indian Band, whose traditional territories surround and include Burnaby.

On July 10, 2014, Tsleil-Waututh Nation obtained leave to appeal to the Federal Court of Appeal the decisions of the NEB made on April 2, 2014, including the hearing order, list of issues and factors for the environmental assessment process that set out the scope of the review process. The appeal sets out the extent to which the review process for the Project has been fundamentally broken since the outset, with objections as to its ability to address the concerns of First Nations and to fulfill the constitutional obligations of the Crown. The Federal Court of Appeal has reserved their decision in that matter.

The First Nations opposition generally reflects an extremely high level of concern about the risks and impacts of the Project on their territories and way of life, and a lack of confidence in the NEB process and the approach to Crown consultation.

## **2.2 The Inadequacy of Public Consultation Process in Burnaby**

Trans Mountain claims that it “has conducted rigorous and comprehensive consultation with Aboriginal communities and other stakeholders”<sup>86</sup> and that its public engagement process was a “success”. Trans Mountain also claims “Based on the feedback Trans Mountain received, the company improved and optimized Project plans and mitigation measures based on the feedback it received.” Further, Trans Mountain submits “the concerns informed Trans Mountain’s Project-planning efforts and, where possible, the issues were resolved. The Board can rely on Trans Mountain’s consultation efforts which have enhanced the Project.”<sup>87</sup> These are all claims without substance.

In practice, Trans Mountain’s Stakeholder Engagement Program amounts to no more than a one-way flow of project-related information from the Proponent to the affected public.<sup>88</sup> If “Trans Mountain has made every effort to meaningfully engage all stakeholders in the planning of the project to make sure they are informed, and that their concerns are understood and considered”<sup>89</sup>, we have scant information on the record to prove as much. If these concerns were heard, or considered, they were given short shrift. Instead, Trans Mountain treats consultation as a simple project-related

<sup>85</sup> Tsleil-Waututh Nation, News Release, “Constitutionality of Kinder Morgan Trans Mountain Review Process in Question: Open Letter” (28 November 2014) online: <http://twnsacredtrust.ca/constitutionality-of-kinder-morgan-trans-mountain-review-process-in-question-open-letter/>

<sup>86</sup> Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p. 178

<sup>87</sup> Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p. 178

<sup>88</sup> Such as the website, email mailing list, advertisement, newsletters, etc.

<sup>89</sup> Exhibit 15-12-17 – International Reporting Inc. –OH-001-2014 Hearing Transcript Vol. 25 ([A4X0Z5](#)), para 12120

information question and answer period, capped off with a reference to a broad section of their unwieldy application.

Trans Mountain's "rigorous and comprehensive" consultation program does not compare favourably to the standard approach that a municipality would undertake in a simple municipal rezoning, much less that which a reasonable citizen would expect, and that the public interest demands should be employed for a major industrial project that will have wide spread, long-term impacts. For example, a Burnaby municipal rezoning consultation process will involve at least the following:

- 1) engage its citizens;
- 2) elicit feedback and concerns;
- 3) collate concerns raised;
- 4) evaluate the feedback received;
- 5) respond to community feedback; and,
- 6) provide reporting on how each specific comment was addressed, not addressed, or is outstanding.

In contrast, Trans Mountain's Stakeholder Engagement, and in particular its reporting from the obviously impactful topic of routing in Burnaby is telling, and was reported on as follows:<sup>90</sup>

TABLE 1.7.33  
ROUTING OPEN HOUSE – BURNABY, BC

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

Among the (only) three named successes and outcomes of the consultation program, Trans Mountain claims to have chosen to re-route the pipeline in the City of Burnaby based on feedback from Burnaby residents that participated in multiple fora organized

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<sup>90</sup> Exhibit B1-9 – V3A 1.5.6 TO 2.0 PUBL CONSULT – part 4 ([A3S0R5](#)), p.3A-277 Table 1.7.33 Routing Open House – Burnaby, BC

by Trans Mountain.<sup>91</sup> However, when asked as part of the IR process by Burnaby about the details of such meetings, Trans Mountain has largely refused to answer.<sup>92</sup> We cannot adequately assume the accuracy or fairness in reporting of the concerns or the positions now claimed by Trans Mountain. There is nothing to demonstrate that Burnaby residents prefer the newest proposed route over previous proposed routes. The inconsistency of the claimed responses with what citizens were telling their own government raises substantial questions, and Trans Mountain's unwillingness to substantiate its claims completely undermines its assertions.

The consultation updates filed by Trans Mountain indicate that rather than any concerns being raised at the meetings, the reporting only reveals a simple question and answer format. What we are left with is either that no concerns were raised by any attendees, that this feedback was not sought, or that this feedback was not recorded. In no cases does Trans Mountain indicate how and why this information was incorporated into the Project Application, so the answers are likely moot.

By simply and consistently stating that the consultation process was a success, does not make it so. Nowhere is this fact more true than with respect to the failure to properly engage, seek and incorporate feedback from Burnaby citizens. Trans Mountain's assertion otherwise, particularly with reference to pipeline routing options is an affront to the citizens of Burnaby. Trans Mountain's engagement process fails even by comparison to municipal rezoning applications. The Board cannot rely on such a process, the public interest demands more.

### **2.3 The Nature of the Public Interest Engaged Here**

The public interest to be determined is wider than the interest of the oil industry and shippers. In the recent North Montney decision, the Board cautioned itself:

The Board considered CAPP's comments that shippers support NGTL's design philosophy. Shippers' interests may be aligned or shared with that of a pipeline company. However, in a competitive environment, that shared interest is not necessarily sufficient evidence supporting the public interest. The Board's public interest consideration is broader than one pipeline and its shippers.<sup>93</sup>

In defining the 'public interest' under the NEB Act, the Board has agreed with comments made by a Joint Panel of the Alberta Energy and Utilities Board and the Alberta Natural Resources Conservation Board, which stated:<sup>94</sup>

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<sup>91</sup> Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p.183

<sup>92</sup> Exhibit B313-28 - Trans Mountain Response to City of Burnaby IR No. 2 ([A4H8A1](#)), IR 2.2.133h-j, pp. 377, 381-384.

<sup>93</sup> NEB Report - North Montney Mainline (April 2015) – GH-001-2014 ([A4K5R6](#)), p. 62 [emphasis added]

<sup>94</sup> Report of the EUB-NRCB Joint Review Panel: Glacier Power Ltd., Dunvegan Hydroelectric Project (25 March 2003), EUB Decision 2003-020, at p. 10 cited in NEB – Reasons for Decision – Sumas Energy 2, Inc. – EH-1-2000 ([A0J8V7](#)), p. 10

[I]n order to establish whether the project is in the public interest, the Panel must understand its potential economic, social, and other benefits and then determine whether these balance or outweigh the project's costs and negative impacts on the environment, public health, and safety and other social and economic matters."

In the Sumas Energy 2 application, the fact of substantial public opposition, and a finding that burdens would be borne unfairly by local communities resulted in the project being dismissed. The Board – notably there a ‘Joint Panel’ with representation outside of the NEB’s narrow focus – said:

Turning now to the burdens in Canada associated with the IPL and Power Plant, the Board is of the view that, as is evident from the discussion above, the burdens are many and real. Most would be borne almost entirely by the local and regional communities, whereas the benefits resulting from the IPL and Power Plant would be either external to these communities, or, where specific to the communities, would be negligible in value.

As discussed in Chapter 2 of these Reasons, as a federal tribunal, the Board must focus on the overall Canadian, or national, public interest. Various decisions of the courts have established that a specific individual’s or locale’s interest is to be weighed against the greater public interest, and if a project is in the greater public interest, the specific interests must give way. However, in this situation, where the benefits of the proposed IPL and associated facilities are not substantially in the greater Canadian public interest, the specific locale’s interest has more weight than would otherwise be the case.

Overwhelming community opposition to the IPL and Power Plant, while not determinative, is not irrelevant.

... the Board has concluded that, on balance, the burdens of the IPL outweigh the benefits. As a result, the Board is unable to come to the conclusion that the IPL is in the Canadian public interest and is and will be required for the present and future public convenience and necessity.<sup>95</sup>

Here as well there is substantial and compelling local opposition, and local municipalities, consisting of over 2 million citizens, who will primarily bear the burdens. This is not inconsequential. It is a very real factor to be weighed with the national public interest. Further, the national public interest includes the environment on the West Coast and the consequences of a spill in Burrard Inlet or Metro Vancouver municipalities. In these circumstances, the public interest requires a finding that the burdens outweigh the benefits. This is particularly so, where the proponent has determined to proceed directly through a major municipality without properly considering alternative locations.

## 2.4 Summary

The Project has not garnered the necessary community support to proceed. A Project of this magnitude should not be imposed on a community without social licence from its residents and consent from its democratically elected government.

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<sup>95</sup> NEB – Reasons for Decision – Sumas Energy 2, Inc. – EH-1-2000 ([A0J8V7](#)), pp. 96-97 [emphasis added]

The NEB review process has lost the trust of the public. Trans Mountain has not undertaken sufficient engagement with communities to understand their concerns, and the NEB has not directed Trans Mountain to broaden the scope of its engagement.

Given the lack of sufficient consultation at the outset, and the lack of a rigorous public hearing, the review process has not resulted in communities accepting that their concerns with the Project have been adequately assessed and addressed through appropriate review and risk mitigation measures. As a result, Burnaby and its residents, and the majority of local governments and First Nations in B.C. and throughout Canada, remain opposed to the Project. The Project is not in the public interest and lacks the necessary social licence to proceed.

### **3. Failure to Identify and Assess Alternatives**

#### **3.1 Introduction**

Trans Mountain has completely failed to provide any assessment of alternative means of carrying out the Project. Trans Mountain's application is silent in this regard. Trans Mountain has not assessed the relative impacts and risks of alternate locations for the Project – outside highly developed municipal areas – instead relying on a claim to be simply an “expansion” of the existing pipeline – even though in a location that poses the greatest relative risk to the public safety, public health and the environment. Trans Mountain's application is clearly deficient, and does not include sufficient information to undertake an assessment under CEAA 2012 or the NEB Act.

Metro Vancouver is the most densely populated area in the Province of British Columbia, and the shores of Burrard Inlet are one of the most populated areas in the region. The municipalities surrounding Burrard Inlet alone have a combined population of approximately 1.2 million people who use and rely on Burrard Inlet, its shores and its ecology.<sup>96</sup> Burnaby alone has a population of more than 223,000 people. The Port of Vancouver is the busiest port in the country, and one of the five busiest ports in North America.<sup>97</sup> The dense population surrounding Burrard Inlet will maximize any impacts of accidents or malfunctions from the Project – on the population, environment and economy – and the high level of traffic in the port will increase the chances of those accidents and malfunctions occurring. No rational review process would recommend increasing the storage and shipping of diluted bitumen in such an environment.

The historic imposition of the facilities and pipeline in Burnaby in 1952 does not justify the expansion of those facilities and pipeline in 2016. This is particularly so when the route through Burnaby that is put forward as the preferred pipeline route is almost entirely new, and where Trans Mountain is proposing on demolishing the current marine terminal and constructing an entirely new terminal. Trans Mountain has not provided any reasonable rationale for locating the Project near major municipalities, which have developed significantly since 1952. The impacts and risks of such a project being located within a major municipality are vastly magnified over a project located in rural or unoccupied areas. In order to accept that those increased risks and impacts are in the public interest, Trans Mountain must provide an evidentiary basis for the need for the Project and why this route and location are the only feasible route and location to satisfy

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<sup>96</sup> According to the most recent census (taken in 2011), the combined population of the municipalities surrounding the Burrard Inlet is 1,164,189. This number has likely increased significantly since this census was taken. This figure breaks down as follows: Vancouver – 603,602; Burnaby – 223,218; Coquitlam – 126,456; North Vancouver (DM) – 84,412; North Vancouver (CY) – 48,196; West Vancouver (DM) – 42,694; Port Moody – 32,975; Anmore – 2,092; and Belcarra (VL) – 644. See BC Stats “Census 2011: BC Municipal and Regional District Census Results” (2011) online:

<http://www.bcstats.gov.bc.ca/StatisticsBySubject/Census/2011Census/PopulationHousing/MunicipalitiesByRegionalDistrict.aspx>

<sup>97</sup> Exhibit B18-20 - V8A 1.4.2.7 TO T4.1.1.1 MAR TRANS ASSESS ([A3S4X4](#)), p. 8A-61, in Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p. 62

that need – as opposed to routes with fewer impacts and risks. Trans Mountain has failed to do so.

Trans Mountain has sought to push the Project through as an “expansion”—though both the route through Burnaby and the products transported would be new -- and has attempted to reduce the rigour of this review by relying on the fact that it has existing facilities. Trans Mountain asks the NEB to consider this Project in a vacuum, as if it were the only possible method, route and location for transporting oil to the west coast. Trans Mountain must provide – and an NEB Panel should fully and publicly examine -- full information on alternatives, including the effects, risks and impacts, and that information has been assessed. Without such information, the Panel has no justification for imposing a Project of this magnitude, with such significant and prolonged adverse impacts, on Burnaby and its residents contrary to their collective will.

### **3.2 Obligation to Consider Alternatives in the Legislation**

Trans Mountain was required to consider the alternative means of carrying out the designated project that are technically and economically feasible, including alternate routes and sites, and the effects, impacts and risks of any such alternative means to satisfy the requirements of CEAA 2012 and the NEB Act. Trans Mountain’s failure to do so has resulted in the NEB being unable to meet the requirements of those Acts and to carry out a rational assessment of whether the Project is in the public interest.

The evidence and examination of alternatives is required both by NEB practice and policy, and by the NEB’s requirement to implement CEAA obligations.

Under NEB policy, we note the recent Montney North decision:

Applicants are required to justify their projects to the Board, and to demonstrate that, taking into consideration all technically and economically viable alternatives available, the proposed Project is the most appropriate option to meet the needs that would be satisfied by the Project while serving the public interest. The Board’s regard for the public interest refers to a balance of economic, environmental and social considerations. NGTL pursued its preferred route through the PMT over the significant concerns raised by SFN and WMFN...<sup>98</sup>

The majority of the Board finds NGTL’s approach unsatisfactory in these circumstances. The Board expects applicants to clearly demonstrate: 1) how the proposed project is the most appropriate option to meet the needs that would be satisfied by the project while serving the public interest; and, 2) how the input and concerns they receive from potentially impacted parties, including potentially affected Aboriginal groups, have influenced the design (including route selection), construction or operation of their project.

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<sup>98</sup> NEB Report - North Montney Mainline (April 2015) – GH-001-2014 ([A4K5R6](#)), pp. 102-103

Since 2012, the Board has also had the obligation to ensure the important objectives of the Canadian Environmental Assessment Act are met. This should not be mere lip-service.

In accordance with s. 19 of CEAA 2012, the environmental assessment for the Project must take into account, amongst other things: “(g) alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means”;

The NEB confirmed in its April 2, 2014 letter setting out the factors and scope of the factors for the environmental assessment for the Project, that the environmental assessment will take into account the alternative means of carrying out the Project.<sup>99</sup>

The consideration of alternatives also comes within the factors to be considered in s. 52 of the NEB Act, and is critical to the determination of whether the Project is and will be required by the present and future public convenience and necessity. The NEB Filing Manual sets out that a proponent must describe the alternatives for a Project in the application as follows:

#### 4.2.2 Filing Requirements - Alternatives and Justification

1. Describe the need for the project along with the rationale for selecting the applied for project over other possible options.
2. Describe and justify the selection of the proposed route and site including a comparison of the options evaluated using appropriate selection criteria.
3. Describe the rationale for the chosen design and construction methods. Where appropriate, describe any alternative designs and methods evaluated and explain why these other options were eliminated.<sup>100</sup>

In satisfying the alternatives filing requirement for the Project, the NEB Filing Manual provides the following guidance:

#### **Alternatives Evaluated**

In the context of economic feasibility, alternatives are other technically, economically and environmentally-feasible means of meeting the need for the project and its eventual retirement, such as a different:

- transportation mode;
- transmission system that could achieve the same purpose as the proposed facilities;
- route or site;
- facility design; or
- construction method, including different means of development, implementation and mitigation.

<sup>99</sup> Exhibit A13-1 – National Energy Board - Letter - Application for Trans Mountain Expansion Project - Factors and Scope of the Factors for the Environmental Assessment pursuant to the Canadian Environmental Assessment Act, 2012 ([A3V6J1](#))

<sup>100</sup> National Energy Board, “Filing Manual” online: <https://www.neb-one.gc.ca/bts/ctrq/gnnb/flngmnl/flngmnl-eng.pdf>, s. 4.2.2 – Filing Requirements - Alternatives, p. 4-3. The relevant sections of the Filing Manual have not changed since the Project Application was filed by Trans Mountain.

### **Selection Criteria**

Different project, routing, design and construction alternatives must be summarized and compared using criteria that justify and demonstrate how the proposed option was selected and why it is the preferred option.[emphasis added]

...When comparing project routing, design or construction options, elaborate on the following criteria, as appropriate:

- engineering design;
- economic feasibility or life span costs;
- effect on reliability and security of the existing system;
- demonstrated public concern; and
- environmental and socio-economic constraints or potential effects.<sup>101</sup>

The current Application substantially fails to meet any objective criteria for evidence of alternatives for a significant project of this nature. It completely fails to meet the obligation to produce evidence which would allow the Board – and the public -- to ‘compare’ options, or to assess the degree of legitimacy of the factors used to compare. It completely fails to meet the obligation to ‘demonstrate’ how the proposed option was superior to other options.

No evidence at all is produced to ‘elaborate’ on the 5 specified criteria. Instead, the only comment on the sparse record as to choice of options related to the ‘expense’ to the proponent.

For example, the difference in ‘demonstrated public concern’ that would arise from alternative routes is quite obvious, but completely ignored by Trans Mountain’s application, evidence, and response to IR’s.

These are legal obligations. Further the need for an evidence-driven comparison of alternatives is also an obvious practical requirement in any assessment of the public interest.

The requirement to evaluate alternatives is a particularly critical requirement in the NEB process. The NEB process is inherently proponent driven in that the proponent chooses what to apply for and where to apply for it, and then the NEB reviews the application provided by the proponent. The NEB Filing Manual sets out requirements for the proponent in making an application to the NEB, but prior to the filing of the application, the NEB does not have any input into the location and scope of what is applied for.

Trans Mountain does not necessarily have regard to any external factors or the broader public interest of Canada in making its application, but only has regard to its own commercial self-interests when determining what to apply for. The result of this process, if left unchecked, is that proponents unilaterally drive the location and scope of pipeline projects that have the ability to affect the well-being of the residents of Canada, the environment of Canada and the Canadian economy. This is not in the public interest.

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<sup>101</sup> National Energy Board, “Filing Manual” online: <https://www.neb-one.gc.ca/bts/ctrq/gnnb/flngmnl/flngmnl-eng.pdf>, s. 4.2.2 – Filing Requirements - Alternatives, p. 4-4

However, CEAA 2012, the NEB Act and the NEB filing requirements, provide an important check on this proponent driven process by requiring proponents to consider and assess not only their preferred means of carrying out a project, but the alternative means of carrying out the project. Therefore, where there is a complete application, unlike here, the NEB would have the opportunity to consider what the proponent has proposed relative to other feasible means of carrying out the Project. The NEB would be able to consider not only whether there is a need for a project of this kind, but what route and location best services that need and is in the public interest of Canada. Trans Mountain has deprived the NEB of the ability to take this critical second step in the assessment for the Project.

### **3.3 Trans Mountain Failed to Assess Alternative Routes and Sites**

Trans Mountain has failed to consider and assess alternate locations for the Project and its components and as such has deprived the NEB of the ability to properly evaluate the Project as proposed. The deficiency in Trans Mountain's application prevents the NEB from properly determining whether the Project's effects, risks and impacts are justified, relative to the potential alternatives for the Project. This is a critical and necessary step that the NEB will not be able to take based on the information filed by Trans Mountain.

Dr. Ivan Vince, in his evidence on the risks of the Burnaby Terminal Tank Farm on behalf of Burnaby, noted that Trans Mountain omitting "to consider possible alternative sites to Burnaby in which to locate extra storage capacity is of particular concern", and that "[i]n the UK (a far more crowded land than Canada, after all) this omission in itself would probably suffice to sink such an application."<sup>102</sup>

In the application, Trans Mountain states in relation to the Project siting:

#### **2.1.5 Pipeline Routing and Facility Siting**

Early in the Project planning process, Trans Mountain determined 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.<sup>103</sup>

In response to information requests from Burnaby on the lack of rationale or analysis provided in the application as to why expanding the pipeline, tank facilities and marine terminal in a major metropolitan area is the best alternative or in the public interest, or whether this location was chosen merely because Trans Mountain already has facilities there, Trans Mountain further stated that:

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<sup>102</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 4 [emphasis added]

<sup>103</sup> Exhibit B1-1 - V1 SUMM ([A3S0Q7](#)), s. 2.1.5., pp. 1-22

The Trans Mountain Expansion Project (the Project) is a *proposal to expand the existing Trans Mountain Pipeline System, including the existing terminal facilities. Paralleling and expanding existing facilities reduces new disturbance, uses existing infrastructure and minimizes environmental effects.* This is consistent with good project planning and best environmental practices. While good planning and best practices favour using existing facilities, this does not reduce the rigour of conducting an assessment of the potential impacts associated with the expansion. Early in project planning Trans Mountain Pipeline ULC (Trans Mountain) tested the basic premise that expanding existing facilities is the most responsible approach to the development. Potential alternative marine terminal locations were considered based on the feasibility of coincident marine and pipeline access, and screened based on technical, economic and environmental considerations. These alternative locations included Kitimat, BC and Roberts Bank in Delta, BC. Trans Mountain ultimately concluded that constructing and operating a new marine terminal and new supporting infrastructure would result in significantly greater cost, larger footprint and additional environmental effects, as compared to expanding existing facilities. Accordingly, Trans Mountain did not continue with a further assessment of alternative termini for the Project.<sup>104</sup> [emphasis added]

Trans Mountain only lists potential alternate sites for the marine terminal, but does not list alternate sites for the pipelines in Burnaby and the Burnaby Terminal Tank Farm, or the rest of the pipelines, terminals, or stations for the Project. Further, even for the alternate sites of Kitimat, B.C. and Roberts Bank in Delta, B.C. for the marine terminal, Trans Mountain does not provide any evidence at all enabling an assessment of the alternate sites and what the effects, risks and impacts of those sites would be in comparison to the proposed location of the marine terminal in Burnaby. It does not meet the obligations of the specified criteria. Trans Mountain also has not provided any evidence at all as to why its consideration of alternate sites was limited to Kitimat, B.C. and Roberts Bank in Delta, B.C. This is not sufficient.

It is not enough for Trans Mountain to simply claim that it evaluated alternatives. The NEB has an obligation to itself do so, and an obligation to critically examine the evidence and methodology used by Trans Mountain, and to offer the public and intervenors a chance to test that evidence.

CEAA 2012 requires a consideration of alternatives and an assessment of the effects of those alternatives.<sup>105</sup> Simply identifying potential “alternative means” without discussing their comparative environmental effects fails to provide any useful information to decision-makers, and fails to meet the requirements of s. 19(g) of CEAA 2012. Trans Mountain has further not provided the NEB with the necessary information to undertake a rational assessment of whether the Project as proposed is in the public interest under s. 52 of the NEB Act – the NEB has no evidence before it to assess whether this location is the location that is in the best interests of the Canadian public, or whether there is another feasible location that would better serve those interests.

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<sup>104</sup> Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR 1.01.01a), pp. 1-2

<sup>105</sup> Alberta Wilderness Assn. v. Cardinal River Coals Ltd., [1999] 3 F.C. 425 at para. 80 – in relation to previous parallel provision - s. 16(2)(b) of the Canadian Environmental Assessment Act, S.C. 1992, c.37, requiring consideration of alternative means of carrying out the project that are technically and economically feasible and the environmental effects of such alternative means.

There is no justification or evidence provided for why “constructing and operating a new marine terminal and new supporting infrastructure would result in significantly greater cost, larger footprint and additional environmental effects, as compared to expanding existing facilities”, particularly given that Trans Mountain is proposing to deconstruct the current docks at the Westridge Marine Terminal and construct a whole new three-berth dock.<sup>106</sup> Trans Mountain confirms in its application that “the existing dock will be demolished.”<sup>107</sup> There is, therefore, no expansion of the existing facilities, but a demolition of them and replacement with entirely new, larger facilities. How does this reduce environmental effects? How does this result in a reduced footprint in comparison to simply constructing the same size terminal elsewhere? The Canadian public interest must not be made to suffer simply to save Trans Mountain costs.

The rationale that paralleling and expanding facilities “reduces new disturbance, uses existing infrastructure and minimizes environmental effects” further does not hold up in relation to the route for the two new delivery lines through Burnaby, as almost the entire preferred route through Burnaby is proposed to follow a new pipeline corridor under Burnaby Mountain and not the existing corridor for the pipeline that is already in place. Trans Mountain has not addressed this inconsistency in its rationale for the location of the Project in Burnaby. How is putting two new pipelines in a new route through Burnaby using existing infrastructure? How is disturbing a Conservation Area that is highly valued by the residents of Burnaby reducing environmental effects?

Trans Mountain has not provided any evidence to support their conclusion that alternatives “would result in significantly greater cost, larger footprint and additional environmental effects, as compared to expanding existing facilities”.<sup>108</sup> It is not sufficient to just state this conclusion without providing any evidence in support. There is no disclosure of evidence or process relating to these important considerations which would allow the Board to test the evidence or methodology.

Trans Mountain is flouting the requirements in the NEB Act and CEAA 2012, and attempting to gain the benefit of the expansion simply because it has existing facilities. Trans Mountain has approached this application from the outset as “a proposal to expand the existing Trans Mountain Pipeline System”,<sup>109</sup> and has not fully considered the alternative routes and locations to carry out the Project. This approach is not in accordance with CEAA 2012 or the NEB Act. It further does not allow the NEB to undertake a rational assessment of whether this Project in the location proposed is in the public interest. The NEB’s recommendation cannot be made within a vacuum and must take into account the relative effects, risks and impacts of the Project as proposed, compared to alternatives.

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<sup>106</sup> Exhibit B2-1 V4A 1.0 TO 3.4.4.1.1 PROJ DESIG ENGIN([A3S0Y8](#)); to Exhibit B2-2 V4A 3.4.4.1.3 F3.4.17 TO 4.0 PROJ DESIG ENGIN ([A3S0Y9](#))=, pp. 4A82-4A104.

<sup>107</sup> Exhibit B2-1 V4A 1.0 TO 3.4.4.1.1 PROJ DESIG ENGIN([A3S0Y8](#)), p. 82

<sup>108</sup> Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR1.01.01a), p. 2

<sup>109</sup> Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR1.13.05h), p. 295

The failure to properly consider alternatives, or to produce any evidence to justify the chosen option is contrary to law, and a fatal flaw in the Application.

### **3.4 Historic Imposition of the Trans Mountain Pipeline System is not a Green Light for Expansion**

The historic imposition of the facilities on Burnaby and the public within Burnaby is not a sufficient justification to approve an expansion of these facilities, in circumstances where the location of the facilities severely exacerbates the effects, risks and impacts of the Project.

Federal and Provincial government approval of the Trans Mountain pipeline system within Burnaby occurred in the early 1950s – a time when the demographic landscape of the municipality was predominantly suburban-rural with a population of approximately 58,000 people. Since that time, Burnaby, and the broader Metro Vancouver region, has undergone significant urban transformation, and with a population of over 223,000 people Burnaby has become the third largest city in British Columbia.

The historic development and operation of petroleum processing, storage, and transport facilities in Burnaby has presented many challenges for the City. Burnaby has worked on behalf of its residents to manage these developments in order to ensure that public safety and environmental health continue to be protected and raised as a primary concern. However, with the expanding population, Burnaby will not be able to protect public safety and environmental health going forward, if petroleum processing, storage, and transport facilities are similarly expanded.

Given the existing and projected urban growth and development of Burnaby and the Metro Vancouver region, the risks and impacts associated with the Project are severely exacerbated by the proposed location of the Project within this expanding urban region. From an economic, environmental, public health, quality of life, and social perspective, the impacts of an accident or malfunction could be catastrophic at both the local and regional level, posing irreparable damage to the economic diversity and viability of a port-based region, the environment, and the quality of life of its residents. Trans Mountain has not addressed these broader risks and impacts in its application relative to other locations, or carried out meaningful consultation within Burnaby and the Metro Vancouver region to even understand the extent of these risks and impacts. As a result, Trans Mountain has severely underrepresented the risks and impacts of the Project to Burnaby and the Metro Vancouver region.<sup>110</sup>

The existence of the current facilities in Burnaby does not automatically green light a claimed “expansion”, and cannot serve to undermine the onus on Trans Mountain to provide full information. The rigour of the assessment by the NEB must be the same, despite Trans Mountain framing the Project as an expansion. The NEB must not impose an expanded facility, with expanded risks and impacts, on Burnaby, without requiring Trans Mountain to provide information on the relative risks and impacts of alternate

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<sup>110</sup> See for example Exhibit C77-27-1 – City of Vancouver Written Evidence - Appendix 22 ([A4L7V8](#))

locations for the Project. If Trans Mountain is going to take the benefit of an expanded system, then the potential for relocating the terminus of the Trans Mountain pipeline system outside the densely populated urban environment of Burnaby and Metro Vancouver must be explored. Trans Mountain has completely failed to provide that information.

### 3.4.1 Burnaby Terminal Tank Farm

The relative risk and impacts of expanding the Burnaby Terminal Tank Farm in its current location on Burnaby Mountain is contrary to the public interest.

Trans Mountain is proposing to expand the Burnaby Terminal Tank Farm from 13 tanks to 26 tanks (adding 14 new tanks and decommissioning one tank). The storage capacity at the Burnaby Terminal Tank Farm will increase from 1,685,000 barrels (bbl) to 5,625,000 bbl. This is almost triple the capacity of the current Burnaby Terminal.<sup>111</sup>

Dr. Vince sets out that this proposed expansion of the Burnaby Terminal Tank Farm is for:

- a very substantial increase in the number and average size of storage tanks;
- necessitating a substantial increase in congestion, and thus an increased likelihood of incident escalation, both because of reduced inter-tank distances and increased complexity of firefighting tactics;
- on a site with a marked slope, partly towards the residential area;
- surrounded by forest containing ample combustible litter etc;
- which, in turn, surrounds a university campus, whose sole evacuation route, I understand, passes next to the tank farm.<sup>112</sup>

These factors substantially increase the relative risk of locating the Project in Burnaby, as compared to alternate more remote locations for the Project, making the relative risk of the Project insupportable.

Chris Bowcock, Deputy Fire Chief of Burnaby, further notes that the expansion with “the increased proximity to residential population densities, highly susceptible conservation forest areas and downhill or downwind sensitivities” will increase the impacts and risks associated with the Project across all potential events types.<sup>113</sup>

The Burnaby Terminal Tank Farm is located within the heart of Burnaby, adjacent to the Forest Grove, Lochdale, Sperling-Duthie, Meadowood neighbourhoods, and below Simon Fraser University. There are a significant number of residents that would be

<sup>111</sup> Exhibit B1-3 – V2 2of4 PROJ OVERVIEW ([A3S0Q9](#)), Table 2.3.1, pp. 2-23

<sup>112</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 4

<sup>113</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), pp. 6-7 See also Exhibit C69-44-3 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 2 – Appendices B-I ([A4L8F7](#))

impacted by the increased risks associated with the expansion and any accident or malfunction associated with the Project in the proposed location. The number of residents to be impacted is only increased by the fact that the Burnaby Terminal Tank Farm is located on a slope, with the potential for any released oil to travel to neighbourhoods and developments below.

The Burnaby Terminal Tank Farm is also located adjacent to the Burnaby Mountain Conservation Area, and is surrounded by forest. Any fire associated with the Project has the potential to spread to the Burnaby Mountain Conservation Area and surrounding forest, and pose a threat to the population at Simon Fraser University and surrounding neighbourhoods.<sup>114</sup>

The decisions to develop the current neighbourhoods and schools, and to develop the SFU campus with current roads were made in light of the existing facility, and without any notice at any time from Trans Mountain of the very substantial additional expansion contemplated. It is too late to unwind these decisions and move these neighborhoods. To contemplate a tripling in size at this time, based only on the justification that there is an existing (much smaller) tank farm is extraordinarily unfair to those residents and the City.

If anything, the substantial change in the neighbourhood should result in an order to decommission and move the current tank farm. Expansion is a very adverse step in the wrong direction.

The reports of Dr. Ivan Vince and Chris Bowcock, Deputy Fire Chief of Burnaby, detail the extreme fire risk posed by expanding the Burnaby Terminal Tank Farm in the current location.<sup>115</sup> Mr. Bowcock concludes in his evidence that the:

Burnaby Mountain Terminal is not the appropriate location for the expansion of the Burnaby Mountain Terminal and densification of petroleum storage, given the subject terminal topography, limited site area, limited site access, its close proximity to the Lochdale, Sperling-Duthie, Meadowood, Forest Grove neighbourhoods (the nearest residential property being 20 m away), Simon Fraser University, UniverCity as well as the immediate proximity to the highly sensitive and susceptible Burnaby Mountain Conservation Area. These factors pose significant constraints from an emergency/fire response perspective, including but not limited to safety of firefighters and effectiveness to combat fire; containment and extinguishment of fire/spill/release; evacuation of employees within the Burnaby Mountain Terminal facility; evacuation of adjacent neighbourhoods, as well as broader areas impacted by release of sulfur based gases

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<sup>114</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 4

<sup>115</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)); Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)); and Exhibit C69-44-3 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 2 – Appendices B-I ([A4L8F7](#))

and toxic smoke plumes; and, protection of adjacent properties, including conservation lands.<sup>116</sup>

Trans Mountain itself has acknowledged in response to an information request of Burnaby that they will be confined by the topography of the Burnaby Terminal Tank Farm in ensuring tank spacing consistent with 1 tank diameter. Trans Mountain noted in response to an information request of Burnaby of whether Trans Mountain will provide tank spacing consistent with 1 tank diameter that:

It is important for Trans Mountain to follow the statutory requirements for storage tank spacing at Burnaby Terminal, **where the topography will allow**, in order to provide the number of tanks and the capacity of the tanks required to support the proposed expanded operation at Westridge Marine Terminal.<sup>117</sup> [emphasis added]

In increasing the tank density within the limited area of the Burnaby Terminal Tank Farm, the storage tank spacing is reduced, decreasing the effectiveness of fire firefighting countermeasures and increasing the likelihood of a multiple tank fire.<sup>118</sup> This correlates into a greater risk of impacts to the public outside of the Burnaby Terminal Tank Farm, as compared to locating the Terminal in an area that was not constricted in size by surrounding neighbourhoods and developments, and that was not in such close proximity to surrounding neighbourhoods and developments.

The criterion for a proper tank farm location is simply not met by this site. It is useful to contrast the nature of the criteria put forward by Trans Mountain in its 2007 and 2011 applications for expansion of the Edmonton tank farm, including:

- a level site<sup>119</sup>
- an industrial area surrounded by other refineries and terminals<sup>120</sup>
- far from residential neighborhoods<sup>121</sup>
- room for proper spacing
- safe geo-technical area<sup>122</sup>
- a well-developed road network suitable to emergencies
- an on-site fire water pond<sup>123</sup>

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<sup>116</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 3

<sup>117</sup> Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR1.08.03b), p. 209

<sup>118</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), pp. 6-7

<sup>119</sup> Stantec Consulting, “Edmonton Terminal Expansion Project – Update: Environmental and Socio-Economic Assessment” (December 2011) at 4-11.

<sup>120</sup> Trans Mountain Pipeline Inc., “Application: Edmonton Terminal Expansion Project” (13 August 2007), at 6. Also p. 13: “surrounded by other industrial facilities including the PetroCanada and Imperial Oil refineries and the North 40 Terminal”

<sup>121</sup> In Edmonton, 1.9 km away, compared to 50 m in Burnaby, Jacques Whitford AXYS, “Edmonton Terminal Expansion Project: Environmental and Socio-Economic Assessment” (July 2007) at A-5,6.

<sup>122</sup> National Energy Board, “Environmental Screening Report”, File OF-Fac-Oil-T246-2007-03-01, at 2.

<sup>123</sup> Trans Mountain, information package provided to NEB Aug 15, 2011

If these are the criteria to be applied to other facilities, why are none of these relevant in Burnaby? This site fails almost every rational criterion for proper tank farm siting.

The location of the Burnaby Terminal Tank Farm in the current location in the 1950s is not sufficient justification for expanding that facility in 2016 to the unacceptable detriment of the public in Burnaby and the surrounding areas. The extent of the increased likelihood and severity of the risks requires the NEB to refuse to approve the expansion as proposed. There is no level of economic need that can compensate for the level of risk that an expanded Burnaby Terminal poses to the well-being of the public in Burnaby.

This expanded tank farm cannot be approved in its current location.

### **3.4.2 Pipeline Route**

The proposed pipeline routes through Burnaby will impact on highly valued environmental areas, and pose significant risks to Burnaby residents.

Trans Mountain is proposing as its preferred route for the two new delivery lines from the Burnaby Terminal Tank Farm to the Westridge Marine Terminal to tunnel through the Burnaby Mountain Conservation Area, which is an area that has been dedicated as a park for its environmental, recreational and community importance.<sup>124</sup>

The Burnaby Mountain Conservation Area is dedicated for park and recreation uses of the public pursuant to the Burnaby Park Dedication Bylaw, 1990. The Burnaby Mountain Conservation Area has been dedicated for such use by public referendum, which is a process that requires 75% of the voting electorate to so decide, and cannot be undedicated without a further vote in a municipal referendum. Damage to the Burnaby Mountain Conservation Area is prohibited under the Burnaby Parks Regulation Bylaw, 1979.

The rationale provided by Trans Mountain that environmental effects will be minimized, given that the expansion will follow the existing route, does not apply in relation to the route through Burnaby Mountain. The route through Burnaby Mountain is an entirely new route, and does not follow the rights of way for the existing pipeline. The environmental effects of the route through Burnaby Mountain will be significant, as will the impacts on the recreational and community value of the Burnaby Mountain Conservation Area. Trans Mountain has already caused significant damage to the Burnaby Mountain Conservation Area by carrying out geotechnical studies for the Project, and the resulting public protest. This damage will only increase substantially if Trans Mountain undertakes to tunnel under Burnaby Mountain, with the accompanying construction impacts.

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<sup>124</sup> City of Burnaby, “Burnaby Mountain Conservation Area: History and Features” online: <https://www.burnaby.ca/Things-To-Do/Explore-Outdoors/Parks/Burnaby-Mountain-Conservation-Area/History-and-Features.html>

Trans Mountain's alternate route for the Project also does not follow the existing right of way for the current pipeline, but travels alongside Burnaby Mountain Parkway, Hastings Street, and Cliff Avenue before turning east into the Westridge Marine Terminal. This route travels through highly populated areas and beneath city streets, with the potential for any spill or leak to directly impact on the residents of Burnaby.

The excuse given by Trans Mountain – that they were 'listening to stakeholders' is contested by Burnaby, and unsupported by any evidence. It is simply wrong – the majority of residents have opposed either route and do not support a pipeline through Burnaby Mountain -- and Trans Mountain's failure to substantiate this suggestion even when pressed in IR's is evidence of deliberate deception or mis-statement.<sup>125</sup>

The relative risks and impacts of Trans Mountain's preferred routes are greater than if Trans Mountain had chosen a more remote location for the Project – not through an environmentally sensitive area where green space is a valued resource, and not through a residential neighbourhood where the risks to the public are obvious and severe.

### **3.4.3 Westridge Marine Terminal and Shipping Route for the Project**

The relative risks and impacts of expanding shipping of diluted bitumen through the busiest port in Canada is contrary to the public interest.

Trans Mountain is proposing to demolish the current terminal and construct a whole new three berth marine terminal at the site of the current Westridge Marine Terminal.<sup>126</sup> Trans Mountain is further proposing to increase tanker traffic for the Project from 60 tankers to 408 tankers per year.

In order to access the Westridge Marine Terminal, tankers will have to travel through an extremely busy harbour, and cross through First and Second Narrows. The amount of traffic in Burrard Inlet and its constrained nature exponentially increases the potential of any accident or malfunction as a result of navigation issues or collision.

Trans Mountain did not provide an assessment of the risks, impacts and effects of the alternate locations proposed for the marine terminal at Kitimat, BC or Roberts Bank in Delta, BC. However, both those alternate locations are more remote than the Westridge Marine Terminal and do not require tankers to travel through the extremely congested Burrard Inlet, and through first and second narrows. Thus, such locations are likely to pose significantly fewer risks to tankers than the Westridge Marine Terminal, and have significantly fewer impacts to densely populated areas.

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<sup>125</sup> Exhibit B118-1 - Trans Mountain Response to City of Burnaby IR No. 1 ([A3Y2E6](#)), IR 1.45.02d), p. 741; Exhibit B313-28 Trans Mountain Response to City of Burnaby IR No. 2 ([A4H8A1](#)), IR 2.2.133h-j, pp. 377, 381-384; See also section 2.3 of the City of Burnaby Final Argument

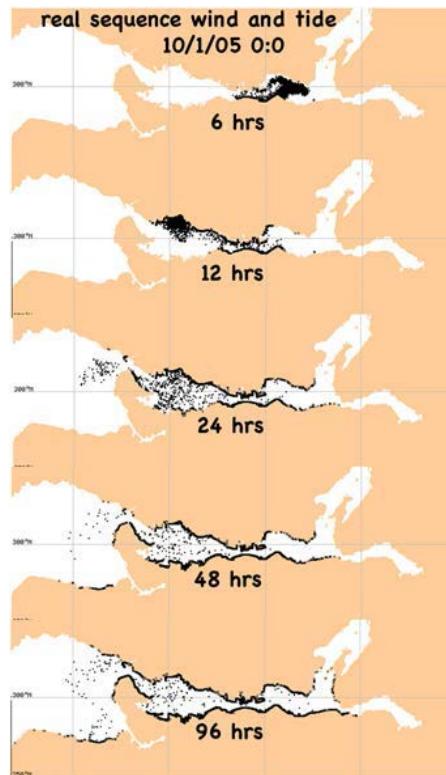
<sup>126</sup> Exhibit B2-1 V4A 1.0 TO 3.4.4.1.1 PROJ DESIG ENGIN([A3S0Y8](#)); to Exhibit B2-2 V4A 3.4.4.1.3 F3.4.17 TO 4.0 PROJ DESIG ENGIN ([A3S0Y9](#)), pp. 4A82-4A104

Again, the failure to provide evidence to compare alternative terminal options should be fatal to this application.

The report of Genwest Systems Inc. provides oil spill trajectory modeling in Burrard Inlet for the Project. The report concluded that Trans Mountain's modelling effort in Burrard Inlet has two major shortcomings: (i) the model used by Trans Mountain—SPILLCALC, which we will refer to as the “Trans Mountain Model”—does not allow for refloating of beached oil; and (ii) Trans Mountain's consultant made unrealistic modeling scenario assumptions to model oil spill trajectory at the Westridge Marine Terminal, assuming that the containment boom is always in place, resulting in the spill trajectory model processing a “hypothesized” much smaller spill.<sup>127</sup> The report concluded that:

Oil spreads quickly in the confined geophysical setting in Burrard Inlet. The combined results of all the scenarios demonstrate that oil has the potential to spread throughout Burrard Inlet, from the Indian and Port Moody Arms to the Outer Harbour and beyond

For example, Figure 11, reproduced below, shows the results of an oil spill at Second Narrows using modeled real winds and tides at 6, 12, 24, 48, and 96 hours into the spill:<sup>128</sup>




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<sup>127</sup> Exhibit C69-44-4 – Oil Spill Trajectory Modelling Report in Burrard Inlet for the Trans Mountain Expansion Project ([A4L8F8](#)), p. 1

<sup>128</sup> Exhibit C69-44-4 – Oil Spill Trajectory Modelling Report in Burrard Inlet for the Trans Mountain Expansion Project ([A4L8F8](#)), p. 4

This figure shows the extent to which an oil spill in Burrard Inlet will have the potential to quickly impact highly populated areas and areas that have critical transport and recreational importance. Trans Mountain has not addressed how these impacts compare to the potential impacts of a spill at the alternate locations of Kitimat, BC or Roberts Bank in Delta, BC.

Further, the conclusion reached through the TERMPOL report that Transport Canada “[d]id not identify regulatory concerns for the tankers, tanker operations, the proposed route, navigability, other waterway users and the marine terminal operations associated with tankers supporting the Project”<sup>129</sup> has no bearing on whether Burrard Inlet is a responsible location for the marine terminal and associated increase in tanker traffic. The TERMPOL process did not review Trans Mountain’s preferred location for the marine terminal, as compared to alternate locations for the terminal that do not possess the same level of vessel traffic.

The NEB has not been provided with sufficient information to analyze the relative risk of locating the expansion at the site of the current Westridge Marine Terminal, and demolishing that terminal, and increasing the tanker traffic in Burrard Inlet, as compared to locating the terminal in Kitimat or Roberts Bank, Delta. However, given the known potential risks and impacts of shipping diluted bitumen from the Westridge Marine Terminal through Burrard Inlet, it is clear that a more remote location would pose less risk and have less impact to the public, economy and the environment.

Again, the fact that this Terminal was located at this location in the early 1950’s should not be seen as a justification for a public interest decision now. At that time, the primary use of the pipeline was intended for supply of local refineries, and the export and shipping of oil from that location was contemplated in much smaller volumes. The nature of shipping in Burrard Inlet was much less crowded. The use of the shores of Burrard Inlet by residents was significantly less. The present application is in very different circumstances. A fresh consideration of alternatives is essential.

### **3.5 The Location chosen for the Terminus of the Project has the Greatest Relative Risk**

The location chosen for the terminus of the Project poses the greatest relative risk, as compared to alternatives, for transporting, storing and shipping the increased capacity for the Project.

The risk assessment for the Project on behalf of Trans Mountain contains several shortcomings and errors, the most detrimental of which is that the risk assessment does not consider in any way the relative risk of the Project as compared to alternative locations for the Project.<sup>130</sup> However, given what is known about the risks of locating the terminus of the expansion in the heart of Burnaby, a densely populated municipality,

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<sup>129</sup> Exhibit C353-4-3 - Transport Canada - TMEP TERMPOL Report December 11 2014 ([A4F8Z4](#)), p. 2

<sup>130</sup> See for example Exhibit B33-29 - Trans Mountain Response to NEB IR No. 1.98a-Attachment3 ([A3W9S5](#))

and locating the marine terminal in Burrard Inlet, necessitating shipping in the most crowded port in Canada, it is clear that this terminus poses the greatest relative risk, as compared to alternative terminuses not located within a major municipality.

Burnaby has highly congested residential and commercial developments that will be impacted by the proposed Project. These neighbourhoods have developed and expanded around the facilities and pipeline, since the existing Trans Mountain pipeline system was built in the 1950s. As noted in the evidence of Dr. Vince, “the impacts of many of the worst industrial accidents – among them Buncefield, Pemex, Bhopal – were aggravated because residential and commercial development had been permitted to encroach on an originally remote hazardous installation.”<sup>131</sup> This is precisely what has happened here in relation to the existing facilities and pipelines currently located in Burnaby, making the current risk high, but an expansion of these facilities and pipelines intolerable and contrary to the public interest.

Further, as noted above, Metro Vancouver and Burrard Inlet are the most populated areas within British Columbia. The evidence of the City of Vancouver confirms that Vancouver is one of the most densely populated cities in North America, with approximately 5,335 people per square kilometre, and noting that 25,000 Vancouver residents, occupying 16 million square feet of residential space, live within 300 m of the Burrard Inlet and English Bay shorelines.<sup>132</sup> Over 1.2 million citizens are residents of the municipalities on the shores of Burrard Inlet. As of May 2015, there are 38,801 business licenses that have been issued by Vancouver to businesses located within 1,000 metres of Burrard Inlet.<sup>133</sup> There are further significant park lands and beaches (including Stanley Park, a National Historic Site) on Burrard Inlet and the Fraser River.<sup>134</sup> Locating the Project within this region puts the maximum amount of people at risk with potential consequences for the regional economy that is dependent upon Burrard Inlet and its surrounding areas of recreational and environmental importance.

The factors that make the proposed terminus of the Project the most relatively risky location, with the most relative impacts, include:

- i. the density of population in close proximity to the Burnaby Terminal Tank Farm, Westridge Marine Terminal and Burrard Inlet;
- ii. the topography of the Burnaby Terminal Tank Farm;
- iii. the constrained transportation and evacuation routes;
- iv. the extensive municipal infrastructure currently in place to service the population, and the need to update that infrastructure given the projected population growth and development;
- v. the marine-dependent economic and recreational activities;

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<sup>131</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 4

<sup>132</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), p. 6

<sup>133</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), p. 6

<sup>134</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), p. 3

- vi. the unique environmental values that are supported by the Burnaby Mountain Conservation Area, Burrard Inlet and the Fraser River;
- vii. the extensive shoreline; and,
- viii. the marine conditions within Burrard Inlet and the Fraser River Plume.

The evidence filed by intervenors in the Lower Mainland in relation to the Project highlights the extremely high level of risk associated with locating the Project in the core of major municipalities, and the substantial adverse impacts and complications that will result. Municipalities, First Nations, groups and individual members of the public have identified those risks and impacts as including the following:

- **Risks of tank fire and tank boilover affecting surrounding neighbourhoods and preventing evacuation of Simon Fraser University**

Burnaby and Simon Fraser University filed evidence on the risks that will result in the event of a tank fire associated with the Project in the proposed location.<sup>135</sup>

The evidence clearly demonstrates that the surrounding neighbourhoods, including Simon Fraser University, would be in the “impact areas” in a tank fire event resulting in high life hazards, and impacts to areas of environmental value in the Burnaby Mountain Conservation Area.<sup>136</sup> The evidence of Simon Fraser raises the very real concern that members of the public would not be able to be evacuated from the university neighbourhoods in such events.<sup>137</sup>

The risks of fire events and consequent community impacts are substantially increased by the reduction in fire and safety countermeasures as a result of the Project. It is estimated that the risk of community impacts outside of the facility from a fire event are increased by 70% by the Project.<sup>138</sup> The location of the Project in such close proximity to the Burnaby Mountain Conservation Area also increases the likelihood of a wildfire, with further consequent impacts to the

<sup>135</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)); Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), diagram 5, p. 61; diagram 6, p. 68; and diagram 10, p. 78; Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 1) ([A4Q0Z3](#)); Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 2) ([A4Q0Z4](#)), Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 3) ([A4Q0Z5](#)), Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 4) ([A4Q0Z6](#)), Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 5) ([A4Q0Z7](#))

<sup>136</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), pp. 4-5

<sup>137</sup> Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 1) ([A4Q0Z3](#)); Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 2) ([A4Q0Z4](#)), Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 3) ([A4Q0Z5](#)), Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 4) ([A4Q0Z6](#)), Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 5) ([A4Q0Z7](#))

<sup>138</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 86

public and the environment.<sup>139</sup> Those not directly affected by the resulting fire, may be impacted by toxic smoke plumes, which are most likely to harm those with pre-existing chronic respiratory conditions, increase rates of asthma and cardiovascular illness.<sup>140</sup> These effects may be substantial in the case of a tank fire burnout lasting 3-4 days.<sup>141</sup>

A tank fire boil-over further has the potential to result in molten crude spilling over onto surrounding areas, including the entire Trans Mountain tank farm, the Shellmont tank farm, Forest Grove community, Meadowood community, Sperling-Duthie community, Gaglardi Way and Burnaby Mountain Parkway.<sup>142</sup> The location of the Project increases the chances of a tank fire growing into an unmanageable public health and environmental disaster for Burnaby, and the surrounding areas, requiring a mammoth emergency response and evacuation to protect the public.

- **Risk of an oil spill affecting hundreds of thousands of members of the public and the Port**

As noted above, Metro Vancouver is the most densely populated area in the Province of British Columbia, and the shores of the Burrard Inlet are one of the most populated areas in the region. The Port of Vancouver is the busiest port in the country, and one of the five busiest ports in North America. The dense population, and marine dependent economy of the area surrounding Burrard Inlet will maximize the impacts of any spill, and the high level of traffic will increase the chances of a spill occurring.

The City of Vancouver put forward evidence of Trans Mountains' spill record – confirming that spills have happened in the past, with random and sporadic causes, including human error, and will continue to happen.<sup>143</sup> A further study undertaken by Genwest Systems Inc. on the behalf of the Tsleil-Waututh Nation, City of Vancouver, and Burnaby shows the extent of four spill scenarios in Burrard Inlet.<sup>144</sup> In another expert report prepared for Tsleil-Waututh Nation and the City of Vancouver, Nuka Research determined that the spill volumes for the four-scenarios represent reasonable worst case scenarios for oil spills at the four sites. The modelling showed that oil spreads quickly in the confined geophysical

<sup>139</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 5

<sup>140</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 5

<sup>141</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 83

<sup>142</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 83

<sup>143</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), p. 21; Exhibit C77-27-1 – City of Vancouver - Written Evidence - Appendix 18 ([A4L7X6](#))

<sup>144</sup> Exhibit C69-44-4 – Oil Spill Trajectory Modelling Report in Burrard Inlet for the Trans Mountain Expansion Project ([A4L8F8](#))

setting in Burrard Inlet. The combined results of all the scenarios demonstrate that oil has the potential to spread throughout Burrard Inlet, from the Indian and Port Moody Arms to the Outer Harbour and beyond.<sup>145</sup> The modelling also shows that: (i) a significant portion of Burrard Inlet is potentially threatened by oil spills at the Terminal, Second Narrows, and First Narrows; (ii) a substantial amount of oil was beached on shorelines; and (iii) the highest probability regions for floating oil disappear relatively quickly (because most of the oil is at least temporarily on beaches) but that oil in areas subject to lower, but still significant, percentages of the spill tends to spread covering many tens of square kilometers.<sup>146</sup>

- **Risk that emergency services would not be able to protect members of the public and respond to an emergency event for the Project**

Due to the dense population surrounding the terminus of the Project, and the shipping lanes through Burrard Inlet, there is a real risk that there is not sufficient emergency response capacity to respond to an emergency event, and protect the public.

The Burnaby Fire Department does not provide technical hydrocarbon firefighting, but will support and assist companies within Burnaby with fenceline operations. The Burnaby Fire Department would require a significant resource increase to simultaneously manage interior fence line and exterior fence line operations. In short, the Burnaby Fire Department would not be able to protect the public surrounding the Burnaby Terminal Tank Farm, as well as respond to a hydrocarbon event for the Project.<sup>147</sup>

The City of Vancouver has further raised the concern of the risks presented by an oil spill of diluted bitumen and oil spill response capacity in the region, and the inadequacy of the current resources to respond to a spill and protect the public and the environment.<sup>148</sup> This is further exacerbated by the fact that the conditions present in the Fraser River plume and Burrard Inlet may result in spilled diluted bitumen beginning to submerge in the surface layer about 24 hours following initial release.<sup>149</sup>

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<sup>145</sup> Exhibit C69-44-4 – Oil Spill Trajectory Modelling Report in Burrard Inlet for the Trans Mountain Expansion Project ([A4L8F8](#)), p. 3

<sup>146</sup> Exhibit C69-44-4 – Oil Spill Trajectory Modelling Report in Burrard Inlet for the Trans Mountain Expansion Project ([A4L8F8](#)), p. 8

<sup>147</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), pp. 45-51

<sup>148</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), section 5.6, pp. 44-74; Exhibit C77-27-4 – City of Vancouver - Written Evidence -Appendix 3 ([A4L7W1](#)), Exhibit C77-27A-20 – City of Vancouver - Written Evidence – Appendix 43 ([A4L9D9](#)) and Exhibit C77-27A-21 – City of Vancouver - Written Evidence –Appendix 44 ([A4L9E0](#)), Exhibit C77-31-2 – City of Vancouver - Written Evidence – Appendix 68 – Part 1 ([A4L9F1](#)), Exhibit C77-31-3 – City of Vancouver - Written Evidence – Appendix 68 – Part 2 ([A4L9F5](#))

<sup>149</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), p. 46 and Exhibit C77-27-4 – City of Vancouver - Written Evidence -Appendix 3 ([A4L7W1](#))

- **Risk of health impacts to the surrounding population due to the proximity of petroleum storage to the public**

A number of intervenors have submitted evidence concerning the health impacts of storing petroleum so close to the surrounding population, and the health impacts of accidents and malfunctions.<sup>150</sup> The potential health impacts from chronic emissions are serious and very concerning, particularly when such impacts could be avoided or reduced if the Project was located further from the public. The potential for human health impacts increases substantially when there is an accident or malfunction.

Aside from direct impacts of a fire or spill, the loss of containment of crude oil products presents the potential for poisonous hydrogen sulfide and sulphur dioxide release. Highly toxic hydrogen sulfide will very quickly, upon facility release, expose residential areas to conditions that are immediately dangerous to life. Further, smoke outfalls from a fire event may contain sulphur dioxide (SO<sub>2</sub>), for which Trans Mountain's analysis shows a potential health concern could be felt up to 5.2 kilometres downwind.<sup>151</sup> A study by BROKE looks at the human health effects of the exposure to the chemicals contained in the diluted bitumen to be shipped by the Project – Benzene and 1,3-butadiene. Exposure to 1,3-butadiene can result in leukemia, cancer of haemolymphatic organs, adverse cardiovascular and respiratory effects, and damage to the central nervous system. Acute exposure to benzene can cause dizziness, drowsiness, rapid/irregular heartbeat, loss of consciousness, tremors, convulsions, and death. Chronic exposure to low levels of benzene can cause destruction of the red blood cells (aka haematotoxicity), toxicity to the immune system (aka immunotoxicity), and the formation of tumours (aka neoplasia).<sup>152</sup>

The evidence of intervenors, including from Vancouver Coastal Health and Fraser Health, also raised the concern about the incomplete assessment undertaken by Trans Mountain in relation to human health impacts, given that: the assumptions in the air dispersion models may be incorrect; the omission of identified key air pollutants in the Metro Vancouver / Fraser Valley regions in the air dispersion models; the exclusion from spill scenarios of products other than Cold Lake Winter Blend diluted bitumen that would also be carried by the

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<sup>150</sup> Exhibit C69-44-21 – City of Burnaby - Health Impacts - VCH and FH to City of Vancouver and City of Burnaby ([A4L8H5](#)); Exhibit C69-44-22 – City of Burnaby - Health Impacts - Guidance to Metro Vancouver and Fraser Valley Municipalities to Assist in Reviewing the Trans Mountain Pipeline Expansion Project from Public Health Perspective ([A4L8H6](#)); Exhibit C41-8-2 – BROKE - Human Health Impacts Report TMEP - Takaro ([A4L6U5](#)); Exhibit C259-8-15 - App 12 to JE evidence - NSNOPE Health Effects of Pipelines and Oil Spills ([A4L5W5](#)); Exhibit C259-8-16 - App 13 to JE evidence - VCH-health-impacts-oil-spill(4) Sept 2014(1) ([A4L5W6](#)); Exhibit C214-18-5 - Attachment D to written evidence of Living Oceans - Health Risks - Dr Batterman ([A4L9S0](#));

<sup>151</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 4-5; see also diagram 7, p. 69

<sup>152</sup> Exhibit C41-8-2 – BROKE - Human Health Impacts Report TMEP - Takaro ([A4L6U5](#)), pp. 6-7

expanded pipeline system (refined products such as gasoline, jet fuel); the exclusion from spill scenarios of exposure pathways other than air inhalation; and the absence of an assessment on the human health risks from the construction phase activities of the Project.<sup>153</sup> As such, the impacts to the large surrounding population for the Project may be much greater than presented.

All of these impacts would be avoided, or lessened, if petroleum storage was located further from populations providing for less exposure to operational emissions, and allowing for a longer response time before exposure to a spill resulting from an accident or malfunction.

- **Impacts to land use planning within Lower Mainland municipalities**

The report from Associated Engineering, prepared for the five municipalities of Burnaby, Surrey, Coquitlam, Abbotsford and Langley contains a detailed outline of the many ways in which a pipeline, once constructed, could constrain or complicate future development.<sup>154</sup> The Associated Engineering report attempts to quantify at least the additional monetary costs – e.g. additional maintenance and repair expenses, higher future infrastructure costs, infrastructure project delays, etc. – which are estimated at approximately \$93,000,000. The unquantifiable costs of lost future planning and development options, reduced area for utilities, constraints on area-specific growth, lost utility routings and other enhanced risks are largely unquantifiable, but are likely much higher. These costs would not be present if the Project was located in a more rural and less developed area where space is at less of a premium.

- **Impacts to municipal services and regulation**

Burnaby filed a report entitled *Assumptions of Trans Mountain Pipeline ULC for the Trans Mountain Expansion Project in the City of Burnaby*, which contains a detailed analysis of the many unjustified and unsupported assumptions that Trans Mountain has made in its application and in its responses to information requests.<sup>155</sup> Trans Mountain has made assumptions of municipal support in relation to emergency response, traffic control, evacuation, and water. Burnaby has not consented to making these services available, and will be hard pressed to service the population of Burnaby, and comply with Trans Mountain's demands. If the Project were located in a more remote area, the demand on services would be less, and the potential for emergency events affecting large numbers of residents – requiring protection and evacuation – would be less.

<sup>153</sup> Exhibit C69-44-21 – City of Burnaby - Health Impacts - VCH and FH to City of Vancouver and City of Burnaby ([A4L8H5](#)); Exhibit C404-3-3 – Simon Fraser University - PGL Report - May 21, 2015 ([A4Q0X8](#)); Exhibit C214-18-5 - Attachment D to written evidence of Living Oceans - Health Risks - Dr Batterman ([A4L9S0](#))

<sup>154</sup> Exhibit C69-44-9 – City of Burnaby - Exhibit B - Part 1. Report and Appendix A - Cost Impact of Trans Mountain Expansion on Lower Mainland Municipalities ([A4L8G3](#)); Exhibit C69-44-10 – City of Burnaby - Exhibit B - Part 2. Appendices B-E - Cost Impact of TM Expansion on Lower Mainland Municipalities ([A4L8G4](#)); Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), pp. 47-52, Exhibit C77-28-6 – City of Vancouver - Written Evidence - Appendix 52 ([A4L7L1](#))

<sup>155</sup> Exhibit C69-44-11 – City of Burnaby - Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#))

In the report, Burnaby also sets out a detailed analysis of the many bylaws that will be engaged or breached if this Project were to be approved. These bylaws are enacted in the public interest by the democratically elected representatives of Burnaby. The bylaws work to protect the public, and matters of unique importance in Burnaby. The location of the Project in an area that would require such mass flaunting of local regulation in order to proceed is not desirable or in the public interest.

- **Risk of an accident or malfunction impacting on the economy and “brand” of Lower Mainland municipalities**

The Greater Vancouver region is known for its natural beauty, shoreline, and quality of life.<sup>156</sup> It is also the centre of the British Columbian economy.

The City of Vancouver has put together evidence that estimates the costs to local governments of a spill, including: staging, space requirements, evacuation, emergency services, public health costs, waste collection, communication costs, volunteer management, permitting and regulatory oversight, loss of municipal spaces, municipal brand recovery, opportunity costs, cost of damage assessment, recovery planning, technical assistance, interim financial relief, mitigation and preparedness activities, loss of tax revenues and legal costs. These costs are estimated to be at \$1 billion.<sup>157</sup>

A number of these costs will be exacerbated due to the dense population, economic significance, and the uniquely valued characteristics of the proposed location for the Project. For example, the City of Vancouver estimated that the impacts of a spill to its “brand” would result in a reduction in brand value ranging between USD \$1 billion for a small spill and USD \$3 billion for a large spill.<sup>158</sup> These are impacts that would not be felt in a more rural area, not valued for its natural beauty or “Greenest City” brand.

Further, in an area where ocean-dependent economic activities are not so prevalent, the cost to the economy would not be so significant, as it would be for the chosen location for the Project. The City of Vancouver estimates in the event of a May spill, Vancouver’s ocean-dependent activities could suffer total losses in the range of \$380 - \$1,230 million CAD in output value, 3,238 – 12,881 persons years of employment and \$201 - \$687 million CAD in GDP. Under this scenario, 46% of output value, 138% of employment and 40% of the contribution

<sup>156</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), p. 8

<sup>157</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), Exhibit C77-30-6 – City of Vancouver - Written Evidence - Appendix 81 ([A4L8E9](#)); see also Exhibit C214-18-7 - Attachment F to written evidence of Living Oceans - Public Interest Assessment - Dr Gunton et al. ([A4L9S2](#)) that sets out the inadequate assessment of economic, environmental, and social costs by Trans Mountain, pp. 25-26 and 42-68

<sup>158</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), Exhibit C77-30-7 – City of Vancouver - Written Evidence - Appendix 82 ([A4L8F0](#))

to GDP from the proposed Project, as estimated by Trans Mountain in its Application, would be lost 1 to the spill.<sup>159</sup> In the event of an October spill, Vancouver's ocean-dependent economy could suffer total losses in the range of \$215 - \$1,020 million CAD in output value, 1,972 – 11,216 person years of employment and \$115 - \$757 million CAD in GDP. Under this scenario, 38 % of output value, 120 % of employment and 34 % of GDP from the proposed Project, as estimated by Trans Mountain in its application, would be lost to the spill.<sup>160</sup>

The risks and impacts identified above would not be present at all, or would be substantially reduced, if the Project was located in a more rural setting. The proposed location for the Project, within a major municipality and next to a thriving port, is the worst possible location for a Project of this magnitude, and only serves to exacerbate the risks and impacts of the Project.

### **3.6 Summary**

To justify the substantially increased risks and impacts of locating the Project within major municipalities, a compelling and unique need that could not be met by any other alternative location or route must be shown. Trans Mountain has completely failed to establish that need or to provide an evidentiary base to assess it. Thus, even if the NEB determines that there is market demand for a pipeline to the west coast of Canada, the NEB does not have sufficient evidence before it to determine that this Project, with the location proposed, is required and necessary to meet that demand.

The decision to locate this Project and its facilities in a major metropolitan area greatly increases the impacts of construction and ongoing operation, and compounds the risks and the consequences of spills and accidents, on hundreds of thousands or millions of people and is unnecessary.

This Project, including the location of a new pipeline through the heart of major municipalities; the decision to locate 14 new tanks at Burnaby Mountain on a constrained site, on a slope, adjacent to residential areas and schools; and the choice to build new docks and loading areas and to ship many more oil tankers through the length of Burrard Inlet; would clearly fail any realistic analysis of sensible alternatives – these are arguably some of the worst locations that could be considered.

This application, and the failure of the process to properly consider alternative routes does not comply with the law, with the NEB Filing Manual, or with any common sense approach to planning or rational decision-making for major projects in the 21<sup>st</sup> century. This project application should be dismissed and not reconsidered until there is a full analysis of options.

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<sup>159</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), pp. 93-94, Exhibit C77-21-8 – City of Vancouver - Written Evidence - Appendix 83 ([A4L9G4](#))

<sup>160</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), p. 94, Exhibit C77-21-8 – City of Vancouver - Written Evidence - Appendix 83 ([A4L9G4](#))

## 4. Tank Farm Risk - Expanding the Burnaby Terminal Tank Farm is not in the public interest

### 4.1 Introduction

Expanding the Burnaby Terminal in its current location has the greatest relative risk, and is contrary to the public interest. Trans Mountain's analysis of the risks and impacts of the expansion of the Burnaby Terminal is fundamentally flawed and reductionist, and is premised on the remarkable and unsupported assumption that expanding the terminal in its current location will have the least disturbance and least adverse impacts. The proposed location of the Burnaby Terminal serves to severely exacerbate the risks and impacts of the expansion across all potential hazards, with potentially high-severity consequences for the surrounding Burnaby population, particularly in the event of a fire or spill.

Taking on this new risk is unjustified, contrary to best practices and sensible planning, and would not be approved if it were evaluated properly as a fresh application in the 21<sup>st</sup> century.

Trans Mountain is proposing to expand the Burnaby Terminal from 13 tanks to 26 tanks (adding 14 new tanks and decommissioning one tank) and almost triple the storage capacity from the current Burnaby Terminal from 1,685,000 bbl to 5,625,000 bbl.<sup>161</sup> Trans Mountain justifies locating this exponentially higher volume of crude oil storage next to neighbourhoods, schools, and conservations areas by hiding behind the fact that a terminal already exists in that location, by making arguments that relocation will be more costly to Trans Mountain, and by structuring Trans Mountain's risk analysis so that it fails to consider credible worst case scenarios, like boil over, and the cumulative risk of all the tanks within the terminal to the surrounding population.<sup>162</sup>

Trans Mountain has not provided, and the Board has failed to require that Trans Mountain provide, a comprehensive and accurate risk assessment for the Burnaby Terminal, prior to the NEB's consideration of whether the Project is required by the future public convenience and necessity. The NEB has recognized that Trans Mountain's risk assessment for the Burnaby Terminal is critically deficient in a number of respects in making it a *post-approval* condition that Trans Mountain submit an updated terminal risk assessment addressing, amongst other things, the cumulative risk of all of the tanks in the terminal across all event types, and the potential consequences of events such as boil-over, flash fires and vapour cloud explosions.<sup>163</sup> These are matters that are integral to the NEB's public interest determination, and cannot be relegated to after approval.

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<sup>161</sup> Exhibit B1-3 – V2 2of4 PROJ OVERVIEW ([A3S0Q9](#)) , pp. 2-23, Table 2.3.1

<sup>162</sup> Exhibit B413-1 - Trans Mountain Response to NEB IR No. 6 ([A4R6I4](#)), IR 6.23 pp. 101-106; Exhibit B413-1 - Trans Mountain Response to NEB IR No. 6 ([A4R6I4](#)), IR 6.22 pp. 98-100

<sup>163</sup> Exhibit A199-3 – National Energy Board – Procedural Direction No. 17 – Draft conditions for comment – Appendix A ([A4S1G2](#)), p. 13, Condition 29 “Updated terminal risk assessments”

The residents of Burnaby should not have to bear the burden of Trans Mountain's expansion in order to save Trans Mountain the cost of relocating the terminal. Trans Mountain has chosen to frame its application as an expansion, and refused to assess alternative locations for the expansion or relocation of the terminal – instead underrepresenting the risks and impacts of an "expansion" of the Terminal to Burnaby that will result in an almost tripling of current capacity. This is a critical and determinative deficiency of the application. The NEB must not recommend that the Project is in the public interest as proposed, as it has no basis upon which to assess the relative impacts and risks of the terminal expansion in Burnaby, as compared to alternate locations.

#### **4.2 Location of the Burnaby Terminal Tank Farm**

The current Burnaby Terminal is not an appropriate location for the proposed expansion from 13 tanks to 26 tanks. The historic placement of the terminal within Burnaby in the 1950s, prior to the mass urbanization of the area, is not sufficient justification for not exploring alternate locations for an expansion that will almost triple the capacity of the terminal, exponentially increasing the risks to the surrounding Burnaby population, and decreasing the effectiveness of safety countermeasures.

The reports of Dr. Ivan Vince and Chris Bowcock, Deputy Fire Chief of Burnaby, concur that the current location of the Burnaby Terminal is not appropriate for the expansion. Dr. Ivan Vince sets out the basis for this in his report in that this proposed expansion of the Burnaby Terminal Tank Farm is for:

- a very substantial increase in the number and average size of storage tanks;
- necessitating a substantial increase in congestion, and thus an increased likelihood of incident escalation, both because of reduced inter-tank distances and increased complexity of firefighting tactics;
- on a site with a marked slope, partly towards the residential area;
- surrounded by forest containing ample combustible litter etc;
- which, in turn, surrounds a university campus, whose sole evacuation route, I understand, passes next to the tank farm.<sup>164</sup>

Deputy Bowcock agrees that the expansion of the Burnaby Terminal will "increase the impacts associated with the risks of crude oil loss of containment or fire across all potential events types due to the increased proximity to residential population densities, highly susceptible conservation forest areas and downhill or downwind sensitivities."<sup>165</sup>

A report commissioned by Simon Fraser University (SFU) further details the risk of locating the expansion so close to SFU:

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<sup>164</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 4

<sup>165</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), pp. 6-7

Of particular importance is the proximity of the Burnaby Tank Farm to SFU. Worst case scenarios of fires or explosions, and exposure to resulting plumes, have the potential to impact, or even envelop the university, and block access to and from SFU, thus making an evacuation difficult or impossible.<sup>166</sup>

SFU, and the surrounding university development, is highly populated, resulting in potential effects to and evacuation of a large number of people. SFU currently has 29,802 undergraduate students and 5,339 graduate students, with over 5,000 faculty and staff. The UniverCity community is home to 3,600 people, and designed for an eventual population of 10,000 people.

The findings of the studies are echoed in the evidence of individual members of the public:

I believe the Burnaby Mountain Tank Farm (Burnaby Terminal) should be decommissioned and moved to a site away from heavily populated areas, where an accident would not be so devastating to human life...

Burnaby is a City. The middle of a city is no place for an Oil or Petroleum storage facility or Terminal/Tank Farm. The inherent risks are too high. Despite the perceived low risk for catastrophic accidents, history shows they do happen, and quite often. I have documented a number of such cases in previous IRs, and Trans Mountain has dismissed them completely. I feel this shows that Trans Mountain is irresponsible and has no desire to provide the highest standards, over and above the required standards that currently exist. We need better materials and workmanship in the future, not simply more of the same.

I would like to see a new route for the pipeline, away from cities with high populations. This could be phased in gradually, and over time, the existing tank farm can also be moved to another area. I would like to see a plan in place to move the storage of highly explosive materials like dilbit bitumen/crude oil away from major centres like Vancouver and Burnaby.<sup>167</sup>

There is further concern raised by the residents of Burnaby about the proximity of the Burnaby Terminal to elementary schools, parks, and neighbourhoods. As one concerned father writes:

One of my greatest concerns of the proposed TMEP is how closely located the proposed new tanks at the Burnaby Mountain tank terminal will be to my children's school, Forest Grove Elementary. My son will be entering full time kindergarten in September 2015 and my daughter will be attending a preschool program also there on average 3 times per week. Especially concerning is the siting of 6 of the largest new tanks on the eastern end of the tank terminal property, which will be the closest to the school. These include new tank #74, 75, 76, 77 (all four of 285,000 barrel capacity) and the closest two new tanks #

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<sup>166</sup> Exhibit C404-5-2 – Simon Fraser University - Revised Report - Etkin, Higuchi, Thompson and Dunn – ([A4Q5Z1](#)), p. 3

<sup>167</sup> Exhibit C109-3-1 - Written Evidence Doherty (May 27, 2015) ([A4L8U3](#)), sections 4-5

78 & 79 (both of 335,000 barrel capacity, will be the largest two in volume in the terminal and the closest to the school).<sup>168</sup>

He calculated the distance between the closest tank to the school for the Project (Tank 79) as just 325m from Forest Grove Elementary.<sup>169</sup> No rational review process would recommend an expansion of petroleum storage in such a location.

#### **4.3 Trans Mountain's Risk Assessment for the Burnaby Terminal is Critically Deficient**

Trans Mountain has not provided a complete and accurate risk assessment for the expansion of the Burnaby Terminal. This prevents the NEB from determining whether the Project presents an acceptable level of risk to the Burnaby public – an integral element of the public interest determination.

Burnaby submits that there is no need for the Project that would justify exposing the surrounding population to the level of increased risk caused by increasing the density of storage tanks within the Burnaby Terminal. This is particularly so, given that the extent of many of the risks remain underrepresented in the application due to Trans Mountain's failure to provide complete information.

The evidence of Burnaby and SFU is that the increased density of tanks within the Burnaby Terminal will substantially increase the risks to the Burnaby population and adjacent communities, including the risk of impacts to human health and safety.<sup>170</sup> The evidence of SFU and Burnaby points out the substantial gaps in Trans Mountain's risk assessment, including, but not limited to the following:

- (a) Dr. Vince on behalf of Burnaby found several errors and shortcomings in the risk assessment of Trans Mountain for the Burnaby Terminal – the most egregious of which was the failure to consider boil-over as a credible worst case scenario. Dr. Vince further pointed out that Trans Mountain fails to take into account the cumulative risk of all the tanks in the Burnaby Terminal, artificially reducing the risk. Dr. Vince is of the opinion that “[a] valid risk assessment (addressing both severity and likelihood), with due consideration of boil-over, would in my opinion

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<sup>168</sup> Exhibit C309-1 – Geoffrey Senichenko Intervenor Written Evidence ([A4L6Q9](#)), p. 2

<sup>169</sup> Exhibit C309-1 – Geoffrey Senichenko Intervenor Written Evidence ([A4L6Q9](#)), p. 2

<sup>170</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)); Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans

Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)); and Exhibit

C69-44-3 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk

Analysis – Part 2 – Appendices B-I ([A4L8F7](#)); Exhibit C404-5-2 – Simon Fraser University - Revised

Report - Etkin, Higuchi, Thompson and Dunn – ([A4Q5Z1](#)); Exhibit C404-3-18 Affidavit #1 of T.

Waterhouse - Exhibit A (Part 1) ([A4Q0Z3](#)); Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 2) ([A4Q0Z4](#)), Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 3) ([A4Q0Z5](#)), Exhibit

C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 4) ([A4Q0Z6](#)), Exhibit C404-3-18 Affidavit #1 of T. Waterhouse - Exhibit A (Part 5) ([A4Q0Z7](#)); Exhibit C41-8-2 – BROKE - Human Health Impacts Report

TMEP - Takaro ([A4L6U5](#)); Exhibit C404-3-3 – Simon Fraser University - PGL Report - May 21, 2015

([A4Q0X8](#))

lead to the conclusion that the risk is already high and would become intolerably high...if the expansion went ahead".<sup>171</sup>

- (b) Deputy Fire Chief Bowcock identified risks not fully considered or assessed by Trans Mountain including: tank fire burnout, multiple tank fire, boil-over, toxic smoke plumes, and wildland forest fire. Deputy Bowcock's evidentiary opinion is that the expansion of the Burnaby Terminal would present an unacceptable level of risk and would prevent emergency response and evacuation in the event of a fire, putting the public, firefighters and the Burnaby Mountain Conservation Area at risk. This evidence is uncontroverted, has not been subject to cross-examination, and must be accepted.<sup>172</sup>
- (c) The evidence of David Etkin, Associate Professor of Disaster and Emergency Management at York University, on behalf of SFU sets out that Trans Mountain failed to consider the worst case scenarios of fires and explosions, including the consequent smoke plumes, that could impact SFU and make evacuation difficult. Etkin et al further point out that Trans Mountain did not take into account local weather conditions in its risk assessment. Furthermore, Etkin et al note that there is no evidence that Trans Mountain has been diligent in applying the CALPUFF model to address the case of a release of buoyant material that would impact SFU.<sup>173</sup>
- (d) SFU also had M. Shum et al provide a report on the Human Health Risk Assessment of Trans Mountain. M. Shum et al identified several deficiencies including that the assessment did not consider: the risk of exposure to fire-related emissions (smoke and S0<sub>2</sub>) to human receptors at SFU and surrounding communities; the risk of exposure from the release of products other than Cold Lake Winter Blend that might be stored in the Burnaby Terminal; and the risk to human receptors under high intensity exposure scenarios.<sup>174</sup>

Trans Mountain's reply evidence attacks the credibility of the experts and the standards relied upon by the experts as irrelevant to the current review, but does not provide an evidentiary base to come to alternative conclusions.<sup>175</sup> Trans Mountain again tries to underrepresent the risk by focusing on the likelihood of occurrence of hazard events, rather than the consequences to the Burnaby population. Trans Mountain fails to respond to the basic premise that accidents do happen, and the expansion of the Burnaby Terminal is proposed in a location that maximizes the consequences of any

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<sup>171</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 8

<sup>172</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#))

<sup>173</sup> Exhibit C404-5-2 – Simon Fraser University - Revised Report - Etkin, Higuchi, Thompson and Dunn – ([A4Q5Z1](#))

<sup>174</sup> Exhibit C404-3-3 – Simon Fraser University - PGL Report - May 21, 2015 ([A4Q0X8](#))

<sup>175</sup> Exhibit B418-2 – Trans Mountain Reply Evidence-Attachment 1.03-Reply to Burnaby Fire Department Risk Analysis Rpt ([A4S7K0](#)); and Exhibit B417-50 – Trans Mountain Reply Evidence-Attachment 1.01-Reply to Hazards to SFU Gap Analysis ([A4S7J7](#))

accident. Notably, in reply, Trans Mountain does not provide a complete and accurate risk assessment addressing all of these noted deficiencies, and attempts to deny the need for one. The failure to provide a proper credible risk assessment for such a fundamental public interest issue precludes an NEB determination on this application.

Burnaby is concerned that the NEB has made a complete and accurate risk assessment for the Project a ‘post-approval condition’, as opposed to a necessary filing that needs to be subject to thorough review prior to any recommendation on the Project (Conditions 29 and 112).<sup>176</sup> This is tantamount to saying these risks do not matter to the public interest determination.

This also precludes any effective public hearing on the matter.

The NEB must recommend that the Project is not in the public interest on the information filed by Trans Mountain. It is not sufficient to assess the degree of risk to the public post-approval.

#### **4.4 The Location of the Terminal reduces the Effectiveness of Safety Countermeasures**

The proposal to locate a much-expanded tank farm in the current location of Burnaby Terminal means that the risk is the greatest relative risk due to the proximity to the surrounding population and the greater severity of potential consequences. To accept a greater ‘relative risk’ without considering alternatives is unacceptable.

However, it must also be clear that the surrounding development constrains the ability to expand the footprint of the Burnaby Terminal, thus reducing the availability of safety counter measures that would reduce the risk of the Project. But for the surrounding development, a greater footprint would likely have been chosen or would certainly be required. Using the existing footprint therefore leads to lowering the opportunity or the requirement for reasonable mitigation and safety measures. Arguably therefore this is the wrong place for the expanded Terminal to be located.

The expansion of the Burnaby Terminal in its current location poses significant risks to the surrounding community and constrains the ability of emergency responders to effectively respond to emergency events. These risks and constraints include:

- insufficient roadway options to allow for safe access and egress for emergency responders;
- significant constraints on the ability of firefighters to effectively combat fires;
- negative impacts on the safety of firefighters in responding to an emergency;
- impedes the effective containment and extinguishment of fires, spills or other releases;

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<sup>176</sup> Exhibit A199-3 – National Energy Board – Procedural Direction No. 17 – Draft conditions for comment – Appendix A ([A4S1G2](#)), p. 13, Condition 29 “Updated terminal risk assessments” & p. 46 Condition 112 “Final terminal risk assessments”

- imposes difficulties for evacuation of employees within the Burnaby Terminal Tank Farm;
- imposes the burden of having to evacuate large populations from adjacent neighbourhoods;
- may result in broader areas having to be evacuated due to impacts of a release of sulfur based gases and toxic plumes in the event of a fire; and
- requires significant resources to protect adjacent properties, including conservation areas, in the event of an emergency.

As noted by Deputy Bowcock in relation to fire risk,

"[t]he specific driver of the increased risk is the reduction in the effectiveness of the facility design to limit fire event growth and restrict hazardous impacts to an immediately controllable area of impact during a short emergency response timeframe."<sup>177</sup>

The safety design measures that were implemented when the terminal was installed in the 1950s – distance to fenceline and space between tanks – will be less effective due to the increased tank density from the expansion – yet the expansion will almost triple the amount of crude oil being transported and stored in this precarious environment, which has significantly urbanized since the 1950's.

This expansion is clearly not in the best interests of the Burnaby public that surrounds the Burnaby Terminal tank farm. Further, it is just bad design, and bad planning. It is not consistent with the high standards that should be required by the NEB for such a facility in 2016.

#### 4.4.1 Tank Spacing

The Project will reduce the tank spacing at the Burnaby Terminal Tank Farm by 45%, as compared to the current terminal, significantly increasing risk. Tank spacing is the primary method by which a hydrocarbon facility isolates hazards. By placing storage tanks with sufficient separation, the risk associated with a multiple tank emergency event occurrence is reduced. In contrast, by placing tanks without sufficient separation, the risk of a multiple tank event increases, and when those tanks are placed even closer to the surrounding population, the risk of impacts to the public exponentially increase.

The Burnaby Terminal Tank Farm was originally approved with a '2 tank diameter' spacing. The proposed Project, if approved, will unacceptably reduce this spacing to 0.5 tank diameter spacing – an overall reduction in tank spacing of 33% and a 45% reduction in tank spacing as compared to the current terminal.<sup>178</sup> Trans Mountain has acknowledged in response to an information request of Burnaby, and in their final

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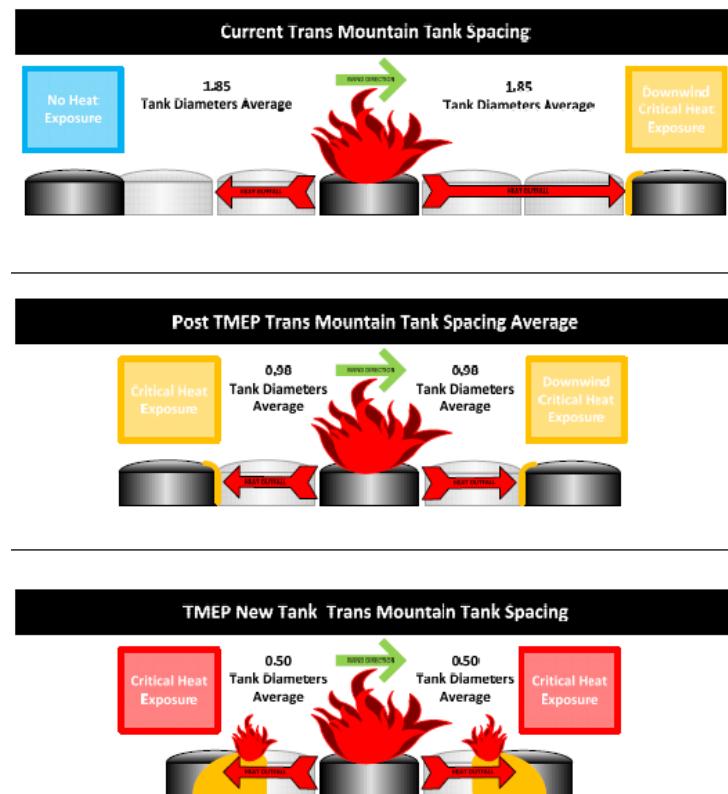
<sup>177</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 8

<sup>178</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 6

argument, that the reduction in tank spacing is a direct result of the topography limitations of the current site.<sup>179</sup> In other words, this choice is not driven by safety or proper design standards, but by Trans Mountain's decision to use the existing site.

This decrease in tank spacing reduces the ability of firefighters to isolate a tank fire and prevent a multiple tank fire event. As noted by Deputy Bowcock, "in essence, the TMEP shifts the control of hazard from an engineered approach of tank isolation, to an emergency response approach."<sup>180</sup>

The following diagram illustrates the risk:<sup>181</sup>



Sufficient tank spacing is particularly crucial at the Burnaby Terminal Tank Farm, as the tanks are located on a slope. Tanks located uphill of a tank fire (at the same tank spacing) receive significantly greater heat exposure than a tank located at the same elevation. The tanks require greater spacing to prevent a multiple tank fire event. The current tank farm might be said to be designed to accommodate this increased risk with '2 tank diameter' spacing, but the proposed expansion will completely undermine this safety measure.

<sup>179</sup> Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR1.08.03b), pp. 208-209; Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p. 138

<sup>180</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 33

<sup>181</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 32

As concluded by Deputy Bowcock, Trans Mountain “proposes the increasing of the tank farm storage tank density, by decreasing engineered tank isolation distances, which in turn increases the potential for fire event escalation through extension, in a facility that has reduced its internal fire protection capability without approval.”<sup>182</sup> Deputy Bowcock warns that the “weaknesses in the design of a facility can create fire event situations that cannot be safely or effectively mitigated without allowing a storage tank or several tanks to burnout.”<sup>183</sup> These risks would not be so pronounced if the Tank Farm was located in a more remote location where best practices for tank spacing could be followed. Trans Mountain has failed to analyze in its application the effect of the tank spacing reduction on fire protection countermeasures, and the subsequent necessary changes to the fire protection, leaving the Burnaby public at unjustifiable risk.<sup>184</sup>

#### **4.4.2 Safe Access for Emergency Deployment**

The Project would result in a 70% increase in the number of storage tanks that do not provide safe deployment positions for fire-fighters.<sup>185</sup>

The proposed tank configuration for the Project significantly limits the road access/egress points to the Burnaby Terminal Tank Farm in all wind conditions, and the safe application positions for firefighting personnel to apply suitable firefighting streams. The configuration of the Terminal on a hillside in such a tight footprint would require firefighting personnel to operate in elevated positions above the tanks, exposing them to potentially excessive heat and smoke outfalls. As a result, many of the potential tank fires in the expanded Tank Farm would be inaccessible due to lack of safe firefighting positions.

The primary concerns created by the expansion of the Burnaby Terminal Tank Farm for emergency access according to Deputy Bowcock include:

- insufficient deployment positions to cool adjacent tanks to prevent event heat exposures from escalating into fire extension; and,
- insufficient roadway options to allow for safe access and egress of deployment positions to provide all necessary fire stream applications in all potential wind conditions.<sup>186</sup>

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<sup>182</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 33

<sup>183</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 33

<sup>184</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 33

<sup>185</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 33

<sup>186</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 34

Roadway access for the Project is critical for emergency responders to be capable of approaching, and escaping from hazardous conditions from all directions. As noted by Deputy Bowcock, hydrocarbon facilities “that do not provide roadway access to all sides of a storage tank within reasonable proximity, create significantly increased risk and limitations to the safe operations that can be conducted for fire events.”<sup>187</sup> In the event that safe access and/or safe deployment positions are not present for the Project, emergency responders will not have the ability to get in position to cool adjacent tanks or attack a tank fire, resulting in the defensive strategy of letting a tank burnout, while adjacent tanks are protected, causing risks and impacts to the surrounding population.

#### **4.4.3 Distance to Fenceline**

The new tank positioning for the Project would reduce the “tank to fenceline distance by 61%”. The tank to fenceline distance directly impacts on the time it takes for hazardous events to impact the surrounding neighbourhoods and environment outside the Terminal. A reduced fenceline distance means that there is a reduced response time for emergency crews before a fire, or other event, escapes the fenceline, and a potential increase for impacts to the community outside the fenceline.<sup>188</sup>

Directly adjacent to the Burnaby Terminal Tank Farm facility are the residential neighborhoods of Forest Grove, Meadowood, Sperling Duthie and Lochdale. Of specific and notable proximity is Forest Grove Elementary school, near the southern outfall of the facility.<sup>189</sup> These communities would be at direct risk of hazards escaping the facility, with limited time for response or evacuation.

Deputy Bowcock sets out the potential exposures to these communities, and the surrounding communities of Simon Fraser University, UniverCity village and the Burnaby Mountain Conservation Area, as:

- fenceline exposure to heat, including subsequent fire extension to the proximate areas;
- smoke exposure to the community;
- sulphur based gas exposure to the community; and,
- ignition of flammable gas releases within the community.<sup>190</sup>

The decreased tank to fenceline distance, thus, directly increases the potential of exposure of residents to the hazardous effects of emergency events, and places an increased burden on emergency response crews to simultaneously respond to those emergency events, while undertaking evacuation operations. Trans Mountain has not

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<sup>187</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 27

<sup>188</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 40

<sup>189</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 40

<sup>190</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 40

adjusted its emergency response planning to account for this increased risk and proximity, completely relying on the City of Burnaby to respond to emergency events<sup>191</sup> and evacuate the citizens of Burnaby – despite the Fire Department saying that they would not have the capacity to do so.<sup>192</sup>

#### **4.4.4 The Topography of the Burnaby Terminal Tank Farm increases the Risk**

The location of the Burnaby Terminal Tank Farm on a slope in an area with high seismic risk only serves to further increase the risk of the Terminal, and increase the potential for emergency events to impact neighbourhoods downhill. These factors further militate against expanding the Tank Farm in its current location.

As the Burnaby Terminal site is located on the south side of Burnaby Mountain, and in general has a downward overall topography of northeast to southwest, there is the risk of overall slope failure, particularly in a seismic event. These failures have not been addressed or modelled in detail by Trans Mountain.<sup>193</sup> Burnaby commissioned a review of the geotechnical report put forward by Trans Mountain, which identified the following information deficiencies in relation to the review of the Burnaby Terminal:

- differential settlements for the tanks, pipe racks, and manifolds;
- bedrock performance in seismic events;
- preloading of material (if any);
- footing design and pile design for the pipe racks and manifold area;
- settlement monitoring and ground movement monitoring systems;
- seismic response of foundations;
- review of historical geotechnical performance of current tank farm facility;
- overall slope hazard assessment;
- clear design criteria and specifics;
- new pipe racks, and containment dykes;
- rock core testing Detailed dewatering and drainage plans; and,
- consolidated and un-consolidated shear strength for saturated soils are not addressed.<sup>194</sup>

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<sup>191</sup> See Exhibit C69-44-11 City of Burnaby – Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#)) pp. 5-12; Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR 1.01.04a-f), pp. 5-7 IR No. 1.07.09d, p. 157, IR No. 1.07.17h, pp. 177-178, IR No. 1.07.29z, p. 201

<sup>192</sup> See Exhibit C69-44-11 City of Burnaby – Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#)) pp. 7, 11-12; Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR No. 1.07.08c),e-g) pp. 153-154, IR No. 1.07.23d-f), pp. 187-188,

Exhibit B313-28 Trans Mountain Response to City of Burnaby IR No. 2 ([A4H8A1](#)), IR No. 2.024a, p. 87

<sup>193</sup> Exhibit C69-44-6 – City of Burnaby - Burnaby Terminal Geotechnical Investigation Report ([A4L8G0](#)), p. 4

<sup>194</sup> Exhibit C69-44-6 – City of Burnaby - Burnaby Terminal Geotechnical Investigation Report ([A4L8G0](#)), p. 7

These deficiencies represent factors that could exponentially increase the risk of the Project to the residents of Burnaby, particularly during a seismic event. Trans Mountain has not addressed these deficiencies in its reply evidence. It is unreasonable to expect Burnaby to accept the risks of an expanded Burnaby Terminal Tank Farm in the absence of a complete geotechnical and seismic assessment, including consideration of the slope hazard, and without a process that would subject that assessment to a thorough public review in advance of approval of the project.

Burnaby Residents Opposing Kinder Morgan Expansion (BROKE) further provided an expert report to review the seismic risk for the Project. The report sets out that the location proposed for the Burnaby Terminal expansion is in the area of highest seismic risk in Canada with critical infrastructure situated above the seismically active Cascadia subduction zone.<sup>195</sup> The report reviews the seismic design of Trans Mountain and notes that higher seismic design standards are adopted for infrastructure of great societal importance and/or considered critical for response (i.e., schools, hospitals, dams, nuclear plants); however, Trans Mountain has elected to adhere only to the current minimum enforced seismic design standards in Canada.<sup>196</sup> This is highly inappropriate and shows a complete disregard for the public in Burnaby. Best practices in seismic design must be met for the Project, if it is deemed to be in the public interest to locate it next to schools and neighbourhoods that are of great importance to Burnaby.

Despite this high seismic risk, Trans Mountain has not completed its seismic assessment for sites with very high, high and moderate liquefaction-triggered ground movement potential, which includes Burnaby. The NEB has made this, and fault-mapping, ‘post- approval conditions’.<sup>197</sup> How can the seismic risk of a Project that is proposed in an area with the highest seismic risk in Canada not be assessed prior to consideration of whether the Project is in the public interest? Does the NEB consider the potential catastrophic harm to the residents of Burnaby if such an event hit the expanded Terminal to be irrelevant? The failure to assess the nature of the seismic risk for the Project is further evidence of a fundamental flaw in this review process, and in Trans Mountain’s lack of commitment to protecting the residents of Burnaby.

#### **4.5 Fire Risk**

The expansion of the Burnaby Terminal Tank Farm in the current location greatly increases the fire risk and constrains the ability to fight fires associated with the Project effectively. It is estimated that the risk of community impacts outside the Burnaby Terminal from a fire event will be increased by 70% if the Project is approved.<sup>198</sup> This increase in exposure to the Burnaby population warrants the expansion being located in a more rural setting where the potential impacts to the community are not so extreme.

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<sup>195</sup> Exhibit C41-8-1 – BROKE - Seismic Hazard Assessment - Molnar ([A4L6U4](#)), p. 4

<sup>196</sup> Exhibit C41-8-1 – BROKE - Seismic Hazard Assessment - Molnar ([A4L6U4](#)), p. 3

<sup>197</sup> Exhibit A199-3 – National Energy Board – Procedural Direction No. 17 – Draft conditions for comment – Appendix A ([A4S1G2](#)), p. 30, Condition 71 “Seismic reports – liquefaction potential” & Condition 72 “Fault studies”

<sup>198</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 7

Trans Mountain severely underrepresents the fire risks of the expansion of the Burnaby Terminal by focusing on the probability of the risk occurring rather than the consequences, by failing to look at the cumulative risk based on the total number of tanks in the terminal and by discounting credible scenarios. Burnaby submits that a broader framework for assessing risk that takes into account the cumulative risk to the wellbeing of its residents and all credible scenarios needs to be implemented for the Project prior to the NEB's recommendation. It is not sufficient that the NEB has recognized this deficiency and made a comprehensive risk assessment for the Burnaby Terminal a 'post-approval condition'. Again, these risks and impacts are too critical to whether the Project is in the public interest, to be left simply to a later filing of a Trans Mountain-commissioned report and must be assessed prior to the NEB making its recommendation.

## **4.6 The Potential Consequences of the Fire Risks – Boil-over**

The consequences for the surrounding Burnaby population of fire events associated with the Project have the potential to be catastrophic causing significant damage to the health and wellbeing of Burnaby residents. In particular, Trans Mountain has downplayed the risk of a tank fire boil-over to the Burnaby population, by not assessing it as a credible worst-case scenario.

### **4.6.1 Impacts of a Boil-over**

A boil-over is a credible worst-case scenario for the Project with severe consequences for the surrounding Burnaby population and environment. The potential for a boil-over at the Burnaby Terminal, the level of risk it poses, and the absence of effective prevention or mitigation measures, alone warrants recommending against the Project – particularly given that Trans Mountain has refused to assess that risk.

A boil-over occurs when "water at the base of a tank of crude oil (or oil product with a wide boiling range) is suddenly turned to steam upon contact with a wave of heat that has been gradually descending through the oil from a full surface fire. The volume of steam being three orders of magnitude greater than that of the originating water, virtually the entire contents of the tank are explosively ejected and immediately ignited by the surface fire, generating a massive fireball supplemented by widely broadcast drops of burning fuel."<sup>199</sup>

A boil-over has the potential to spray burning crude over the mountainside and surrounding neighbourhoods. A boil-over event can discharge molten crude oil over an area 10 times the tank's diameter.<sup>200</sup> A boil-over event would, therefore, have the potential to discharge molten crude oil over the entire Burnaby Terminal Tank Farm site, the Shellmont Tank Farm, the Forest Grove Community, the Meadowood Community,

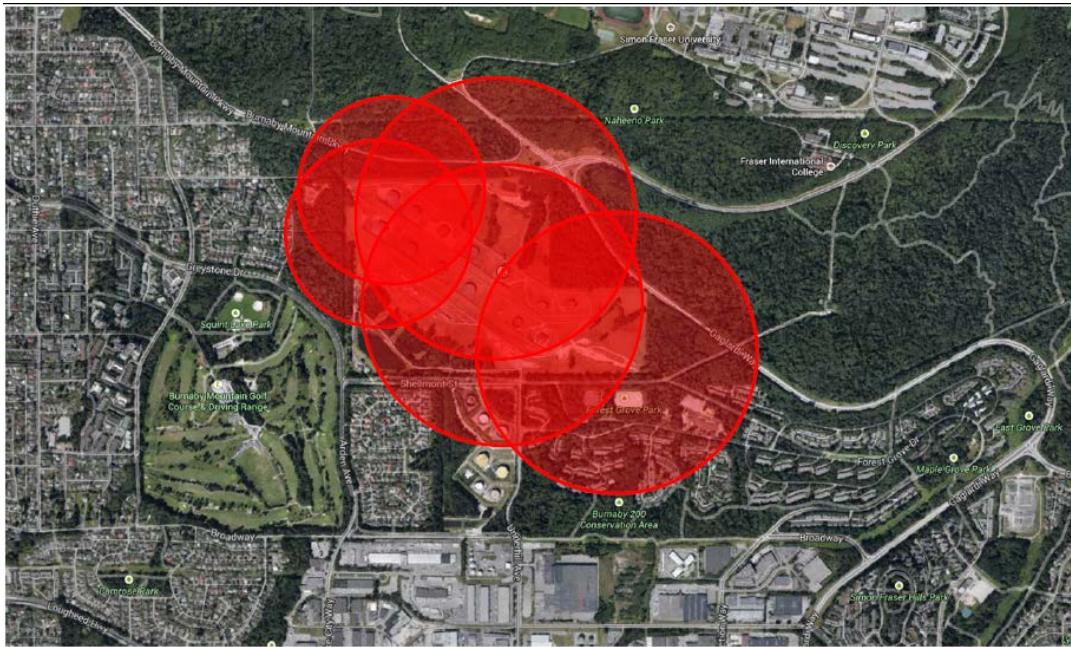
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<sup>199</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 5

<sup>200</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 59

the Sperling-Duthie Community, closing Gaglardi Way and Burnaby Mountain Parkway.<sup>201</sup>

The diagram below indicates the areas that could be impacted by a storage tank boilover:<sup>202</sup>



A boil-over, even in an existing tank, with less than half the capacity of the largest proposed tanks, would potentially endanger not only firefighters but also people off-site, especially those outdoors, unless they had been evacuated in time.<sup>203</sup> Radiant heat from the fireball as well as the rainout of burning oil would be capable of igniting litter in the surrounding forest and a variety of exposed combustible materials on and around houses.<sup>204</sup> A resulting forest fire would then require evacuation of Simon Fraser University, which would be problematic, since both access roads pass very near to the Terminal and might be impassable during the incident.<sup>205</sup> Escalation could potentially also involve neighbouring tanks, especially any that were downhill of the originating tank.<sup>206</sup> Involvement of multiple tanks would make firefighting still more complicated and

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<sup>201</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 59

<sup>202</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 61

<sup>203</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 6

<sup>204</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 6

<sup>205</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 6

<sup>206</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 7

hazardous, and potentially impossible, endangering those firefighters that respond to the incident and increasing the likelihood of having to let a tank burnout.<sup>207</sup>

As noted by Dr. Vince, there are no measures that will prevent a boil-over, or effectively mitigate the impacts of a boil-over:

A number of prevention and mitigation measures have been tried, with varying results but to date always short of full success. In particular, it has not been feasible to ensure the removal of water from crude oil tanks. Likewise, various warning diagnostics of an impending boil-over have proved unreliable, thus putting fire fighters in danger. The highest death toll, more than 150 people, from a boil-over occurred in 1982 in Venezuela.<sup>208</sup>

#### **4.6.2 Trans Mountain failed to assess a boil-over as a credible scenario**

Trans Mountain has failed to consider a boil-over scenario in its risk assessments for the Edmonton Terminal, the Sumas Tank Farm, and the Burnaby Terminal Tank Farm. The evidence of Dr. Vince shows that the incidence of boil-over is not negligible and should not be removed from consideration as a credible worst-case scenario. Dr. Vince quantifies the definition of a credible scenario, stating that a scenario is considered credible if its estimated frequency exceeds  $3 \times 10^{-7}$  per year. The reference estimates that the predicted frequency of boil-over in a terminal holding 26 tanks is greater than  $5 \times 10^{-4}$  per year, over 1,000 times higher than  $3 \times 10^{-7}$  per year.<sup>209</sup> Trans Mountain's assessment does not attribute the credible worst-case scenario to boil-over and it incorrectly states that the worst-case scenario is a pool fire.

#### **4.6.3 Trans Mountain admits that the risk of boil-over is higher than the UK standard**

The NEB asked Trans Mountain to respond to this critical gap in its risk analysis in information request no. 6. In the response, Trans Mountain debates the acceptance of Dr. Vince's United Kingdom (UK) standard and attempts to downplay the risk by only looking at ten tanks, as opposed to the full 26 tanks, but then admits the probability of a boil-over event is higher than the UK standard ( $2.1 \times 10^{-6}$  vs.  $3 \times 10^{-7}$  – approximately 10 times higher).<sup>210</sup> This admission alone points to a critical deficiency in Trans Mountain's application, and a critical underrepresentation of the risk to the Burnaby population, that needs to be assessed prior to the NEB's consideration of whether the Project is in the public interest. Without undertaking such an assessment, the NEB cannot find, on any rational basis, that the Project is in the public interest.

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<sup>207</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 64; Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), pp. 6-7

<sup>208</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 6

<sup>209</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 3

<sup>210</sup> Exhibit B413-1 - Trans Mountain Response to NEB IR No. 6 ([A4R6I4](#)), IR 6.23 pp. 101-106

Trans Mountain instead attacks the standard relied upon by Dr. Vince of  $3 \times 10^{-7}$  per year claiming that “the record suggests that others in the risk assessment profession and in other branches of UK government do not necessarily agree with the HSE.”<sup>211</sup> This is simply wrong. Trans Mountain does not provide support for this statement or a specific reference to what branches of the UK government do not agree with this assessment. The Health and Safety Executive (HSE) is the recognized and legitimate authority on land use planning near hazardous installations in the UK, and the evidence of Dr. Vince, an expert in the field, is that the standard of  $3 \times 10^{-7}$  is fully accepted.<sup>212</sup> Trans Mountain has not provided any evidence as to why this standard should not be applied to an expanded Burnaby Terminal Tank Farm, or as to why it is not an appropriate precautionary approach.

HSE is a statutory consultee on all hazardous substances consent applications. Its role is to consider the hazards and risks which would be presented by the hazardous substance(s) to people in the vicinity, and on the basis of this to advise the Hazardous Substance Authority on whether or not consent should be granted. In advising on consent, HSE may specify conditions that should be imposed by the Hazardous Substances Authority, over and above compliance with statutory health and safety requirements, to limit risks to the public (e.g. limiting which substances can be stored on site, or requiring tanker delivery rather than on-site storage).<sup>213</sup> In this way the HSE plays a similar role to the NEB in recommending conditions to the Governor in Council under the NEB Act.

The HSE has recognized expertise in land use planning near hazardous installations by the government in the UK, and it has a legislated role to provide advice to the Crown on matters within its expertise. It was noted in a government circular that:

In view of their acknowledged expertise in assessing the off-site risks presented by the use of hazardous substances, any advice from HSE that planning permission should be refused for development for, at or near a hazardous installation or pipeline **should not be overridden without the most careful consideration.**<sup>214</sup>

HSE is also part of the UK “competent authority” under the Directive 2012/18/EU of the European Parliament of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances. HSE’s expertise in the UK on land use

<sup>211</sup> Exhibit B417-2 – Trans Mountain Pipeline ULC-Reply Evidence-Part1 (stricken in part) – ([A4S7E9](#)), pp.24-36 - 24-37

<sup>212</sup> The HSE current approach to land use planning confirms the outer risk contour of the outer zone, which determines whether consultation is required with HSE on relevant proposed developments, is set at 0.3 cpm (chances per million per year ) of receiving a dangerous dose - of thermal radiation, blast, toxic inhalation etc. - equivalent to a dose causing 1% fatalities. Thus, by implication a potential accident scenario is “credible” if its expected frequency is 0.3 per million years (i.e. 3 per ten million).

See Health and Safety Executive, “HSE’s Current Approach to Land Use Planning (LUP)”, online: <http://www.hse.gov.uk/landuseplanning/lupcurrent.pdf>, para. 4

<sup>213</sup> Health and Safety Executive, “HSE’s Current Approach to Land Use Planning (LUP)”, online: <http://www.hse.gov.uk/landuseplanning/lupcurrent.pdf>, p. 1

<sup>214</sup> Health and Safety Executive, “HSE’s Land Use Planning Methodology”, online: <http://www.hse.gov.uk/landuseplanning/methodology.pdf>, p. 27, para. 8

planning near, and the risks of, hazardous installations is unquestioned. The standard accepted by them of a credible scenario must be taken into account as a relevant consideration in assessing the risk of the Burnaby Terminal.

Beyond questioning HSE's authority and the acceptance of the  $3 \times 10^{-7}$  per year credibility threshold, Trans Mountain has not provided any evidence as to why this threshold is inappropriately conservative for the Project, and particularly for the Burnaby Terminal Tank Farm, given the proximity of the surrounding population. Trans Mountain readily admits that the risk of boil-over is greater than the UK standard –  $1.5 \times 10^{-6}$  per year to  $2.1 \times 10^{-6}$  per year.<sup>215</sup> This is still a significant risk – approximately ten times higher than the UK standard – even with Trans Mountain's inappropriate attempts to minimize the numbers. The fact that Trans Mountain classifies this risk as "extremely low" and refuses to assess it shows an apparent disregard for the safety of the Burnaby public.

Trans Mountain admits that the risk is greater than the UK standard, even after factoring in the mitigations and design measures proposed by Trans Mountain and reducing its consideration to 10 tanks, not 26 tanks. Trans Mountain acknowledges that it "has not completed detailed risk assessment work to be able to determine quantitatively the reduction in theoretical boil-over probability for the specific tanks, given all of the incident frequency reduction measures proposed, assuming such quantitative risk assessment work is practically feasible."<sup>216</sup> Yet, Trans Mountain proceeds to apply these measures to reduce its calculation of the risk of a boil-over, without any evidence that they would in fact do so.

Trans Mountain only considers the risk of ten tanks, hypothesizing that that is the number of tanks that would affect any given individual, without evidence. In doing so, Trans Mountain completely disregards the risks to the Burnaby public and Burnaby environment as a whole and the potential for a boil-over event to have a domino-effect on the surrounding tanks, igniting those tanks, and causing greater risks to and evacuation hurdles for any given individual. Trans Mountain further ignores the risks to Burnaby firefighters that would have to respond to fires at all of the tanks and would be faced with the cumulative risk of all of the tanks, effectively reducing their ability to control any boil-over event. For these reasons, an appropriately conservative risk assessment must take into account the cumulative risk based on the total number of tanks proposed to be included in the Terminal. Trans Mountain has failed to do so.

As stated by Dr. Vince a "valid risk assessment (addressing both severity and likelihood), with due consideration of boil-over, would in my opinion lead to the conclusion that the risk is already high and would become intolerably high (by my understanding of MIACC as well as by UK criteria) if the expansion went ahead."<sup>217</sup>

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<sup>215</sup> Exhibit B413-1 - Trans Mountain Response to NEB IR No. 6 ([A4R614](#)), IR 6.23 p. 104

<sup>216</sup> Exhibit B413-1 - Trans Mountain Response to NEB IR No. 6 ([A4R614](#)), IR 6.23 p. 104

<sup>217</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 8

Trans Mountain admits that there is a risk of boil-over. Yet, Trans Mountain has refused to undertake an assessment of boil-over as a credible worst case scenario, and has not determined whether the proposed reduction measures would reduce the frequency of boil-over. The NEB has acknowledged that Trans Mountain's risk assessment is inadequate in this regard, and specifically requires a complete assessment, including the consideration of the potential consequences of boil-over and the potential mitigation measures.<sup>218</sup> But this is not a proper post- approval condition – this is a basis for rejecting the application.

## **4.7 Other Potential Fire Risks**

### **4.7.1 Multiple Tank Fire**

Fires occurring at the Burnaby Terminal Tank Farm will have a potential to be severe in magnitude, and spread to multiple tanks. Inherent in the layout of the Burnaby Terminal is the potential for a fire to occur in such close proximity to adjacent tanks that subsequent ignition of additional storage tanks is a dangerous reality. A significant emergency management concern for this facility is the escalation from a single tank fire to a multiple tank fire event. The resource requirements, complexity and risk of a multiple tank fire usually prevent safe firefighting of such an event.<sup>219</sup>

The proposed location of the Project effectively increases the risk of event escalation to a multiple tank fire due to the reduction in tank spacing. Trans Mountain has not shown that it has the capability to contain such a fire, and to access the tanks during such an event. The NEB has recognized the need to consider the cumulative risk or domino effect of tank fires for the Project (Condition 29). The risk of a multiple tank fire would not be so prevalent at a location where sufficient tank spacing was possible.

### **4.7.2 Tank Fire Burnout**

The location of the Burnaby Terminal Tank Farm and Trans Mountain's failure to identify firefighting capacity may necessitate leaving a tank to burnout, exposing the surrounding population to toxic smoke, and requiring evacuation. Tank fire burnout has historically been utilized as a contingency option for fire extinguishment when there is a lack of firefighting resources or when the facility design precludes safe offensive firefighting operations.

A tank fire burnout exposes the surrounding community to the heat discharge and toxic smoke for the full duration of the fire until all the oil is burned off (2-4 days), making evacuation necessary. The evidence of Deputy Bowcock is that tank fire burnout for the Project would require the evacuation of the communities surrounding the Burnaby Terminal Tank Farm constituting an emergency response of provincial scale. Trans Mountain has not provided an evacuation plan for the communities surrounding

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<sup>218</sup> Exhibit A199-3 – National Energy Board – Procedural Direction No. 17 – Draft conditions for comment – Appendix A ([A4S1G2](#)), p. 13, Condition 29 “Updated terminal risk assessments”

<sup>219</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 6

Burnaby in the event of a burnout scenario. Instead, Trans Mountain deflects that obligation to others.<sup>220</sup>

If tank fire burnout for the Project had to be utilized, Deputy Bowcock notes that “preventing fire extension throughout the TMTF and the adjacent community would by no means be assured.” He concludes that “significant potential exists that due to the proposed configuration, density, complexity and proximity to the community impacts and fire spread potentials that would create scenarios where fire containment is not possible.”<sup>221</sup> Trans Mountain has failed to demonstrate that it would have the capability to respond to such an event.

#### **4.7.3 Release of Toxic Smoke Plumes**

A crude oil fire at the Burnaby Terminal Tank Farm would result in the release of toxic smoke plumes, exposing the surrounding population to gases, metals, sulfur compounds, soot clouds, and nitrogen oxides. Trans Mountain has stated that it expects that toxic smoke discharge after a fire from the TMEP will occur for 1-2 days before extinguishment. This would discharge enough toxic smoke to affect the entire Greater Vancouver Regional District, with particular health hazards for Burnaby residents. Again if the Burnaby Terminal was located further from residents, such effects would not be so pronounced.

The following photographs are from a tank fire in Buncefield, UK, which indicate the potential smoke impacts that could occur from a fire from the Burnaby Tank Farm:<sup>222</sup>



#### **4.7.4 Heat Discharge against Fenceline**

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<sup>220</sup> Exhibit B313-28 Trans Mountain Response to City of Burnaby IR No. 2 ([A4H8A1](#)), IR No. 2.024a, p. 87; see also See Exhibit C69-44-11 City of Burnaby – Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#))

<sup>221</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 7

<sup>222</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), pp. 72-73

The TMEP increases the potential of exterior fenceline heat impact by a magnitude of 7.5 times in the event of a fire.

As noted above, the Project will reduce the buffer between the tanks and the surrounding communities and conservation areas, increasing the risk of heat exposure and fire spread to these communities and areas. The current Burnaby Terminal Tank Farm has the potential to cause heat impacts to exterior fenceline areas from only 2 tanks, while the proposed expansion will create potential heat impacts to exterior fenceline sensitivities from 15 tanks – directly increasing the likelihood of fire impacts to the surrounding population.

In addition, the heavily forested Burnaby Mountain Conservation Area, surrounding the Burnaby Terminal is highly sensitive to heat exposure from a tank or dike fire, with potential for development of a rapidly advancing “High Tree Top Wildfire” event.<sup>223</sup> The loss from such an event could include:

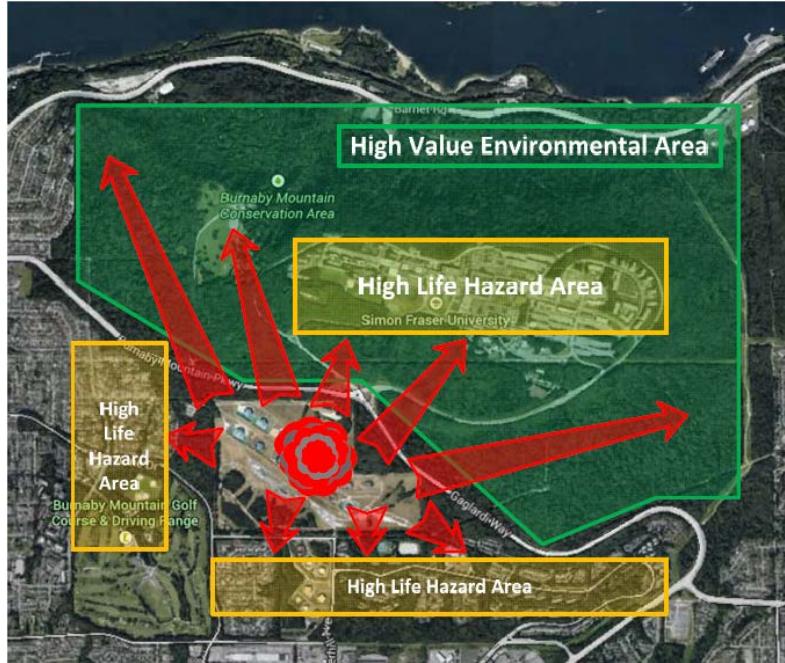
- significant forest loss on Burnaby Mountain prior to extinguishment;
- significant risk of heat wave impact back on the TMTF and potential ignition of additional crude oil storage tanks;
- significant property loss adjacent to the Burnaby Mountain Conservation Area;
- isolation of the access/egress routes from SFU and UniverCity until extinguishment is achieved;
- potential impacts to the Suncor Burrard Products Refined Hydrocarbon Storage Tanks in the Glennyre neighborhood of Port Moody; and,
- long duration loss of the parks and recreation usage and quality of the Burnaby Mountain Conservation Area.<sup>224</sup>

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<sup>223</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 77

<sup>224</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 77-78

The following diagram indicates the wildland fire impact potential:<sup>225</sup>



#### 4.7.5 Flammable Gas Outfall of the Fenceline

The release of crude oil products from containment tanks can result in the potential for flammable gas or “light ends” to escape outside the fenceline. The risk for flammable gas ignition outside the fenceline is extremely high for the Project based on the highly populated areas surrounding the Burnaby Terminal Tank Farm, and abundance of ignition sources.

The proximity of the release to the fenceline is of significant issue. Typically the hazard of a flammable gas release is reduced by the “weathering” of the flammables prior to their engagement with an ignition source. Weathering will not be possible in this case because of the location of the Burnaby Terminal in proximity to the surrounding population.

The diagram below indicates the areas of ignition potential from a flammable release:<sup>226</sup>

<sup>225</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 78

<sup>226</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 68



Despite this significant risk to the surrounding Burnaby population, Trans Mountain in response to a Burnaby information request admits that it will not be providing an early warning system to communicate risk of such events to the public.<sup>227</sup>

#### 4.8 Tank Spill Risk

Hydrocarbon Tank Farms by the nature of the commodities received, stored and transported out have inherent potential for emergency event occurrence. Loss of containment of hydrocarbon products does and will happen.

The potential for a release of crude oil at the Project may occur by several means including tank overfill, the physical failure of containment provisions, human error and damage associated with improperly controlled industrial work in proximity to tanks or piping. The release potential stemming from a regional seismic event is a real threat for the Burnaby Terminal that has the potential to release the contents of several if not all of the storage tanks simultaneously, overwhelming the facilities retention provisions and flowing unrestricted to high populated residential areas and sensitive environmental habitats.<sup>228</sup> Trans Mountain has not properly assessed the risk of the “domino effect” caused by the release of the contents of one tank on other tanks within the Burnaby Terminal. The NEB has acknowledged this gap in Trans Mountain’s risk assessment by making it a ‘post- approval condition’ that Trans Mountain address this risk and develop mitigation measures (Condition 29). Trans Mountain’s emergency response and secondary containment system is not proposed to withstand such an event. Trans

<sup>227</sup> Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR No. 1.07.23e) p. 188; Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 66

<sup>228</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 24

Mountain, in its reply evidence, merely denies that this is a credible scenario for the Burnaby Terminal, and does not propose to address it.<sup>229</sup>

Trans Mountain again focuses on the likelihood of occurrence of a multiple tank spill, instead of preparing to address such a spill. The risks of such a spill are exponentially increased because of the location chosen for the Project – on a slope above communities with the potential for crude oil to travel downhill onto homes and businesses, and in the area with the greatest seismic risk in Canada. No mitigation measures would be able to ameliorate the inherent risks of locating this volume of crude oil above communities in a seismic area – such inherent risks are clearly not in the public interest.

#### **4.9 Burnaby Fire Department does not have the Capability to Respond to Emergencies associated with the Project**

The Burnaby Fire Department does not have the response capacity or equipment to respond to a hydrocarbon fire at the Burnaby Terminal Tank Farm. Trans Mountain has not addressed this gap in emergency capacity, instead continuing to blindly rely on the Burnaby Fire Department to respond to emergencies at the Terminal.

On May 30, 2014, Trans Mountain advised the Burnaby Fire Department, that the facility no longer has the emergency response capability to extinguish fire events with internal facility resources, and that additional hydrocarbon specialized firefighting resources from regional facilities are no longer available.<sup>230</sup> Trans Mountain has completely dismantled its internal firefighting capability on the eve of this expansion. Trans Mountain, thus, will not be able to respond to a fire within its facilities, and is not proposing to develop that capacity in the application.

The report of Mr. Bowcock, Deputy Fire Chief, reviews the capability of the Burnaby Fire Department, and the extent of emergency response preparedness required to safely operate an expanded facility at the Burnaby Terminal location. The report concludes that the Burnaby Fire Department currently does not have the capability to provide specialized hydrocarbon firefighting. The Burnaby Fire Department provides support and assistance to companies within Burnaby with fenceline operations and basic structural firefighting issues, including augmenting remote water supply and low hazard exposure protection. However, the Burnaby Fire Department would require significant resource and staff increases to simultaneously manage interior and exterior fenceline operations during a hydrocarbon fire event.

If the NEB were to recommend that the Project is in the public interest at this stage, then the NEB would be condoning a Project in close proximity to Burnaby residents, with a high fire risk, where there is no evidence of a capability or capacity to respond to

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<sup>229</sup> Exhibit B418-2 – Trans Mountain Reply Evidence-Attachment 1.03-Reply to Burnaby Fire Department Risk Analysis Rpt ([A4S7K0](#)), pp. 27-29

<sup>230</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 7

fire events. This utter disregard for the safety of Burnaby residents must not be condoned, and Trans Mountain must be required to show firefighting capacity prior to the NEB's consideration of the Project.

It is not sufficient that the NEB proposes to make conditions of approval that Trans Mountain consult with municipalities on firefighting capacity and file a report with the NEB for approval on the adequacy of the proposed fire protection and firefighting systems.<sup>231</sup> Adequate fire protection and firefighting systems need to be in place before the NEB considers approval of the Project, unless the NEB considers the extreme fire risk to the public of Burnaby irrelevant to the public interest.

#### **4.10 Trans Mountain has not provided its Final Design for Burnaby Terminal Tank Farm Fire Protection**

Despite the Board requesting information on Trans Mountain's fire protection at the Westridge and Burnaby Terminals, Trans Mountain has not provided its final design for fire suppression systems, and has put off providing this until the detailed engineering phase of the Project.<sup>232</sup> All Trans Mountain's proposed fire detection technologies are just that, proposals. These are proposals that Trans Mountain is considering, but has no obligation to implement.<sup>233</sup>

It is noted by Deputy Bowcock, on behalf of Burnaby, that the proposed design elements of the Burnaby Terminal Tank Farm lack "appropriate consideration for original facility fire protection premises and industry best practices in petroleum fire protection, as the proposal only seeks to comply with minimum federal and provincial code requirements."<sup>234</sup> The NEB in response only requires Trans Mountain to provide a report 90 days prior to applying for leave to open that says its fire protection systems are adequate.<sup>235</sup> This self-serving report will not be subject to testing by intervenors, or approval by the Board – it must simply be filed. This is not sufficient to ease the concerns of Burnaby about protecting the public from fire risk, and should not be sufficient in any rational review process for the Project.

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<sup>231</sup> Exhibit A199-3 – National Energy Board – Procedural Direction No. 17 – Draft conditions for comment – Appendix A ([A4S1G2](#)), p. 44, Condition 109 "Terminal fire protection and firefighting systems", and p. 48, Condition 118 "Firefighting capacity at terminals"

<sup>232</sup> Exhibit B239-13 – Trans Mountain Pipeline ULC – Trans Mountain Response to NEB IR No. 2 ([A3Z4T9](#)), IR 2.118, pp. 432-436, IR 2.127, p. 458; Exhibit B306-2 – Trans Mountain Pipeline ULC – Trans Mountain Response to NEB IR No. 3 ([A4H1V2](#)), IR 3.065, pp. 405-406, IR 3.081, pp. 444-447; Exhibit B371-2 – Trans Mountain Pipeline ULC – Trans Mountain Response to NEB IR No. 4 ([A4K4W3](#)), IR 4.28, pp. 118-120

<sup>233</sup> Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p. 134

<sup>234</sup> Exhibit C69-44-2 – City of Burnaby - Burnaby Fire Department - Trans Mountain Tank Farm Tactical Risk Analysis – Part 1 – Report and Appendix A ([A4L8F6](#)), p. 3

<sup>235</sup> Exhibit A199-3 – National Energy Board – Procedural Direction No. 17 – Draft conditions for comment – Appendix A ([A4S1G2](#)), p. 44, Condition 109 "Terminal fire protection and firefighting systems"

#### **4.11 Conditional Access to Emergency Response Plans**

Trans Mountain's imposition of conditions before providing municipalities and emergency responders with access to their plans is deserving of strong adverse comment.

In their response to the various Notice of Motions<sup>236</sup> in respect of the Emergency Management Plan (EMP), and to Burnaby's Response, Trans Mountain demanded that "as a taxpayer" it "expects the provision of emergency services" from the City. It declared that position at the same time it was denying access to Burnaby to EMP documents. It took an Order of the Board to require access, and even then, the company provided only a partial and expurgated version.

The proponent's refusal to provide unconditional access to emergency plans to Burnaby and other governmental agencies, and reliance on 'commercial' confidentiality concerns suggests that the proponent believes that they 'own' the response plans and not consistent with an understanding that it is the citizens of Burnaby who will bear the impacts of any emergency.

The insistence on signed agreements, with the company controlling the conditions under which it will 'grant' access is unprecedented. One of the proposed conditions required was one that would require that "the authority has, or is willing to, participate in consultations with Kinder Morgan Inc." – a blatant attempt by Kinder Morgan to impose its interests on the municipality as a condition of sharing emergency plans.

This approach to emergency matters is indicative of a self-interested, commercial interest, and the willingness to hold the public interest hostage to the companies own agenda, even in critical emergency matters. This approach cannot be fixed by any NEB conditions – it is an attitude and an approach to other interests that must factor heavily into questions of whether this company can be trusted with the public interest.

It is also indicative of a company that believes that local and provincial governments have no regulatory control or power over their activities.

Burnaby has had a wholly unsatisfactory history with Kinder Morgan as the operators of the Trans Mountain pipeline and this application, and submits that this company cannot be trusted to protect the citizens of Burnaby in emergency situations.

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<sup>236</sup> Exhibit A79-1 – Ruling No. 31 – Trans Mountain Pipeline ULC – Request to file Emergency Management Program documents confidentially ([A4C3Y5](#)); Exhibit C77-12-1 – City of Vancouver – Response to Trans Mountain Notice of Motion dated August 1, 2014 ([A4A0F7](#)); Exhibit C69-16-2 – City of Burnaby – Response to Trans Mountain Notice of Motion of August 1, 2014 ([A4A0S5](#)) Exhibit C289-6-2 Province of B.C. Notice of Motion #2 and Attachments – Dec. 05, 2014 ([A4F7Q9](#))

## 4.12 Summary

The application for expanding the Burnaby Terminal Tank Farm would have failed in the UK and, in all probability, throughout the European Union. The application must similarly fail here based on any rational assessment of risk. As noted by Dr. Vince:

I have seen no evidence that the applicant has considered alternative sites for the extra storage tanks in appropriate detail or at all.

The risk assessment carried out on behalf of the applicant contains several serious deficiencies, the most important of which is that it fails to give due regard to the credible worst case scenario of tank boil-over and incorrectly states that the worst case is a pool fire.

A valid risk assessment (addressing both severity and likelihood), with due consideration of boil-over, would in my opinion lead to the conclusion that the risk is already high and would become intolerably high (by my understanding of MIACC as well as by UK criteria) if the expansion went ahead, in view of the logistical complexity of fire fighting on a congested and sloping site, the proximity of residential areas and forestry and the difficulty, in an emergency, of safely evacuating Simon Fraser University.<sup>237</sup>

Trans Mountain has failed to address the significant gaps in its risk assessment for the Burnaby Terminal, and has not demonstrated that it has sufficient emergency response capacity to protect the Burnaby public from emergencies associated with the Project. There is no need for the Project that can justify the substantial risks to the Burnaby population that have not been adequately assessed or accounted for in relation to the increase in tank density at the Burnaby Terminal.

Given the nature of the site and its constraints, and the nature of the surrounding neighborhood, this is simply the wrong location for an expanded tank farm. As noted above (at s. 3.4.1), the applicability of proper planning criteria for tank farm location, as was done in Edmonton, should lead to a very different conclusion in relation to this site.

The expansion of the Burnaby Terminal Tank Farm within its current location is unjustified, and creates unacceptable and severe risks that cannot be adequately mitigated to the City of Burnaby, the surrounding residents, to Simon Fraser University and its residents and to firefighters and emergency personnel.

The proponent has failed to consider alternative sites for the expanded Burnaby Terminal Tank Farm, and failed to justify the use of this site for the expanded terminal under any reasonable modern planning criteria

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<sup>237</sup> Exhibit C69-44-12 – City of Burnaby - Opinion on Potential Off-Site Risks of the Proposed Expansion of Burnaby Tank Farm ([A4L8G6](#)), p. 8

## 5. Westridge Marine Terminal

Quite apart from the risks of a spill at the Westridge Marine Terminal, including the risk of a loading arm malfunction, and the related human and environmental health impacts outlined in Section 6, the Westridge Marine Terminal poses human health risks from operational air emissions, while the incomplete geotechnical assessment submitted by Trans Mountain does not dispel the risks the terminal faces from various geotechnical hazards. The risk modelling for this critical component of the Project is misleading, deficient, or both. The Project application cannot be approved under such circumstances.

### 5.1 Geotechnical Assessment is inadequate

Trans Mountain's Application provides insufficient geotechnical information related to the assessment of the site of the Westridge Marine Terminal. Golder Associates was retained by Trans Mountain to do an offshore geotechnical investigation at the site of the Westridge Marine Terminal. An expert review of this study submitted by an intervenor was highly critical of this report, unveiling a great number of deficiencies in its conclusion that "the report does not present a comprehensive geotechnical assessment of the site."<sup>238</sup> Further,

"the[re] are many areas of concern and deficiencies and they need to be fully addressed, included and considered in design, and be provided to the City of Burnaby and other project stakeholders. Golder's Preliminary Geotechnical Review, in author's opinion, provides minimal general preliminary geotechnical information and guidelines to proceed with the next level of detailed offshore geotechnical design and detailed offshore geotechnical investigation of the berthing facility. The geotechnical deficiencies observed in this report does not grant TMPL/KMC to further proceed with the offshore facility."<sup>239</sup>

The studies performed provide only a preliminary survey of the site and leave critical questions unanswered including the potential effects of existing, regular and ongoing stressors, as well as the effects of severe geo-hazard events. For example, Trans Mountain admitted its evaluation of the risk of liquefaction as a result of construction activities would only be undertaking unless and until detailed planning is done after Project approval.<sup>240</sup> The Board has recognized this information gap, and the significance of the risk it poses through the issuance of Draft Condition 26 & 27."<sup>241</sup>

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<sup>238</sup> Exhibit C69-44-5 Evidence of the City of Burnaby – Westridge Marine Terminal Geotechnical Investigation ([A4L8F9](#)), p 7. A summary of deficiencies and concerns with the report follows the general conclusions in the report

<sup>239</sup> Exhibit C69-44-5 Evidence of the City of Burnaby – Westridge Marine Terminal Geotechnical Investigation ([A4L8F9](#)), p. 7

<sup>240</sup> Exhibit B118-1 – Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR 1.32.05, p. 502

<sup>241</sup> Exhibit A199-3 – National Energy Board – Procedural Direction No. 17 – Draft conditions for comment – Appendix A ([A4S1G2](#)), p. 12, Condition 26 "Westridge Marine Terminal Onshore Geotechnical Report" and Condition 27 "Westridge Marine Terminal Offshore Geotechnical Report"

Without this information, the true nature of the risk posed by various geotechnical risks, such as that of a tsunami, seismic event, or liquefaction to the Westridge Marine Terminal cannot be ascertained. The Project Application is incomplete and the risks are too high. It is unacceptable to approve the project now, and leave assessment of major risks to a later post-approval ‘condition’ stage.

## 5.2 Operational Air Emissions

The impacts to air quality from the terminals planned in or expanded in the city of Burnaby are of great concern to the city and its residents. Many of the Volatile Organic Compounds (“VOC”) that the Westridge Terminal would emit are highly toxic, while others contribute to the secondary formation of ground level ozone, which is a special concern in the region due to the existing impacts to and sensitivity of the Fraser Valley airshed.<sup>242</sup> The Project’s impact to ambient air quality in the region deserves careful consideration.

Trans Mountain’s updated application indicates that the VOC emissions during ship loadings at the Westridge Marine Terminal will not exceed the Alberta Air Quality Objectives (AAAQOs). However, in getting to this conclusion, the application assumes a near perfect 99.9999% collection efficiency,<sup>243</sup> which is also is considerably higher than the 90% collection efficiency assumed in the original Application.<sup>244</sup> Expert intervenor evidence has noted that

Given that (a) the design of the system is not yet finalized, (b) Trans Mountain has not provided data to support the claimed collection efficiency of their existing Westridge system, and (c) Trans Mountain have made no specific commitment to meet vapour collection requirements equivalent to the US EPA / Coast Guard regulations or TCEQ guidelines, Novus recommends that more conservative collection efficiencies than 99.9999% be used to assess VOC-related air quality impacts of the upgraded Westridge Terminal.<sup>245</sup>

This extreme collection efficiency is not credible and the Board cannot rely upon it. The emissions assumptions need to be re-assessed based on a reasonable collection efficiency prior to a decision being made on the Project application. Without the benefit of this information, the environmental burden, and in particular its effect on Burnaby residents cannot be effectively determined. Intervenor evidence that has analyzed Trans Mountain’s data with such a collection efficiency shows that the air quality impacts exceed applicable standards for various substances.

<sup>242</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 23

<sup>243</sup> Exhibit B316-16 - Trans Mountain Response to Metro Vancouver IR No. 2 ([A4H8U8](#)), IR 2.2.1c), pp. 69-72

<sup>244</sup> Exhibit B6-10 – V5C TR 5C4 02of9 AIR GHG ([A3S1U1](#))

<sup>245</sup> Exhibit C234-7-21 – Metro Vancouver Written Evidence – Exhibit 16 – Novus Metro Vancouver AQ Modelling Final Report ([A4L8A2](#)), pp. 6-7

Assuming a credible collection efficiency of 95% or 99%, Westridge terminal would exceed the maximum allowable emissions for Benzene in the AAAQO of 30 µg/m<sup>3</sup>.<sup>246</sup> The hourly benzene concentrations at the maximum point of impingement outside the Westridge Terminal fenceline would exceed this objective under a 99% collection efficiency (34 µg/m<sup>3</sup>), or exceed this object significantly under a 95% collection efficiency (150 µg/m<sup>3</sup>) under peak emissions scenarios.<sup>247</sup> Based off Trans Mountain's modelling, Sulphur dioxide (SO<sub>2</sub>) emissions will also exceed Metro Vancouver's interim ambient air quality objective for SO<sub>2</sub> for the Burrard Inlet generally, and for the North Vancouver neighbourhood of Queensbury in particular.<sup>248</sup>

Particulate matter emissions from the Westridge Marine Terminal are also of great concern to the City of Burnaby due to the negative health impacts that are associated with any increase in levels.<sup>249</sup> Trans Mountain's original application indicated that the Project emissions would exceed Metro Vancouver's objectives for 24-hour PM<sub>10</sub> and PM<sub>2.5</sub>. In an update to its application information, Trans Mountain altered this figure such that it would not exceed this objective, based on the mitigating effect of employing a type of equipment it in fact *not be using*, and would not provide data for the equipment it will be using to justify that its performance will be similar.<sup>250</sup>

Further, the models employed in Trans Mountain's terrestrial air quality dispersion modelling do not depict the area surrounding the Westridge Terminal and Burnaby Mountain accurately, incorrectly labelling forest and parkland as urban.<sup>251</sup> Due to the sensitivity of land use in the CALMET/CALPUFF modelling suite employed by Trans Mountain, the outputs of the air quality dispersion modelling will not be accurate.

Based on the flawed modelling submitted as evidence by Trans Mountain, the air quality impacts of the Project have been significantly underrepresented. These deficiencies include a mischaracterization of the nature of the surrounding environment, a mischaracterization the type of equipment it will use, and an unrealistic assumption of the VOC collection efficiency. Until these deficiencies are remedied, Trans Mountain's evidence is not credible, the Board cannot rely upon them, and the Project Application

<sup>246</sup> Benzene is listed on the Canadian Environmental Protection Act (CEPA) 1999 List of Toxic Substances (Schedule 1), Metro Vancouver's 2007 "Air Toxics Emission Inventory & Health Risk Assessment" and the more recent 2015 Canadian Lower Fraser Valley "Toxic Air Pollutants Risk Assessment". See Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 23.

<sup>247</sup> Exhibit C234-7-21 – Metro Vancouver Written Evidence – Exhibit 16 – Novus Metro Vancouver AQ Modelling Final Report ([A4L8A2](#)), pp. 19-20.

<sup>248</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 39.

<sup>249</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 31, citing Exhibit C234-1-11 - MV IR 1 supplementary references vol 3C AQ ([A3W7C8](#))

<sup>250</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 31, citing Exhibit B344-2 Response to Metro Vancouver IR No. 2 Notice of Motion (A4J5G9), IR 2.1.01b), p. 1

<sup>251</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 32.

cannot be approved. NEB Draft Condition 19, which requires an Air Emissions Management Plan to be submitted six months prior to construction, is insufficient to address and alleviate the major health risks posed by air emissions, and would come too late to adequately assess the human health risks of the Project.<sup>252</sup>

Trans Mountain's claim that there is insufficient evidence to indicate that Diesel Particulate Matter (DPM) poses a quantitative cancer health risk standard in stark contrast to the weight of evidence. The International Agency for Research on Carcinogenicity ("IARC") classifies DPM as a Group 1 carcinogen,<sup>253</sup> and Metro Vancouver has identified DPM as the single most significant contributor to lifetime cancer risks associated with ambient toxic air pollution in the region.<sup>254</sup>

Existing background DPM levels in the areas surrounding Burrard Inlet (1.24 µg/m<sup>3</sup>), already result in DPM cancer risks in excess of Health Canada's screening level.<sup>255</sup> However, even if the background levels are ignored, the incremental emissions associated with the Project Application and Cumulative scenarios result in maximum DPM concentrations and associated cancer risks that exceed the 10 per million screening level by a considerable margin.<sup>256</sup> This result sits in contrast to the average DPM concentration and associated cancer risks that Trans Mountain presented in their Response to Fraser Valley Regional District IR No. 2.<sup>257</sup> As a result of these discrepancies, it is vital that further dispersion modeling and associated human health risk assessment be performed to clarify the validity of the assumptions underpinning the existing analyses.

Without an accurate assessment of the incremental and cumulative DPM impacts and the effects the Project could create to the region, the Project Application should not be considered.

### **5.3 Summary**

The risks of the Westridge Marine Terminal in its current location are too great. There has been an inadequate consideration of geotechnical risks. The impacts of air emissions on air quality and human health have been inadequately examined and are unacceptable. The oil spill risks at this location are unacceptable and would have

<sup>252</sup> Exhibit A199-3 – National Energy Board – Procedural Direction No. 17 – Draft conditions for comment – Appendix A ([A4S1G2](#)), pp. 8-9, Condition 19 “Air Emissions Management Plan for the Westridge Marine Terminal”

<sup>253</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 45.

<sup>254</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 43.

<sup>255</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), pp. 47-8.

<sup>256</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 48.

<sup>257</sup> Exhibit B315-44 - Trans Mountain Response to FVRD IR No. 2 ([A4H8S0](#)), IR 2.12a) Table 2.12A-2, p. 66

greater impact by reason of the urban location and the use of these waters. The proposed expansion of the Marine Terminal at this site is not in the public interest.

## **6. Oil Spill Risk and Response**

Oil spills – both on land and at sea – can and will happen.

The suspect methodology of Trans Mountain to try to mathematically wish the risk away by arguments of probability or ‘credible spill’ or hypothetical ‘best and worst case analysis’ cannot disguise the clear fact that there is a risk of spills. NO amount of risk-mitigation will eliminate the risk. The question is not ‘whether’ a spill will happen, but rather ‘when’ and ‘how much’ the impact will be.

In this context, the primary question of importance, if the pipeline must be built somewhere, and where risk cannot be eliminated, is whether this is the optimum location – i.e. if there is a risk or a measurable likelihood of eventual spills, is this really the best location?

That question also requires a transparent assessment and comparison, assuming a spill, of the relative impacts between this particular location and any others. Any reasonable assessment of the impacts of a major spill in the proposed locations – through a major municipality and the most populated and highly used port in British Columbia – shows that there is a disproportionately higher impact of oil spills from this proposed project than any reasonable alternative.

To accept the proponent’s self-serving methodology and language, and to pretend there is no risk, would require the NEB to ignore reality, common sense and do a deep dis-service to the public interest. And yet, in the current process to date, the NEB has shown no real interest in a proper analysis of the substantial impacts of an oil spill in Metro Vancouver or in Burrard Inlet. Indeed, the NEB process has failed to demand a serious analysis from Trans Mountain, has failed to critically question or test TM’s methodology, and has failed to respond to the Intervenors’ numerous requests to require Trans Mountain to properly answer IRs on this most important matter.

### **6.1 Trans Mountain didn’t properly analyze the risk of the Project**

The risks of a land- or marine-based oil spill have been consistently and significantly minimized by Trans Mountain. The risk assessment methodology that Trans Mountain relies upon is not fully disclosed or publicly tested and therefore can’t be properly scrutinized. The analysis relies on dated or inappropriate data, and makes untenable assumptions, while its findings stand as a suspect outlier to the weight of evidence formed by all other evidence on the record.

Put simply, Trans Mountain wants to mislead the public into believing that its pipeline and tanker project is safe when its existing pipeline and recent tanker and pipeline accidents have proven otherwise. Burnaby and its residents face the greatest risk of any municipality due to the entirely new pipeline that would cut through the city, as well as the tank farm and marine terminal that are already located within city limits.

### **6.1.1 Trans Mountain Pipeline accidents are frequent**

Contrary to Trans Mountain’s claim that its pipeline has “been operating safely for more than 60 years,” oil spills have been a regular occurrence since it became operational in 1953. Between 1961 and 2013, the company has *reported* 81 oil spill events to the NEB for a total volume of nearly 5.8 million litres.<sup>258</sup> This total averages out to more than three spills every two years, and almost 110,000 litres of spilled oil per year. A study using TM’s historic failure rates has estimated that a large spills (over 1,000 barrels), can be expected once every 7 years.<sup>259</sup>

The Lower Mainland has been particularly impacted by Trans Mountain pipeline ruptures through three substantial spills in the last decade. In 2005, 210,000 litres of crude oil spilled near Abbotsford; in 2007, 234,000 litres of crude oil spilled in Burnaby and drained into the Burrard Inlet; in 2009, 277,000 litres spilled from the tanks at the Burnaby Terminal Tank Farm.<sup>260</sup> If past performance is an indicator of future success, the tripling of dilbit that would be carried by Trans Mountain is an ominous prospect.

### **6.1.2 Trans Mountain’s risk assessment modelling lacks credibility**

The risk assessment methodology used by Trans Mountain has been widely criticized for its lack of transparency, reasonableness of analytical approach, and a lack of uncertainty analysis, among other deficiencies. By creating this critical information gap, it is not possible to definitively evaluate the outcomes of their assessment. What we do know is that the conclusions of their risk assessment of both a pipeline rupture and for a tanker spill stand in stark contrast to the results of internationally accepted standards, relevant industry competitors and historical data.

Perhaps most concerning is Trans Mountain’s treatment of worst case scenarios. Trans Mountain would like the Board to believe that a major spill is not possible, so they effectively ignore it or omit it from their qualitative and quantitative risk assessment. By substituting hazard probability for risk, it has completely omitted the high consequence, low probability events from its risk assessment.<sup>261</sup> Trans Mountain’s risk assessment

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<sup>258</sup> Exhibit C77-27-19 – Written Evidence of the City of Vancouver – Appendix 18 – Written Evidence of Sean Kheraj ([A4L7X6](#)), p. 40

<sup>259</sup> Exhibit C227-7-5 – Matsqui First Nation Written Evidence – Matsqui First Nation Impact Assessment (part1of2) ([A4L8J2](#)), p. 31, citing Exhibit B60-1 – Trans Mountain Response to Eliesen M IR No. 1 ([A3X6D1](#))

<sup>260</sup> Exhibit C77-27-19 – Written Evidence of the City of Vancouver – Appendix 18 – Written Evidence of Sean Kheraj ([A4L7X6](#)), pp. 31-32

<sup>261</sup> Exhibit C77-27-1 – Written Evidence of the City of Vancouver ([A4L7V8](#)), p. 26

approach therefore does not comply with CEAA evaluation criterion<sup>262</sup> or the Board's approach in the Northern Gateway Pipeline.<sup>263</sup>

TM has fabricated a truly restrictive interpretation of "credible" to justify its limited consideration of malfunctions and other spills. Credible has been defined by the Oxford Dictionary as "able to be believed". Intervenors have cited an assortment of historical analogous spills that exceed what TM interprets as "credible" examples of worst case scenarios to be considered in a risk analysis. To approve this project on that analysis requires pretending that these events never took place or could ever take place again, or completely ignoring the public interest that is broader than mere economics or oil and pipeline company interests.

Trans Mountain's analysis of the risk of pipeline rupture is skewed by their limited assessment of potential causes thereof.<sup>264</sup> For example, they omit the consideration of the risk from natural hazards, which alone would skyrocket the risk of a full bore rupture to every 2.3 years.<sup>265</sup> They further dismiss the risk from internal or external corrosion, which alone accounted for 40% of ruptures according to the US Pipeline and Hazardous Materials Safety Administration (PHMSA) on the basis that TM will be constantly monitoring for this risk.<sup>266</sup> Not surprisingly, this perversion of risk assessment leads to wildly lower forecast for pipeline ruptures than would be expected by the application of historical data from Enbridge or the PHMSA.<sup>267</sup> The formula followed for their risk determination cannot be tested, and cannot be trusted.

Trans Mountain's assessment of tanker spill risk also does not add up. The application of TMEP data to internationally accepted spill risk methodologies leads to an assessed risk of 58-98% chance of a tanker spill over a 50 year period, whereas Trans Mountain assumes this risk to only be 16% with its mitigation methods.<sup>268</sup> The narrow scope that the TM analysis follows is a major reason why. Their assessment excludes low probability, high consequence events that exceed a "credible worst case scenario" as well as excluding high probability, low consequence events such as bunker fuel spills.<sup>269</sup>

<sup>262</sup> This is also in line with the CEAA 2012 evaluation criterion, which requires assessment of two components to define risk: the severity of an adverse impact and the likelihood of an adverse impact occurring. See Exhibit C358-13-15 – Tsleil-Waututh Written Evidence - Vol 5 Tab 4A Appendix 1 Assessment of Spill Risk Report ([A4L6A6](#)), p. i

<sup>263</sup> A proper risk assessment, and one that was employed in the Northern Gateway Pipeline Board review, considers both the hazard (probability/severity) and the consequence (exposure/vulnerability). See Exhibit C77-27-1 – Written Evidence of the City of Vancouver ([A4L7V8](#)), p. 26

<sup>264</sup> manufacturing, construction, third-party damage, and incorrect operations.

<sup>265</sup> Exhibit C227-7-5 – Matsqui First Nation Written Evidence – Matsqui First Nation Impact Assessment (part1of2) ([A4L8J2](#)), p. 32

<sup>266</sup> Exhibit C227-7-5 – Matsqui First Nation Written Evidence – Matsqui First Nation Impact Assessment (part1of2) ([A4L8J2](#)), p. 32

<sup>267</sup> Based on historical data from PHMSA and Enbridge, pipeline spills would occur 6.5-13 times more often than TM forecasts. See Exhibit C358-13-15 – Tsleil-Waututh Written Evidence - Vol 5 Tab 4A Appendix 1 Assessment of Spill Risk Report ([A4L6A6](#)), p. iii

<sup>268</sup> Exhibit C358-13-15 – Tsleil-Waututh Written Evidence - Vol 5 Tab 4A Appendix 1 Assessment of Spill Risk Report ([A4L6A6](#)), p. iv

<sup>269</sup> Exhibit C86-12-5 –Appendix G to Written Evidence of Cowichan Tribes ([A4L9Z8](#)), p. 3

Even on Trans Mountain's analysis however, the return periods shown in the TERMPOL Report indicate a 10% probability that a spill of 8.25 million or more litres will occur in a 50 year operating period, even taking into account all the proposed mitigation strategies (use of escort tugs).<sup>270</sup> A report filed by an intervenor noted that "the individual spill probabilities for the specific types of spills, that being tanker (16 – 67%), terminal (77%), and pipeline (99%) spills, understate the likelihood of spills associated with the TMEP because of the methodological weaknesses in the TM analysis."<sup>271</sup>

Trans Mountain has touted improvements in technology, and operations in support of their claim that their tanker shipments will be safe, and drastically lower the risk estimate of a spill accordingly. These claimed safety measures will not always be available, and do not represent a panacea. For instance, the Port Metro Vancouver escort was only available for 60% of current tanker transits, and could not estimate how often it would be available when tanker transits increase sevenfold.<sup>272</sup> Trans Mountain does not have an alternate plan to have its tankers escorted. The simple fact is that in spite of improved technologies, oil spills and accidents still occur due in large part to human and organizational errors, which comprise 80% of failures.<sup>273</sup> It is clear that Trans Mountain's risk analysis is an anomaly in both pipeline and tanker risk, and its misleading predictions are not credible.

### **6.1.3 Spills can be much bigger than Trans Mountain models**

Trans Mountain assumes a much lower worst-case scenarios than recent events in this country and internationally. With respect to tanker spills, Trans Mountain assumes that a "credible" worst case scenario would involve a spill of no more than 16% of its cargo (16,000m<sup>3</sup>). For example, the Prestige oil tanker spilled 20 million gallons (75,708m<sup>3</sup>), the Haven spilled 144,000 tonnes (60,480m<sup>3</sup>), and the Aegean Sea spilled 67,000 tonnes of oil respectively (28,140m<sup>3</sup>).<sup>274</sup> While these events may be somewhat rare, they are certainly credible, and cannot be ignored.

Trans Mountain assumes that a "credible" worst case spill from the pipeline would be no greater than 2,700m<sup>3</sup>. However, this figure is dwarfed by other spills on record in Alberta, including the July 2015 Nexen pipeline rupture which released nearly double this amount (5,000m<sup>3</sup>). The volume of this spill is alarming considering the Nexen pipeline is a modern double walled high pressured pipeline that was installed just a year prior to the rupture, and that carries 12 times less product than the applied for volumes that could be carried on the Trans Mountain Pipelines (and a further 200,000 barrels per day could be added to the pipeline without an environmental assessment).

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<sup>270</sup> Concerned Professional Engineers – Letter of Comment (Updated 22 July 2015) ([A4R6S8](#))

<sup>271</sup> Exhibit C355-15-28 – Tsawout First Nation Expert Report – An Assessment of Spill Risk for the TMEP ([A4Q1G5](#)), p. viii

<sup>272</sup> Exhibit C365-7-2 – Vancouver Fraser Port Authority – Responses to City of Burnaby Information Request ([A4R3W0](#)), IR 10.m), p. 2

<sup>273</sup> Exhibit C259-8-4 – NSNOPE - App 1 to JE evidence - Oil Spill Incidents in Harbours ([A4L5V3](#)), p 7

<sup>274</sup> Exhibit C259-8-4 – NSNOPE - App 1 to JE evidence - Oil Spill Incidents in Harbours ([A4L5V3](#))

Trans Mountain has similarly presented that a “credible” worst case oil spill at the Westridge Terminal of only 160 m<sup>3</sup> in Modelling the Fate and Behaviour of Marine Oil Spills report<sup>275</sup> and the Addendum to: Modelling the Fate and Behaviour of Marine Oil Spills report.<sup>276</sup> An expert report filed by three intervenors found that “the project application presents a 160 m<sup>3</sup> loading arm spill into pre-deployed containment boom as a ‘credible’ worst case discharge for a tanker at the Westridge Marine Terminal. This is not a credible worst case scenario, and does not align with best practices for oil spill contingency planning.”<sup>277</sup> The expert report instead found that 8,000m<sup>3</sup> was consistent with the information provided in the application as a worst case scenario from the Westridge Marine Terminal.<sup>278</sup>

## **6.2 Densely Populated Suburbs and the Busiest Port in the Country: The Worst Place to Transport Bitumen to, and Worst Place to Ship Bitumen Out of**

Metro Vancouver is the most densely populated area in the Province of British Columbia, and the shores of the Burrard Inlet are one of the most populated areas in the region. The municipalities surrounding the Burrard Inlet alone have a combined population of approximately 1.2 Million individuals, who use and rely on Burrard Inlet, its shores and its ecology.<sup>279</sup>

If minimizing the adverse impact from a high-volume marine oil spill was foremost in the public interest, a waterway used by a major population is arguably the WORST choice of location. There are numerous potential ports on the West Coast which would have lower population impacts in the event of a spill.

And yet, the proponent has not been required by this Panel to analyze alternatives or justify those impacts at all.

The Port of Vancouver is the busiest port in the country, and one of the five busiest ports in North America. In 2009-2010, a total of 470,000 vessel movements per year, including 1,500 tanker movements took place.<sup>280</sup> These movements handled around

<sup>275</sup> Exhibit B21-9 – V8C TR 8C 12 TR S9 01 OF 09 MODEL MAR SPILLS ([A3S5G9](#)), iii

<sup>276</sup> Exhibit B176-2 - Trans Mountain Expansion Project Addendum 8C TR8C S10 PART 1 Air Model Technical Description ([A3Y3X9](#)), 1

<sup>277</sup> Exhibit C77-55-5 – City of Vancouver - Revised Nuka Report - Clean - Part 4 ([A4W1L4](#)), p. 39

<sup>278</sup> Exhibit C77-55-5 – City of Vancouver - Revised Nuka Report - Clean - Part 4 ([A4W1L4](#)), p. 39

<sup>279</sup> According to the most recent census (taken in 2011), the combined population of the municipalities surrounding the Burrard Inlet is 1,164,189. This number has likely increased significantly since this census was taken. This figure breaks down as follows: Vancouver – 603,602; Burnaby – 223,218; Coquitlam – 126,456; North Vancouver (DM) – 84,412; North Vancouver (CY) – 48,196; West Vancouver (DM) – 42,694; Port Moody – 32,975; Anmore – 2,092; and Belcarra (VL) – 644. See BC Stats “Census 2011: BC Municipal and Regional District Census Results” (2011) online:

<http://www.bcstats.gov.bc.ca/StatisticsBySubject/Census/2011Census/PopulationHousing/MunicipalitiesByRegionalDistrict.aspx>

<sup>280</sup> Exhibit B18-20 - V8A 1.4.2.7 TO T4.1.1.1 MAR TRANS ASSESS ([A3S4X4](#)), 8A-61, in Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p. 62

123 million tons of cargo per year.<sup>281</sup> A major percentage of the traffic and cargo is transported to and from the docks in Burrard Inlet.

If minimizing the risk of tanker collisions was foremost in the public interest, this is arguably the WORST place to add new bitumen-tanker traffic, with high impact potential.

The Burrard Inlet is also heavily used by recreational boaters.<sup>282</sup> There are 1,066 ships along with 448 private docks in the Central Harbour/Indian Arm area alone, and these boats are used an average of 25-40<sup>283</sup> per year. Kinder Morgan vastly underestimates the amount of recreational boaters that make use of the waters it transits and in particular to the Central Harbour in which its ships will circle, anchor, dock, load and transit to and from by only taking stock of recreational boats on the water early in the morning or on weekdays, or not taking stock of recreational marine traffic at all.<sup>284</sup> Increased tanker traffic will crowd out these recreational boaters.<sup>285</sup>

The Burrard Inlet is at the mouth of several important fish bearing rivers. The Westridge Marine Terminal is about 5 KM from the Seymour River, 14 KM from the Capilano River, and 21 KM from the Indian River. These rivers see regular runs of Pink, Coho, Chum and Chinook salmon and are crucial for eulachon and herring.<sup>286</sup>

Ocean dependent economic activities have been estimated to contribute CAD \$6,430 - \$6,700 million in output value to the City of Vancouver.<sup>287</sup> The brand value of the Vancouver, estimated at USD \$31.475 billion, is highly associated with its environment.

The Fraser River Estuary, Burrard Inlet and Salish Sea, is considered “one of the most ecologically important coastal marine habitats along the entire Pacific coast of North America.”<sup>288</sup> The Burrard Inlet is a highly biodiverse environment, which serves as a host for over 1,200 verified species,<sup>289</sup> and provides habitat for federally-listed harbour

<sup>281</sup> Exhibit B18-29 - V8A 4.2.12.2 TO T5.2.2 MAR TRANS ASSESS ([A3S4Y3](#)), p. 447, in Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p. 62

<sup>282</sup> including sea kayaking, canoeing, paddle boarding, sailing, dragon boating, fishing and crabbing, bird and wildlife watching, scuba diving and more

<sup>283</sup> Exhibit C259-8-31 - NSNOPE written evidence (H Crozier Pt 2) ([A4L5Y1](#)), pp. 36, 41, and 42

<sup>284</sup> Exhibit C259-8-30 - NSNOPE written evidence (H Crozier - Pt 1) ([A4L5Y0](#)), p. 10

<sup>285</sup> Smaller boats must yield the right of way to tankers, and they must keep at least a 300 metre distance from anchored tankers. Diesel emissions, a reduction of the already small window to transit underneath the second narrows, and wake waves will all contribute to this effect. See Exhibit C353-4-6 - TMEP Terpol Report Link 2 – PMV Port Information Guide ([A4F8Z7](#)), pp. 50, and 77-78; and Exhibit C259-8-30 - NSNOPE written evidence (H Crozier - Pt 1) ([A4L5Y0](#)), p. 11

<sup>286</sup> Exhibit C259-8-30 - NSNOPE written evidence (H Crozier - Pt 1) ([A4L5Y0](#)), p. 11

<sup>287</sup> 32,520 – 36,680 person years of employment and \$3,061 - \$3,261 million CAD in gross domestic product (GDP) to the Vancouver economy each year. See Exhibit C77-31-8 – Written Evidence of the City of Vancouver – Appendix 83 – Written Evidence of Rashid Sumalia ([A4L9G4](#)), p. 41

<sup>288</sup> Exhibit C214-18-2 - Attachment A to written evidence of Living Oceans - Fate and effect of oil spills in Burrard Inlet and Fraser River Estuary - Dr Short ([A4L9R7](#)), p. 17

<sup>289</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 33

porpoise & two populations of Killer Whales.<sup>290</sup> The Burrard Inlet Important Bird Area (“IBA”) is considered to be nationally and globally significant for several species. The IBA is habitat for many local birds and tens of thousands of migratory birds along the Pacific Flyway each year.<sup>291</sup>

In Burnaby alone, the construction of the pipeline ROW will disrupt key habitat for a large variety of protected species of fauna and flora.<sup>292</sup> Many of these species are small or difficult to detect, making the destruction of their habitat or direct mortality of the species likely. Trans Mountain has not made sufficient effort to avoid sensitive areas, nor has it committed to using trenchless construction in all riparian areas, nor has it committed to compliance with municipal bylaws in this regard.

In summary, the Project has been proposed to ship out of the busiest port in the country, which is surrounded by the most densely populated area in BC, where the ocean is vitally important to the economy of the region, and is highly valued for recreational use, and where the environment is critical for a huge number of marine birds, fish and endangered mammals. **One would be hard pressed to come up with a worse location for this project.**

### 6.2.1 The Impacts of a Spill

If the Project were to be approved, the effects when a spill inevitably happens could be devastating. If a spill takes place in the Lower Mainland or in the Burrard Inlet, the impacts would be especially severe. The major difficulties in responding to and mitigating spills, existing gaps in response capacity, uncertain behavior of dilbit in aqueous environments, and the persistent effects of dilbit in humans and animals alike all exacerbate the impacts of any dilbit spill.

### 6.2.2 There is an ongoing debate of the possible behavior of spilled dilbit in an aqueous environment

Trans Mountain has cited a number of studies, including the Gainford study it sponsored, for its conclusion that the effects of dilbit are sufficiently known, and that the behavior of dilbit in water is essentially the same as oil. Trans Mountain notes in its reply evidence that “a common feature of all cited reports is that they confirm and

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<sup>290</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 33

<sup>291</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 33

<sup>292</sup> Nooksack Dace, Oregon Forestsnail, Northern Red-Legged Frog, Pacific Coastal Painted Turtle, Great Blue Heron, Green Heron, Vancouver Island Beggarticks, Barn Swallow, Coastal Cutthroat Trout, Bearded Sedge, and False Pimpernel. The tank farm expansion area as well as other parts of the ROW is critical areas frequented by the breeding populations of the Northern Red-Legged frogs. See Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 51

complement the information provided in the Application and in Trans Mountain's IR responses.<sup>293</sup>

The National Academy of Science's "Spills of Diluted Bitumen from Pipelines: A Comparative Study of Environmental Fate, Effects and Response" was recently filed by an intervenor. The U.S. Congress tasked the U.S. Department of Transportation to commission this study to better prepare for dilbit spills after the disastrous Kalamazoo River spill in 2010. Among its findings are that bitumen may sink or submerge in waterbodies, and that 1) there are few effective techniques for detection, containment, and recovery of oil that is submerged in the water column, and 2) available techniques for responding to oil that has sunk to the bottom have variable effectiveness depending on the spill conditions.<sup>294</sup> The findings of this study directly contradict those cited by Trans Mountain. Trans Mountain opposed the filing of such evidence.<sup>295</sup>

The Panel's decision on December 17, 2015, to refuse to receive and consider the National Academy's report on the difficulties of cleaning up diluted bitumen in the environment is both baffling and unforgiveable.<sup>296</sup> It shows a complete disregard for the public interest of the 1.2 Million individuals living along Burrard Inlet, and the many others who live along waterways along the proposed route. In essence, the Board ruled that the prejudice to the commercial interests of Trans Mountain that a delay in the Review would cause outweighs clarification of an unsettled scientific issue on the most concerning environmental risk of the Project.

Without an effective means to test and cross examine such evidence in the Board's limited review of the Project, we are faced with clear contradiction of expert evidence, and no means to determine which is authoritative. That the Board believes it can make a decision in those circumstances is a declaration that the Board does not consider oil spill impacts to be relevant to the public interest. In other words, it is a declaration that the Board just does not care who is right.

### **6.2.3 Spill Response Capacity is Lacking**

Detection of a spill has proven to be a major issue both from tankers and from pipelines alike. The April 8, 2015 M/V Marathassa oil spill in English Bay took eleven hours before the Western Canada Marine Response Corporation detected the source.<sup>297</sup> According to some reports, the Nexen pipeline rupture could have been leaking for

<sup>293</sup> Exhibit B417-2 – Trans Mountain Pipeline ULC-Reply Evidence-Part1 (stricken in part) – ([A4S7E9](#)), p. 25-8

<sup>294</sup> Exhibit C214-31-3 - Appendix A - National Academy of Sciences - Spills of Diluted Bitumen from Pipelines – ([A4W3Z0](#)), pp. 2-3

<sup>295</sup> Exhibit B442-1 - Trans Mountain Pipeline ULC - Reply to Living Oceans Society and Raincoast Conservation Foundations Notice of Motion to File Late Evidence ([A4W5A6](#))

<sup>296</sup> The Board notes that "there will always be new reports and studies that will come into existence at future period", and that the prejudice to admitting the report, outweighs the probative value of the report in its reasons to reject the report. See Exhibit A241 – National Energy Board – Ruling No. 105 Living Oceans Society and Raincoast Conservation Foundation – Notice of Motion to file late evidence ([A4X0Z7](#))

<sup>297</sup> Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), p. 37

almost two weeks before it was detected. The 2005 Trans Mountain Pipeline spill in Abbotsford was detected only after alert Abbotsford residents reported unusual smells to the authorities, and only located and then contained by the efforts of the local Fire Department, i.e. Trans Mountain and its responders were totally absent from the emergency response.<sup>298</sup> These three incidents are a grim reminder of the proven limitations of Project's response capacity in spite of the touted technological improvements that Trans Mountain would like the public believe sufficiently mitigates the risk of the Project.

In the event of a spill on water, the response to contain and recover as much oil as possible will need to be accomplished before the oil spreads too thin for recovery, reaches the shoreline, or submerges into the water column. A report filed by an intervenor estimates that on water oil spill recovery operations would be impeded or completely shut down 34% in the summer or 56-57% in the winter in the Central and Outer Harbours because of the weather or environmental conditions.<sup>299</sup> If a spill occurs when response gap conditions exist, it will remain there until conditions improve, and if these conditions last too long, on-water recovery will not be possible.<sup>300</sup> Even under the most optimistic conditions<sup>301</sup> including a development of response capacity far in excess of that currently in place, only 78% of a spill could be recovered.<sup>302</sup> The spill response forces currently available only have the capacity to recover 10-20% of the oil from a worst case spill.<sup>303</sup>

The problems presented by a spill are compounded by the lack of proven technology for recovering bitumen,<sup>304</sup> and "if spilled oil becomes suspended between the water's surface and the bottom, it is unlikely that any commercially available response technologies can be successfully applied to significantly control the spill."<sup>305</sup>

### **6.3 Financial Impacts of a spill**

Kinder Morgan is responsible for terrestrial, fresh water and marine spill events while tankers are docked. However, considering the omission of high consequence spills from their risk assessment, Trans Mountain predictably has significantly understated the upper end spill costs. The upper end assessment of \$300M<sup>306</sup> is 5-16 times less than what other assessments have found.<sup>307</sup> Trans Mountain does not have sufficient

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<sup>298</sup> Exhibit C68-15-3 – City of Abbotsford Written Evidence - Affidavit of Donald Beer ([A4L6D3](#)), pp. 3-4

<sup>299</sup> Exhibit C77-55-2 – City of Vancouver - Revised Nuka Report - Clean - Part 1 ([A4W1L4](#)), p. iv

<sup>300</sup> Exhibit C77-55-2 – City of Vancouver - Revised Nuka Report - Clean - Part 1 ([A4W1L4](#)), p. vi

<sup>301</sup> prompt spill detection, perfect equipment functioning, favourable environmental conditions, and adequate availability of trained responders

<sup>302</sup> Exhibit C77-55-2 – City of Vancouver - Revised Nuka Report - Clean - Part 1 ([A4W1L4](#)), p. ix

<sup>303</sup> Exhibit C77-55-2 – City of Vancouver - Revised Nuka Report - Clean - Part 1 ([A4W1L4](#)), p. ix

<sup>304</sup> Exhibit C319-27-6-4. Written Evidence of Squamish Nation - Potential Effects of Diluted Bitumen Spills on Salmonid Species Report ([A4L7E7](#)), pp. 15-16

<sup>305</sup> Exhibit C214-18-1 – Ecojustice - Statement of Written Evidence of Living Oceans Society ([A4L9R6](#)), p. 11.

<sup>306</sup> Exhibit B119-1 - Trans Mountain response to Burnaby IR No.1 ([A3Y2E6](#)), IR 1.02.01e, p. 38

<sup>307</sup> Exhibit C355-15-28 – Tsawout First Nation Expert Report – An Assessment of Spill Risk for the TMEP ([A4Q1G5](#)), p. v

insurance to cover such an event. If KM's financial resources are insufficient, the Canadian public picks up the tab. The NEB has jurisdictional powers to ensure that doesn't happen. The Financial Assurances Plan condition suggested by the Board in its Draft Conditions attempts to do this.<sup>308</sup> It is inadequate. It will not tie KM to its responsibility because of KM's clever and sophisticated corporate structure, and even if it does, the \$1.1 billion required is insufficient to meet all costs.

Ship owners are responsible for marine spill events. Financial resources are provided through a ship owner's mandatory liability policy with a limit of \$145 million. If claims exceed the limit of the policy, the International Oil Pollution Fund (IOPF) regime takes over. IOPF related funding provides up to \$1.3 billion (CDN). When a marine spill exceeds this limit – as predicted by the City of Vancouver<sup>309</sup> that it will – the Canadian public picks up the tab. The NEB does not have jurisdictional powers to ensure this doesn't happen.

A City of Vancouver commissioned report found that municipalities could have to absorb up to \$1 billion in costs from an oil spill from a tanker, and that this number would be higher if quantitative data was available for many missing areas.<sup>310</sup> In the event of a 16,000m<sup>3</sup> spill, the city would suffer \$380-\$1,230 million in output value, 3,238-12,881 Person Years of employment and \$201-\$687 million in GDP to five of Vancouver's ocean dependent industries alone.<sup>311</sup> A spill that occurs in the vicinity to the city is estimated to have a negative USD \$1-3 billion impact to the brand value.<sup>312</sup>

## 6.4 Environmental Impacts of a Spill

If a pipeline rupture takes place in the city of Burnaby, there is a high likelihood that the environment would seriously be impacted. Evidence that was submitted indicates that flora and fauna face the short-term impacts from contact, as well as long-term impacts of habitat alteration even after remediation efforts (many of which are toxic in themselves, and through which the vegetation and its substrate can be destroyed).<sup>313</sup> Plants that come in contact with oil typically become coated and are 'choked-out' and die. Further, along with the threat of a pipeline rupture, the Burnaby Mountain Conservation Area and other conservation areas face the risk of the neighbouring tank farm catching fire and transferring to these protected areas.

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<sup>308</sup> Exhibit A199-3 – National Energy Board – Procedural Direction No. 17 – Draft conditions for comment – Appendix A ([A4S1G2](#)), p. 42, Condition 108 "Financial Assurances Plan – operations phase"

<sup>309</sup> Exhibit C77-27-1 – Written Evidence of the City of Vancouver ([A4L7V8](#))

<sup>310</sup> Exhibit C77-30-6 – Written Evidence of the City of Vancouver – Appendix 81 – Evidence of Jeremy Stone ([A4L8E9](#)), p. 8

<sup>311</sup> See Exhibit C77-31-8 – Written Evidence of the City of Vancouver – Appendix 83 – Written Evidence of Rashid Sumalia ([A4L9G4](#)), p. 4. The only activities analyzed and considered were: commercial fishing, port activities, inner harbour transportation, tourism and recreation.

<sup>312</sup> Exhibit C77-30-7 – Written Evidence of the City of Vancouver – Appendix 82 – Written Evidence of Edgar Baum, Brand Finance (Canada) Inc. ([A4L9G4](#)), pp. 5 and 7

<sup>313</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 80

Intervenors have filed a significant amount of evidence to support the acute impacts of a spill that reaches the Burrard Inlet. The oiling of beaches, mudflats, and marshes can create long term oil exposure hazard for the plants, animals and shorebirds that inhabit the area, which all are especially sensitive to contact with oil.<sup>314</sup> Bitumen that enters the water column puts invertebrate species, marine mammals, and fish at risk.<sup>315</sup> It can be ingested directly by invertebrates or by juvenile fish and would also lead to indirect oil exposure to predators (such as salmon, other large fish and mammals) that consume these smaller organisms, and quickly makes its way up the food chain.

However, the lack of case studies and the inconclusive research has contributed to the poor state of knowledge of the effects of spilled dilbit in the environment. Bitumen compounds the effects of crude because its higher viscosity will cause it to remain in the environment for longer, cause it to spread more widely, and give it a higher propensity to sink. These problems are compounded by the lack of proven technology for recovering bitumen.<sup>316</sup>

If dilbit enters a freshwater system, there are five different pathways<sup>317</sup> through which species can be affected. Considering that the Fraser River, its estuary, and its tributaries are used by dozens of fish species throughout the year either at various points in their life cycles, there is no safe time of year when the impacts of a spill would be low.<sup>318</sup>

Several of these fish bearing waterways or conservation areas that are put at risk by the Project are located in Burnaby.<sup>319</sup> Many of these ecosystems have been remediated and rehabilitated, at great time and expense by five municipalities, multiple agencies and many dedicated citizens and community groups.<sup>320</sup> For example, numerous tributaries and lakes contribute over 200 km<sup>2</sup> to the Brunette Basin, which is a key

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<sup>314</sup> Exhibit C214-18-2 - Attachment A to written evidence of Living Oceans - Fate and effect of oil spills in Burrard Inlet and Fraser River Estuary - Dr Short ([A4L9R7](#)), p. 63

<sup>315</sup> Exhibit C214-18-2 - Attachment A to written evidence of Living Oceans - Fate and effect of oil spills in Burrard Inlet and Fraser River Estuary - Dr Short ([A4L9R7](#)), p. 63

<sup>316</sup> Exhibit C319-27-6 – Squamish Nation Written Evidence – Potential Effects of Diluted Bitumen Spills on Salmonid Species Report ([A4L7E7](#)), pp. 15-16

<sup>317</sup> 1. Inhalation of hydrocarbon gases associated with spills, which can affect an animal's nervous system, liver, and other organs. 2. Smothering of surfaces, clogging pores/important biological gas-exchange membranes (plants, invertebrates, and egg shells); 3. Irritation of skin and eyes or absorption of toxins through skin (amphibians) or gills (fish); 4. Surface oiling that changes physiological properties of wildlife (i.e., oiling of features and fur, which alters thermoregulation); and 5. Ingestion (i.e., consumption of contaminated plankton, plants, and invertebrates causes accumulation of toxins up the food chain; grooming of oiled feathers and fur leads to inadvertent ingestion). See Exhibit C234-15-3 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 2 ([A4T0R7](#)), p. 82

<sup>318</sup> Exhibit C291-1-1 – Statement of Written Evidence of Raincoast Conservation Foundation ([A4L9F2](#)), p. 8

<sup>319</sup> Such as the Brunette River, Austin Creek, Stoney Creek, Keswick Creek, Burrard Inlet, Stoney Creek.

<sup>320</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 55

riparian habitat for fish and wildlife, and important for the habitat of migrating salmon, as well as the Nooksack Dace and Cutthroat Trout.<sup>321</sup>

Recent toxicity studies on dilbit have demonstrated that both weathered and unweathered bitumen is acutely toxic to Chinook and Chum salmon and is lethal within 24 hours of exposure.<sup>322</sup> While there are no direct analogies to the effects of a dilbit spill on these species, based on the impacts of crude oil spills on fish in other scenarios, it can be expected that the effects are at least as severe, and likely much more so because of the persistent nature of dilbit relative to crude oil. The large migrations of Salmon that take place through the Burrard Inlet and up the Seymour, Capilano and Indian Rivers are all put at risk from a spill from the Project. The effects of previous events on Salmon can only be described as environmental disasters.<sup>323</sup> An oil or bitumen spill could be particularly devastating for these salmon bearing rivers, especially if the salmon were returning during or shortly after the spill.<sup>324</sup>

Marine mammals similarly spend their entire life in contact with the water and are therefore very vulnerable to direct contact with oil. The inhalation of hydrocarbon vapour at the surface can lead to drowning, oil may irritate their eyes, contact of oil with fur bearing mammals reduces the ability to retain heat, and mammals can also be affected by predation on toxic prey.<sup>325</sup> Of the 29 species of mammals that inhabit the Salish Sea,<sup>326</sup> the most vulnerable is the Killer Whale, which is already endangered, and can ill afford the existing anthropogenic impacts, much less the incremental additional impacts it faces as a marine mammal at the top of the food chain.

The existence of 23 NEB Draft Conditions related to environmental management indicated that there are a wide variety of outstanding environmental issues with the TM Application that have yet to be resolved, or mitigated.<sup>327</sup> The NEB cannot in good conscience recommend the application for approval given the deficiencies, and the

<sup>321</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 31

<sup>322</sup> Exhibit C234-15-3 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 2 ([A4T0R7](#)), p. 108

<sup>323</sup> Studies of the Exxon Valdez spill have shown that the salmon population reduced by approximately 1.9 million, and those that survived showed slower growth in oiled areas, that effects lasted as long as five years and that eggs and larvae were particularly vulnerable, being less viable in streams with oil exposure, and had reduced long-term survival rates. Some of the effects included that the oil killed salmon or salmon eggs through coating and suffocation, that it made habitat unsuitable for retention, reduced growth by reducing salmon appetite, reduced nerve function and circulation, reduced immunity to disease, increased the growth of cancer, and reduced the reproductive success. See Exhibit C319-27-6 – Squamish Nation Written Evidence – Potential Effects of Diluted Bitumen Spills on Salmonid Species Report ([A4L7E7](#)), pp. 13-15

<sup>324</sup> Exhibit C259-8-30 – NSNOPE written evidence (H Crozier – Pt 1) ([A4L5Y0](#)), p. 11

<sup>325</sup> Exhibit C214-18-2 - Attachment A to written evidence of Living Oceans - Fate and effect of oil spills in Burrard Inlet and Fraser River Estuary - Dr Short ([A4L9R7](#)), pp. 74-75

<sup>326</sup> Exhibit C214-18-2 - Attachment A to written evidence of Living Oceans - Fate and effect of oil spills in Burrard Inlet and Fraser River Estuary - Dr Short ([A4L9R7](#)), at page 75.

<sup>327</sup> See Conditions 44, 50, 52, 55, 62, 63, 64, 64, 67, 78, 79, 91, 98, 99, 100, 101, 106, 107, 128, 140, 141, 142, and 143.

extreme risk that the sensitive ecosystems in the region face from a malfunction of the Project.

## 6.5 Human Health Impacts of a Spill

A spill that occurs in the city of Burnaby or into the Burrard Inlet poses significant risks of toxic and psychological effects to the populace, which is particularly concerning considering the densely populated nature of the region. Curiously, Trans Mountain did not discuss any potential impacts on humans resulting from a pipeline spill in its application.<sup>328</sup> Some of the effects that have been cited by intervenor reports include headaches, eye and throat irritations, breathing difficulties, nausea, vomiting, skin rashes, asthma and negative mental health experiences.<sup>329</sup> First responders are at the highest degree of risk from such events. Unfortunately, the risk assessments undertaken by Trans Mountain are clearly inadequate:

For both routine emissions and accidental releases, the human health risk and impact assessments completed for the TMEP do not provide the information needed to assess human health risks. Due to the many significant omissions and use of flawed methods and analyses, the assessments completed do not provide accurate predictions of the potential health effects that might result from fugitive emissions, ruptures, releases and spills at the terminals, along the pipeline, or on waterways; rather, the completed assessments underestimate the potential risks. The human health risk and impact assessments completed for the TMEP do make it clear, however, that both routine operations as well as accidental spills and releases have the potential to cause significant chemical exposure and harm public health.<sup>330</sup>

Vancouver Coastal Health (VCH) cautions “that health impacts from large spills are possible and concerning” and that “[t]he screening level air dispersion modeling commissioned by Metro Vancouver also supports the need for further detailed analysis of the public health consequences following a large spill in the Burrard Inlet.”<sup>331</sup> VCH and Fraser Valley Health (“The Health Authorities”) note a number of critical improvements that are needed for Trans Mountain modelling.<sup>332</sup> Given that the Health Authorities only heard about the 2007 Westridge Burnaby oil spill from the local media,

<sup>328</sup> Exhibit C214-18-4 – Attachment C to written evidence of Living Oceans – Review of Facilities Application – Focus on Air Quality – Dr Simpson ([A4L9R9](#)), p. 36

<sup>329</sup> Exhibit C41-8-2 – Burnaby Residents Opposing Kinder Morgan Expansion - Human Health Impacts Report TMEP - Takaro ([A4L6U5](#)), pp. 8-9

<sup>330</sup> Exhibit C214-18-5 – Ecojustice - Attachment D to written evidence of Living Oceans - Health Risks - Dr Batterman ([A4L9S0](#)), p. 2

<sup>331</sup> Exhibit C69-44-21 – Health Impacts – VCH and FH to City of Vancouver and City of Burnaby ([A4L8H5](#)), p. 3

<sup>332</sup> These improvement include: “A complete set of time periods and weather conditions for the spill occurrence, giving consideration to future impacts from climate change; A complete set of volatile chemical compounds from a spill of diluted bitumen (the Levelton report only modelled benzene); Consideration of the potential cumulative health effects from concurrent exposures to multiple chemical compounds released from a spill; More simulated spill locations, particularly closer to shore; A complementary assessment of the long term health impacts from such a large spill.” See Exhibit C234-7-5 – Metro Vancouver Written Evidence and Exhibits – Exhibit 3A, Letter to MV re AQ impact from oil spills ([A4L7Y9](#)), p 2

both the capacity for timely identification of human health threats and an improvement of the communication systems to inform the health authorities are sorely needed.

Based off the modeling done of a worst case oil spill in Burrard Inlet in the expert reports that were submitted by intervenors, the following are some of the most concerning conclusions that were made regarding the impacts of the air emissions:

- Over a million people, including every municipality surrounding Burrard Inlet are predicted to be exposed to Benzene levels above the Acute Inhalation Exposure Limit;
- Life-threatening health effects have been predicted for people on the water near the oil slick;
- Concentrations associated with mild, transient health effects have been predicted for more than 31,000 people; and,
- Hazardous air pollutants exceed levels at which the populace could experience irreversible or other serious long-lasting adverse health effects or an impaired ability to escape, and in some cases could experience life-threatening health effects or death.<sup>333</sup>

As the modelling presently stands, it underestimates credible worst case oil spills, does not consider a sufficient number of weather and marine conditions (3 out of a possible 8760 annual start times or 0.03%)<sup>334</sup>, uses an inappropriate model (CALMET instead of CALPUFF), and has incorrect land type input data (mistakes parks for urban environment, and assumes the North Shore and City of Vancouver are connected by land).<sup>335</sup> Further, Trans Mountain's Human Health Risk Assessment does not consider non-inhalation exposure pathways in its spill scenarios.<sup>336</sup> The deficient outputs of such modeling are misleading and not credible, and this evidence should be rejected as a result. The Project cannot be accepted in light of this critical information gap. The health and safety of well over a million people that are put at risk by an oil spill cannot be ignored.

## **6.6 Government agencies have avoided assessment of spill risks, and the NEB has not required such assessment**

DFO and Natural Resources Canada were asked to provide their opinions based on the expertise they have in given areas with respect to the review of the Project

<sup>333</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 11; see also Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – Exhibit 03 – Air Quality Impacts from Simulated Oil Spills in Burrard Inlet and English Bay ([A4L7Y8](#))

<sup>334</sup> After a request from the NEB, Trans Mountain included two more meteorological snapshots under different conditions. Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 16

<sup>335</sup> Exhibit 234-7-7 - Metro Vancouver Written Evidence and Exhibits – MV Evidence Submission Final ([A4L7Y3](#)), p. 11

<sup>336</sup> Exhibit C69-44-22 – Health Impacts – Guidance to Metro Vancouver and Fraser Health Municipalities to Assist in Reviewing the Trans Mountain Pipeline Expansion Project from Public Health Perspective ([A4L8H6](#))

Application. In light of the absence of evidence regarding the effects of dilbit in water, NRCan wrote in their written evidence that research was ongoing to better understand it.<sup>337</sup> However, NRCan would not commit to a date when the findings of this research would be available,<sup>338</sup> it would not provide an opinion on if this uncertainty would affect their opinion of the spill response capacity of Trans Mountain,<sup>339</sup> and would not commit to updating its evidence for the Project if/when these findings became available.<sup>340</sup> The NEB denied all requests by Burnaby that NRCan fully answer the IRs.<sup>341</sup>

When asked why significant effects and fish habitat could be avoided through mitigation measures, the DFO noted that “the Department has significant experience reviewing and assessing these types of impacts and is very familiar with commonly applied mitigation and offsetting measures used to avoid losses in fisheries productivity.”<sup>342</sup> However, when asked to relate this to the specific context of the Burrard Inlet, the DFO deflected answering this question and directed Burnaby to ask the question to the Proponent.<sup>343</sup>

Either the DFO did not properly scrutinize the Proponent’s information, or it does not feel compelled to form an opinion on the adequacy of its evidence. We won’t know the answer, as the NEB denied all requests by Burnaby that DFO fully answer its IRs.<sup>344</sup>

The NEB has the obligation under both its own NEB Act s. 52 mandate, and under its acquired mandate under CEAA 2012 to require a proper assessment by government authorities of the real impacts of an eventual oil spill into Burrard Inlet or elsewhere. By permitting or endorsing the lack of scrutiny by government agencies, the NEB would be ignoring their public interest mandate.

## 6.7 Summary

In summary, the Project has been proposed to ship out of the busiest port in the country, which is surrounded by the most densely populated area in BC, where the

<sup>337</sup> Exhibit C249-9-1 NRCan Written Evidence Submission ([A4Q0V2](#)), Section 4.2, Physical and Chemical Behaviour of Bitumen, p. 21

<sup>338</sup> Exhibit C69-50-1 – City of Burnaby Motion to Compel full and adequate responses to IRs from DFO and NRCan ([A4R9S4](#)), NRCan response to IR 5a), p.2

<sup>339</sup> Exhibit C69-50-1 – City of Burnaby Motion to Compel full and adequate responses to IRs from DFO and NRCan ([A4R9S4](#)), NRCan response to IR 5c), p. 2

<sup>340</sup> Exhibit C69-50-1 – City of Burnaby Motion to Compel full and adequate responses to IRs from DFO and NRCan ([A4R9S4](#)), NRCan response to IR 5d), p. 3

<sup>341</sup> Exhibit A200-3 – National Energy Board Ruling No. 85 – Motion to Compel Full and Adequate Responses from Intervenors to Information Requests from Other Intervenors – Appendix 1 ([A4S1H2](#))

<sup>342</sup> Exhibit C69-50-1 – City of Burnaby Motion to Compel full and adequate responses to IRs from DFO and NRCan ([A4R9S4](#)), DFO response to IR 2a.

<sup>343</sup> Exhibit C69-50-1 – City of Burnaby Motion to Compel full and adequate responses to IRs from DFO and NRCan ([A4R9S4](#)), DFO response to IR 2aii.

<sup>344</sup> Exhibit A200-3 – National Energy Board Ruling No. 85 – Motion to Compel Full and Adequate Responses from Intervenors to Information Requests from Other Intervenors – Appendix 1 ([A4S1H2](#))

ocean is vitally important to the economy of the region, and is highly valued for recreational use, and where the environment is critical for a huge number of marine birds, fish and endangered mammals. One would be hard pressed to come up with a worse location for this project.

Oil spills will happen, and the consequences in relation to this project in the proposed locations must be considered. Trans Mountain has failed to properly analyze the risk, and its oil spill modelling evidence lacks credibility. The evidence of the intervenors should be preferred. A credible worst case spill in Burrard Inlet would have catastrophic impacts. Spill response capacity is presently lacking. The financial, environmental and human health impacts from a spill cannot be mitigated. Government has failed to properly address the potential spill impacts. The proposal to increase oil tanker shipping from this location is wholly unacceptable, and is arguably in one of the worst locations.

## **7. Economic Issues**

### **7.1 Overview**

The NEB is an agent of the public interest established by legislation on behalf of Canada and Canadians to assist the Federal Government in sound decision making regarding interprovincial transportation infrastructure. The Board's work has profound and long-term economic, social and environmental consequence and must be carried out within a process, and under procedures, that respect the authority and public trust granted to it by the Federal Government on behalf of Canadians.

The Board's authority carries with it an expectation that the Panel will define a scope of issues, approve a list of participants and design an evidentiary process that ensures the Board can, and will, meet its expected public interest obligations.

This section of the City of Burnaby's final written argument addresses the economic and financial issues the Board said it would consider as related to the first four items of the Board's List of Issues<sup>345</sup>:

1. The need for the proposed project.
2. The economic feasibility of the proposed project.
3. The potential commercial impacts of the proposed project.
4. The potential environmental and socio-economic effects of the proposed project, including any cumulative environmental effects that are likely to result from the project, including those required to be considered by the NEB's Filing Manual.<sup>346</sup>

The City of Burnaby submits that respecting the economic and financial review of the Project, there are two major reasons why Trans Mountain's application has failed the Board's tests:

- I. Trans Mountain has not fulfilled the Board's informational requirements on economics and finance in order to establish the Project as economically feasible and financially viable as required by the NEB Act, Board's Filing Manual and Board Rulings made during the Hearing; and,
- II. The actual, probable and realistic economic burdens to Canada and Canadians imposed by the Project outweigh its economic benefits and is thus not in the public interest.

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<sup>345</sup> Exhibit A15-3 – National Energy Board - Hearing Order OH-001-2014 ([A3V6I2](#))

<sup>346</sup> Exhibit A15-3 – National Energy Board - Hearing Order OH-001-2014 ([A3V6I2](#))

The Project's burden to Canada and Canadians outweigh its benefits even when evaluated in the unreasonably narrow definition of the scope of issues the Board has determined it will consider.

The Board must recommend to the Federal Government that the Project not be approved because the Project is not in the public interest and Trans Mountain has failed to show the Project is economically reasonable or advantageous.

In making its determination on the “*present and future public convenience and necessity*”<sup>347</sup> the Board has been given clear direction from its empowering legislation. It shall have regard to all considerations that appear to it to be directly related and relevant and may have regard to:

- (a) the availability of oil, gas or any other commodity to the pipeline;
- (b) the existence of markets, actual or potential;
- (c) the economic feasibility of the pipeline;
- (d) the financial responsibility and financial structure of the applicant, the methods of financing the pipeline and the extent to which Canadians will have an opportunity to participate in the financing, engineering and construction of the pipeline; and
- (e) any public interest that in the Board’s opinion may be affected by the issuance of the certificate or the dismissal of the application.<sup>348</sup>

The Board has established its standard for evaluating the “*present and future convenience and necessity*” under the *Act* as equivalent to the “*public interest*”. It equates the “*present and future public convenience and necessity*” test with the “*public interest*” test.<sup>349</sup>

Throughout the jurisprudence and commentary on “public convenience and necessity” and “public interest”, the phrase “public convenience and necessity” has generally been treated as being synonymous with “public interest”. The public convenience and necessity test is predominantly the formulation of an opinion by the tribunal. This opinion must be based on the record before it; that is to say, the decision must be based not only on facts but with the exercise of considerable administrative discretion.<sup>350</sup>

The Board must have available to it a reliable and adequate record of evidence. Trans Mountain has not provided a reliable or adequate record of evidence. Trans Mountain has failed to provide information required under the legislation governing the review of the Project and the Board’s Filing Manual. This information is critical to the assessment of the Project, and Trans Mountain’s failure to provide this information is fatal to any positive recommendation.

<sup>347</sup> NEB Act, s. 52(1)(a)

<sup>348</sup> NEB Act, s. 52(2)(a)-(e)

<sup>349</sup> NEB – Reasons for Decision – Emera Brunswick Pipeline Company Ltd. – GH-1-2006 ([A0Z1F5](#)), p. 10

<sup>350</sup> NEB – Reasons for Decision – Emera Brunswick Pipeline Company Ltd. – GH-1-2006 ([A0Z1F5](#)), p. 10

The Board has defined the public interest as:

...inclusive of all Canadians and refers to a balance of economic, environmental, and social interests that change as society's values and preferences evolve over time. As a regulator, the Board must estimate the overall public good a project may create and its potential negative aspects, weigh its various impacts, and make a decision.<sup>351</sup>

Thus, the Board must weigh and analyze the benefits and the burdens of the Project and understand the net impact of the Project on Canada and Canadians. If the burdens outweigh the benefits, the Project must not proceed.

Trans Mountain's application and related evidence provides a distorted and unrealistic picture of the economic impact and economic feasibility of the proposed Project. Trans Mountain has misinformed the Board, obfuscated issues and withheld from the Hearing record pertinent financial and economic information. Trans Mountain's burdens far outweigh its benefits.

The Board has stated in Ruling No. 28 that,

In order to make a recommendation under section 52 of the NEB Act, the Board requires companies to provide detailed information about engineering, environmental, geotechnical, archaeological, and other matters. As the Board noted previously in the Dawn Gateway Pipeline process, it would not be logical that the Board be required to recommend approval or denial of a project without all the necessary information before it. This would not be in the public interest.<sup>352</sup> (emphasis added)

Clearly, the Board has deemed economic feasibility information to be necessary to its ability to fulfill its statutory requirements. Clearly, accurate financial information is fundamental to the Board's duties and a failure to provide such accuracy should lead to rejection of the Application, if the Board is being true to its mandate and to its own rulings.

Clarifying its intent to fulfill its public trust obligations to Canada and Canadians, the Panel elaborated on what it planned to consider in Ruling 25

Paragraphs 52(2)(a), (b), and (c) of the NEB Act specifically allow the Board to have regard to

- (a) the availability of oil...to the pipeline;
- (b) the existence of markets, actual or potential;
- (c) the economic feasibility of the pipeline...

These factors are directly relevant to the need for, and the continued use of, the Project. The Filing Manual describes the range of required information to address these issues. This information is necessary to allow the Board to be confident that the pipeline will be

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<sup>351</sup> NEB – Reasons for Decision – Emera Brunswick Pipeline Company Ltd. – GH-1-2006 ([A0Z1F5](#)), p. 10

<sup>352</sup> Exhibit A73-1 – National Energy Board - Ruling No. 28, Notice of Constitutional Question from the City of Burnaby ([A4A2V2](#)), p. 5

sufficiently used over its lifetime. The Board may consider reasonable regulatory- or market-related evidence as relevant if it demonstrates stability or change that could notably increase or decrease confidence in the application's long-term supply, markets, and economic feasibility outlooks.<sup>353</sup>

The Board referenced Chapter 4, Section A.3 "Economics" to indicate the section in the Filing Manual where further guidance could be found.<sup>354</sup> The Filing Manual clearly requires that Trans Mountain provide information that includes details on:

- supply;
- transportation;
- markets; and
- financing<sup>355</sup>

Thus, to determine whether the Project is in the public interest, the Board must satisfy itself from evidence on the record that the Project is needed, there is adequate supply of oil to the pipeline, markets exist, and that the project is economically feasible.

Trans Mountain has not provided the Board with adequate, reliable, fulsome, or timely information to conclude that the Project's benefits outweigh its burdens or to fulfill the requirements of the Filing Manual and related Section 52 legislative requirements establishing economic feasibility or financing and thus the Board cannot make a positive determination to recommend approval of the Project.

Trans Mountain has failed to provide to the Board sufficient information, and the information it has provided is misleading, erroneous, outdated, or flawed. On an evaluation of Trans Mountain's failure to provide adequate and reliable evidence on the economic feasibility of, and financing for, the Project, the Board must recommend that the Federal Government not approve the Project. On an evaluation of Trans Mountain's burdens as compared to benefits from the Project, the Board must recommend that the Federal Government not approve the Project as it is not in the public interest.

This section of Burnaby's final written argument addresses:

- i) Trans Mountain's failure to provide adequate and reliable evidence on the Project's economic feasibility;
- ii) Trans Mountain's deliberate misrepresentation of the planned method of financing the Project;

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<sup>353</sup> Exhibit A63-1 – National Energy Board - Ruling No. 25 - Motions requesting that the Board include in the List of Issues the environmental and socio-economic effects associated with upstream activities and downstream use ([A3Z5I4](#)), p. 5

<sup>354</sup> Exhibit A63-1 – National Energy Board - Ruling No. 25 - Motions requesting that the Board include in the List of Issues the environmental and socio-economic effects associated with upstream activities and downstream use ([A3Z5I4](#)), p. 5

<sup>355</sup> National Energy Board, "Filing Manual" online: <https://www.neb-one.gc.ca/bts/ctrq/gnnb/flngmnflngmnl-eng.pdf>, Guide A.3 – Economics, p. 4A-61

- iii) Trans Mountain's misrepresentation of opportunity for Canadians to participate in such financing;
- iv) the Project's failure to pass the Board's economic feasibility test as it relates not only to Trans Mountain's parent's lack of ability to finance the Project, but also the negative and material impact of the Project's increased capital cost of \$6.8 billion on the Project's feasibility; and
- v) Trans Mountain's corporate culture risk to the Canadian economy and public good particularly as it relates to Trans Mountain's practice of minimizing its Canadian corporate tax liability and maximizing its financial resources drain from the Canadian economy.

The City also submits that the economic and financial burdens of Trans Mountain's expansion, as they pertain to the Canadian economy and Canadian public, outweigh its economic and financial benefits and thus, is not in the public interest.

## **7.2 Kinder Morgan's Financial Structure and Funding Ability not Properly Established**

The financial structure of the proponent is a fundamental factor in whether a project is in the public interest. The National Energy Board requires proponents to properly establish that they can obtain the necessary funds to pay for their facilities, and the method of financing is in the Canadian interest.<sup>356</sup> This principle has been affirmed in previous decisions.<sup>357</sup>

In the AEC Suffield Gas Pipeline Inc. application, the Board commented on the public convenience and necessity test as follows:<sup>358</sup>

...The unequivocal failure of an applicant to satisfy the Board on a single critical component (such as, for example, the ability to finance the project) may be enough for the Board to conclude that, on that fact alone, the project cannot be found to be in the public convenience and necessity...

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<sup>356</sup> The Filing Manual explains that the proponent must provide a discussion of:

- *the applicant's ability to finance the proposed facilities;*
- *the method of financing the facilities;*
- *any changes to the financial risk of the company associated with its intended method of financing the facilities*

National Energy Board, "Filing Manual" online: <https://www.neb-one.gc.ca/bts/ctr/gnnb/fngmnl/fngmnl-eng.pdf>, Chapter 4, A3.4 Financing, p. A4-68

<sup>357</sup> NEB – Reasons for Decision – Mackenzie Valley Pipeline - Chapter 7 - Economic Feasibility, online <https://www.neb-one.gc.ca/pplctnflng/mjrrp/archive/mcknzgs/rfdv2ch7-eng.html>

<sup>358</sup> National Energy Board GH-2-2000 Reasons for Decision, AEC Suffield Gas Pipeline Inc., dated August 2000, at pp. 22-23, cited in NEB – Reasons for Decision – Sumas Energy 2, Inc. – EH-1-2000 ([A0J8V7](#)), p. 12

Trans Mountain told the Board as recently as September 2015, that "Trans Mountain Pipeline ULC expects to finance the Project with equity supplied by the parent company Kinder Morgan Energy Partners, L.P. ("KMP") and with corporate debt sourced from Canadian and U.S. lenders. KMP expects to rely on a balanced capital structure (50% debt and 50% equity), and to be able to secure an investment-grade rating for the long-term debt. This is consistent with the fact that KMP had its issuer rating of BBB confirmed by Fitch earlier this year."<sup>359</sup> Footnote 10 attached to Mr. Reed's evidence states that "KMP's current credit rating for long-term corporate debt is: BBB (stable) at Standard & Poor's Ratings Services; Baa2 (stable) at Moody's Investors Service Inc.; and, BBB (stable) at Fitch, Inc."<sup>360</sup>

Trans Mountain's final argument fails to adequately address its financing plan or the Board's requirements for economic feasibility. Trans Mountain makes unsubstantiated and misleading assertions. Relying on incorrect and knowingly outdated information, Trans Mountain claims that:

Trans Mountain has sufficient financial resources to safely construct and operate the Project. Trans Mountain is a wholly-owned subsidiary of Kinder Morgan Energy Partners, L.P. ("KMEP")...When the Application was filed, the KMEP family of companies had a combined enterprise value of approximately \$105 billion. Through its relationship with KMEP and KMC, Trans Mountain has the financial wherewithal and experience to ensure the Project meets or exceeds any Board requirements.<sup>361</sup>

Trans Mountain has misled the Board in at least four material ways.

- i) KMP was downgraded by all three credit rating agencies in November 2014 when it was delisted from the New York Stock Exchange and ceased to be a Master Limited Partnership. Instead of providing accurate and timely economic feasibility evidence, Trans Mountain continues to pretend KMP has the credit standing that existed when Trans Mountain filed its application in December 2013;<sup>362</sup>
- ii) KMP ceased being able to issue long term debt in November 2014 and thus cannot provide long-term debt to the Project as claimed. "Prior to KMI's purchase of KMP, KMP issued its own long and short-term debt and obtained credit ratings by independent credit agencies—in particular Moody's, Standards and Poor's and Fitch. The purchase of KMP has resulted in KMI as the sole surviving entity with the ability to issue debt. All future short-term and long-term debt for Kinder Morgan will be

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<sup>359</sup> Exhibit B427-6 – Trans Mountain Pipeline ULC - Direct Evidence of John J. Reed, Updated September 2015 Clean ([A4T6F2](#)), pp. 11-12

<sup>360</sup> Exhibit B427-6 – Trans Mountain Pipeline ULC - Direct Evidence of John J. Reed, Updated September 2015 Clean ([A4T6F2](#)), p. 12

<sup>361</sup> Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p. 9

<sup>362</sup> Exhibit C9-16-1 - Robyn Allan - Response to Kinder Morgan letter December 3, 2014 Motion to Stay – Reply Motion 6 December 7, 2014 pdf ([A4F7W3](#))

- issued at KMI. All the existing debt at the operating subsidiaries will be refinanced (by KMI) as it matures.”<sup>363</sup>
- iii) KMI, KMP’s and Trans Mountain’s new 100% owner, is the intended source of financing for the project but KMI has been unsuccessful in gaining an enhanced credit rating in line with KMP’s pre-November 2014 rating. KMI’s credit standing is “BBB- from Standard and Poor’s, Baa3 from Moody’s and BBB- from Fitch. The agencies identified KMI’s vulnerability to a downgrade (in November 2014). A downgrade would lead to a non-investment grade rating. Non-investment grade debt is what most of us know as junk bonds”<sup>364</sup>;
  - iv) despite KMI entering into cross-guarantees with virtually all its subsidiaries in November 2014 in an attempt to enhance security for its lenders, credit rating agencies have put financial markets on alert regarding KMI’s financial exposure—the Kinder Morgan entities are far from having a sound, reconfirmed standing with the credit agencies. KMI operates under the spectre of a downgrade because it is highly leveraged and its cost of capital and debt has increased substantially. “Standard and Poor’s explained that notwithstanding the cross-guarantees KMI is “highly leveraged” and has “aggressive financial policies, namely high financial leverage and the reliance on the capital markets to fund large discretionary cash flow deficits. Similarly, Moody’s Investor Service has explained that KMP’s merger with KMI negatively impacts KMP’s credit profile primarily because KMP becomes a direct obligor of the debt that has been issued by KMI. KMP’s assets (including Trans Mountain) were leveraged about 4.1 times as of June 30, 2014. After the purchase, its assets were leveraged roughly 6 times.”<sup>365</sup>

Despite the Board’s direction in Ruling 25, Trans Mountain has not informed the Board of serious “market-related evidence” that demonstrates significant changes to Trans Mountain’s source of financing, financing structure and KMI’s financial position, stability or ability to finance the Project. The Board has been informed by Intervenors on issues that Trans Mountain should have accurately been apprising the Board of regularly.

The facts Trans Mountain has attempted to keep from the Board significantly impede the application’s economic benefits and outlook. The Board must conclude Trans Mountain has failed to properly meet the economic feasibility test as it relates to Project financing.

From a high of \$44 US on April 24, 2015 to hovering around \$16 per share, KMI’s stock price decline is concerning. It has lost more than 60 percent of its value in the past three quarters. This precipitous loss in value has resulted in rating agencies expressing

<sup>363</sup> Exhibit C9-16-1 - Robyn Allan - Response to Kinder Morgan letter December 3, 2014 Motion to Stay – Reply Motion 6 December 7, 2014 pdf ([A4F7W3](#)), p. 12

<sup>364</sup> Exhibit 69-59-6 – City of Burnaby – 5. Kinder Morgan stock under siege, pipeline expansion a shaky bet National Observer ([A4W113](#))

<sup>365</sup> Exhibit C9-16-1 - Robyn Allan - Response to Kinder Morgan letter December 3, 2014 Motion to Stay – Reply Motion 6 December 7, 2014 pdf ([A4F7W3](#)), p. 15

considerable concern on the future financial outlook of KMI.<sup>366</sup> On December 1, 2015, Moody's changed KMI's outlook to negative from stable. "The negative outlook reflects Kinder Morgan's increased business risk profile and additional pressure on its already high leverage..."<sup>367</sup> Furthermore, Moody's stated "The ratings could be downgraded if it appears that Moody's adjusted debt to EBITDA will not be consistently 5.8x or below, distribution coverage appears likely to fall below 1x, business risk increases or if the company undertakes an acquisition that increases leverage or does other debt financed activities where the company is highly reliant on equity markets to bring down leverage."<sup>368</sup>

On December 3, 2015, Fitch stated that widening credit default swap spreads for Kinder Morgan are indicating much pricier credit protection for the company. "Market scrutiny is attributed to Kinder Morgan's heavy debt burden, constricted capital market access and concerns over profitability amid continued weakness in the oil and gas industry."<sup>369</sup>

A one-tier downgrade for KMI to junk bond status is serious. As the Board must be aware, fund managers have restrictions on the quality of securities they can hold and many may be required to dispose of non-investment grade securities. A downgrade would witness a dumping of KMI related debt into the market impeding the company's ability to rollover its existing debt as it comes due, not to mention significantly increasing the cost of doing so. KMI is unlikely to be sourcing new debt financing in the foreseeable future. Further, the failure to source debt through credit markets ensures that Canadians will not have "an opportunity to participate in the financing" as deemed desirable in the NEB Act.<sup>370</sup>

KMI responded to the credit rating agency announcements on December 9, 2015 by cutting its dividend by 75 percent. Richard Kinder, KMI founder and Chair told investors on December 9, 2015 that "The current reduced price of our stock has raised the cost of our equity to the point where it is no longer economic source of expansion capital. Given our current capital structure, these projects cannot be funded solely with debt without impairing our investment grade rating."<sup>371</sup>

These are matters into which the Board must inquire, and has failed to do so.

<sup>366</sup> Exhibit C77-56-2 - City of Vancouver – Information Request to Living Oceans Society, Tsawout First Nation and Upper Nicola Band ([A4W2Z7](#))

<sup>367</sup> Exhibit C77-56-2, City of Vancouver – Information Request to Living Oceans Society, Tsawout First Nation and Upper Nicola Band ([A4W2Z7](#))

<sup>368</sup> Exhibit C77-56-2, City of Vancouver – Information Request to Living Oceans Society, Tsawout First Nation and Upper Nicola Band ([A4W2Z7](#))

<sup>369</sup> Exhibit C77-56-2, City of Vancouver – Information Request to Living Oceans Society, Tsawout First Nation and Upper Nicola Band ([A4W2Z7](#))

<sup>370</sup> NEB Act, s. 52(2)(d)

<sup>371</sup> Nasdaq, "Kinder Morgan's (KMI) CEO Steve Kean on 2016 Outlook (Transcript)" Nasdaq (9 December 2015) online: <http://www.nasdaq.com/aspx/call-transcript.aspx?StoryId=3753886&Title=kinder-morgan-s-kmi-ceo-steve-kean-on-2016-outlook-transcript>

The Board has asked no questions of Trans Mountain on its financing plans or financial prospects since its parent, KMI, engaged in one of the largest and potentially most infamous, merger and acquisition (M&A) transactions in US history in November 2014. No queries were made even though the Board was advised of, and alerted to, serious liability limit, corporate tax avoidance and financial leverage concerns related to this transaction.<sup>372</sup>

Kinder Morgan Canada Inc. in a letter to the Board described the transaction as a “minor corporate reorganization” while Richard Kinder, KMI’s Chair and CEO told its investors that the \$76 billion purchase “marks the second largest M&A transaction of all time in the energy sector, second only to the Exxon purchase of Mobil back in the 1990’s”.<sup>373</sup>

Trans Mountain’s characterization to the Board is fundamentally different than Kinder Morgan’s characterization to shareholders. Trans Mountain appears to take its obligations to accuracy for US based shareholders and the Securities and Exchange Commission as higher than obligations to the Board.

Burnaby submits that the applicant’s claim that it will finance the Project as 50 percent debt and 50 percent equity through direct debt issuance by KMP is not possible because KMP no longer issues debt in its own right, nor does it have market traded equity.

The ability to undertake Trans Mountain’s financing structure through KMI instead of KMP is also impossible for market-related reasons. Trans Mountain’s economic feasibility is in doubt. Trans Mountain’s Houston, Texas based parent and source of financing, KMI, is in significant financial distress. Its excessive leverage threatens its access to investment grade debt and its declining stock value has pushed its ability to raise equity capital through issuance of shares out of KMI’s reach.

Trans Mountain has not provided to the Board an accurate or fulsome discussion of its parent company’s ability to finance the proposed facilities, the proposed financing method, or changes in the risk of the company associated with its intended method of financing the facilities, and thus has not fulfilled the Board’s informational requirements. Trans Mountain’s claims are not consistent with the facts. Trans Mountain’s Expansion has not been shown to be financeable and thus is not economically feasible.

The Board’s ability to understand the economic structure of the Project and the Proponent is seriously contradicted on this evidence, and the failure to hold any

<sup>372</sup> Exhibit C69-28-1 - City of Burnaby to NEB in Support of Notice of Motion Robyn Allan ([A4F8F3](#)); Exhibit C9-14-1 – Robyn Allan - Motion 6 Stay Pending Leave by NEB Nov 23, 2014 pdf ([A4F2E4](#)); and, Exhibit C77-14-1 - City of Vancouver - Response to Notice of Motion by Robyn Allan dated November 23, 2014 ([A4F6G2](#))

<sup>373</sup> Exhibit C9-16-1 - Robyn Allan - Response to Kinder Morgan letter December 3, 2014 Motion to Stay – Reply Motion 6 December 7, 2014 pdf ([A4F7W3](#)), p. 1

evidentiary hearing to consider this matter precludes the Board from determining the project to be in the public interest.

### **7.3 Capital Cost Increase Puts Feasibility in Question**

Trans Mountain is required to provide an estimate of the total capital costs, including Allowance for Funds Used During Construction (AFUDC), and incremental operating costs of its Project as well as indicate the Project's expected in-service date.<sup>374</sup> Similarly, Burnaby submits that the Board has an obligation to ensure the accuracy of those estimates, and to inquire into changed circumstances of which it becomes aware – prior to making its Report and recommendations.

The preliminary, Class IV/V capital cost of the Project has risen from \$5.4 billion to \$6.8 billion and its expected in-service date has been pushed to late 2019 from late 2017.<sup>375</sup>

Trans Mountain's parent, KMI, felt it necessary to apprise its shareholders of these material changes on October 21, 2015, during a conference call with investor analysts, but Trans Mountain has yet to inform the Board.<sup>376</sup>

However, in its Final Argument, Trans Mountain's knowingly misleads the Board by pretending the Project capital cost is \$5.4 billion. "The Project involves a \$5.4 billion capital cost expenditure..."<sup>377</sup>

Trans Mountain is skirting the negative implications of its increased capital cost by keeping the Board in the dark. The capital cost is important to the Project's economic feasibility. The Project's capital cost drives toll rates shippers will pay to send petroleum products along both the existing and new pipeline once the system is expanded.<sup>378</sup> The Project's capital cost is inextricably linked to the Project's economic feasibility, the need for the project, and the likelihood of the fixed charges being paid over the life of the Project.

As capital costs increase, so do tolls that shippers pay. Pursuant to Section 5.4 of the Facility Support Agreement (FSA), if tolls exceed a certain limit shippers can walk.<sup>379</sup> As Ian Anderson, president of Kinder Morgan Canada, explained to investor analysts in

<sup>374</sup> National Energy Board, "Filing Manual" online: <https://www.neb-one.gc.ca/bts/cstrg/gnnb/flngmnl/flngmnl-eng.pdf>, Chapter 4 - Physical Projects, pp. 4-1 - 4-3

<sup>375</sup> Exhibit C69-59-7 – City of Burnaby – 6. Cost of Trans Mountain's expansion quietly rises to \$6.8 billion, National Observer ([A4W114](#))

<sup>376</sup> Exhibit C69-59-7 – City of Burnaby – 6. Cost of Trans Mountain's expansion quietly rises to \$6.8 billion, National Observer ([A4W114](#))

<sup>377</sup> Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p. 9

<sup>378</sup> Exhibit C77-54-9 City of Vancouver – Supplemental Written Evidence – Appendix S-9 ([A4W0L4](#)), Article 3.2, PDF p. 13

<sup>379</sup> Exhibit C77-54-9 City of Vancouver – Supplemental Written Evidence – Appendix S-9 ([A4W0L4](#)), Article 3.2, PDF p. 13

Houston, Texas on October 21, 2015 “a toll to our customers in excess of \$6.8 billion—that gives them the out.”<sup>380</sup>

Trans Mountain says it has “take-or-pay” contracts with 13 shippers—11 have signed on for 20 years and two for 15. This means that if they don’t use the capacity, they pay anyway. That’s a liability worth about \$2 billion for the average shipper.<sup>381</sup>

Surprisingly, the Panel seems to have accepted Trans Mountain’s unsubstantiated claims with respect to shipper contracts as the Board did not request that Trans Mountain actually file the terms of the agreements to ascertain for itself the veracity of the assertions Trans Mountain was making on the economic feasibility of the Project. Certainly, these issues have not been canvassed on the public record.

Trans Mountain suggests that “long-term firm shipper contracts demonstrate the fundamental commercial underpinning for the Project”<sup>382</sup> and that the expansion will be used at a high load factor. “It can reasonably be assumed that such a commitment by a shipper is not going to be made lightly or without a plan to ship oil.”<sup>383</sup> Burnaby submits that Trans Mountain and its expert are misrepresenting the terms of the contracts and the commercial sophistication of many of the largest oil producers operating in Canada.

The FSA’s are not firm and these shippers have not irrevocably exposed themselves to the long-term volatility of the markets as Trans Mountain attempts to represent to the Board. Shippers understand major project capital cost determination and the regulatory approval process. They ensured for themselves, and their shareholders, due protection by including capital cost increases and other outs in their contracts.<sup>384</sup>

The Board must take the actual terms of the FSAs into consideration in its deliberations. The Board cannot simply accept a subset of features favourable to the Project selectively presented to the Board by the applicant. The Board has a responsibility to the Canadian public to ensure it has accurate information to make a determination on an alleged firmness in take-or-pay contracts. The Board has failed to make an effort to examine the terms of these contracts.

The Board indicated in July, 2015 that it is concerned with the recent decline in oil prices and subsequent slowing of crude oil supply in Western Canada. It asked some of the potential shippers what this lack of supply might mean for the feasibility of the

<sup>380</sup> Exhibit C69-59-7 – City of Burnaby – 6. Cost of Trans Mountain s expansion quietly rises to \$6.8 billion, National Observer ([A4W114](#))

<sup>381</sup> Exhibit C69-59-7 – City of Burnaby – 6. Cost of Trans Mountain s expansion quietly rises to \$6.8 billion, National Observer ([A4W114](#))

<sup>382</sup> Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p. 8

<sup>383</sup> Exhibit B427-6 – Trans Mountain Pipeline ULC - Direct Evidence of John J. Reed, Updated September 2015 Clean ([A4T6F2](#)), p. 13

<sup>384</sup> Exhibit C77-54-9 - City of Vancouver – Supplemental Written Evidence – Appendix S-9 ([A4W0L4](#)), Article 3.2, PDF p. 13

Project. The Board requested comments on producers' supply forecasts and financial commitments to the Project.<sup>385</sup>

Regrettably, neither Trans Mountain nor any of the potential shippers informed the Board that potential long-term shippers are contractually bound to support the Project irrespective of whether or not they have decided to exercise their exit clauses as per the terms of the FSAs in Section 2.2.

#### Section 2.2 Support in Proceedings

The Shipper agrees to provide support to and cooperate with the Carrier in obtaining Regulatory Approvals contemplated in Sections 4.1(b)(i) and 4.1(b)(ii), and to not oppose the efforts of the Carrier, to obtain such Regulatory Approvals.<sup>386</sup>

Shipper answers supporting the Project are effectively meaningless to the Board. The Board should know that shippers are contractually obligated to support the Project as long as the regulatory process is underway.

Trans Mountain's capital cost increase has negatively impacted the feasibility of the Project. Shipper statements of support should not be afforded any weight at this stage, and the Board must be aware that their actual commercial intentions are likely to change.

#### **7.4 Trans Mountain's Corporate Structure and Culture not in the Public Interest**

Burnaby also submits that Kinder Morgan, as a pipeline proponent for critical infrastructure, is not consistent with the Canadian public interest.

The original project was built in the 1950s by a Canadian corporation specially incorporated for this national project. It was operated for most of the remaining years in that manner, until acquired by Kinder Morgan. The company that built and operated the existing structures had a corporate culture and values that were more consistent with the Canadian public interest. The fact that Kinder Morgan has acquired the original project does not mean it acquired the same public acceptance or credibility.

KMI's management practices and corporate ethos promises the aggressive drain of more than \$1 billion a year in financial resources from the Canadian economy and promises continued avoidance of Kinder Morgan's fair share of corporate taxes. In fact, KMI's structure, repatriation of financial resources to the US, and tax planning approach represent a financial burden to the Canadian economy, not, as Trans Mountain claims, a financial benefit.

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<sup>385</sup> Exhibit A190-1 - National Energy Board Information Requests to Intervenors for the Trans Mountain Expansion Project ([A4R4V9](#))

<sup>386</sup> Exhibit C77-54-9 - City of Vancouver – Supplemental Written Evidence – Appendix S-9 ([A4W0L4](#)), Article 2.2, PDF p. 12

Trans Mountain and its operator under contract, Kinder Morgan Canada, are little more than a Canadian face for American billionaire Richard Kinder, and his Houston, Texas, based executive team. Many of Kinder Morgan's executive decision makers are the same people who brought us Enron.<sup>387</sup>

Enron was a U.S. energy giant responsible for one of the biggest accounting frauds in history. According to Robert Roach, U.S. Senate counsel and chief investigator into Enron's collapse, Enron's executives began falsely inflating revenues and cheating on taxes way back in 1992 (page 16 Volume 1 of 2). When it became apparent what they were up to, the house of cards imploded. Enron filed for Chapter 11 bankruptcy on Dec. 2, 2001.<sup>388</sup>

Scott Stoness, VP Kinder Morgan Canada Inc. responsible for finance and regulatory affairs is a former Enron employee.<sup>389</sup> Mr. Stoness has made statements regarding his relationship to Kinder Morgan Canada in his affidavit that are arguably incorrect and mislead the Board.<sup>390</sup> Mr. Stoness has stated that he is the VP Finance and Regulatory for Kinder Morgan Canada, Trans Mountain Pipeline ULC's parent. Kinder Morgan Canada Company ULC registered in Nova Scotia is Trans Mountain's parent, but Mr. Stoness is not listed as an executive on the corporate registry.<sup>391</sup> Mr. Stoness is the VP Finance and Regulatory for Kinder Morgan Canada Inc., (KMC) registered in Alberta and the operator under contract for Trans Mountain.<sup>392</sup>

Kinder Morgan Canada Inc., (KMC) has no ownership in Trans Mountain Pipeline ULC. Ms. Kimberly Dang, KMI's Chief Financial Officer is registered as the CFO for Kinder Morgan Canada Company ULC, and Mr. Jordan H. Mintz is listed as its VP and Chief Tax Officer. Jordan H. Mintz is KMI's Chief Tax Officer and a member of the board of various Canadian Kinder Morgan subsidiaries, including Kinder Morgan Canada Company ULC, the final Canadian entity related to Trans Mountain before US entities take over ownership.<sup>393</sup>

Mintz was the vice president of Enron's tax division from 1996-2000 and became general counsel for Enron Global Financial in October 2000. He joined Kinder Morgan in

<sup>387</sup> Exhibit C69-44-20 – City of Burnaby – Economic Evidence - How Trans Mountain Project will Pump Profits to Its Texas Owners (The Tyee, Jan. 12, 2015) ([A4L8H4](#))

<sup>388</sup> Exhibit C69-44-20 – City of Burnaby – Economic Evidence - How Trans Mountain Project will Pump Profits to Its Texas Owners (The Tyee, Jan. 12, 2015) ([A4L8H4](#))

<sup>389</sup> National Energy Board RH-2-2011- Exhibit B13-3 – Trans Mountain Letter regarding Procedural Matters – Attachment 1 Written Direct Evidence ([A2C1W2](#))

<sup>390</sup> Exhibit B443-3 – Trans Mountain Pipeline ULC - Supplemental Affidavit of Scott Stoness ([A4W6I5](#)); and Exhibit B421-2 – Trans Mountain Pipeline ULC – Affidavit of Scott Stoness on behalf of Trans Mountain Pipeline ULC ([A4S8F3](#))

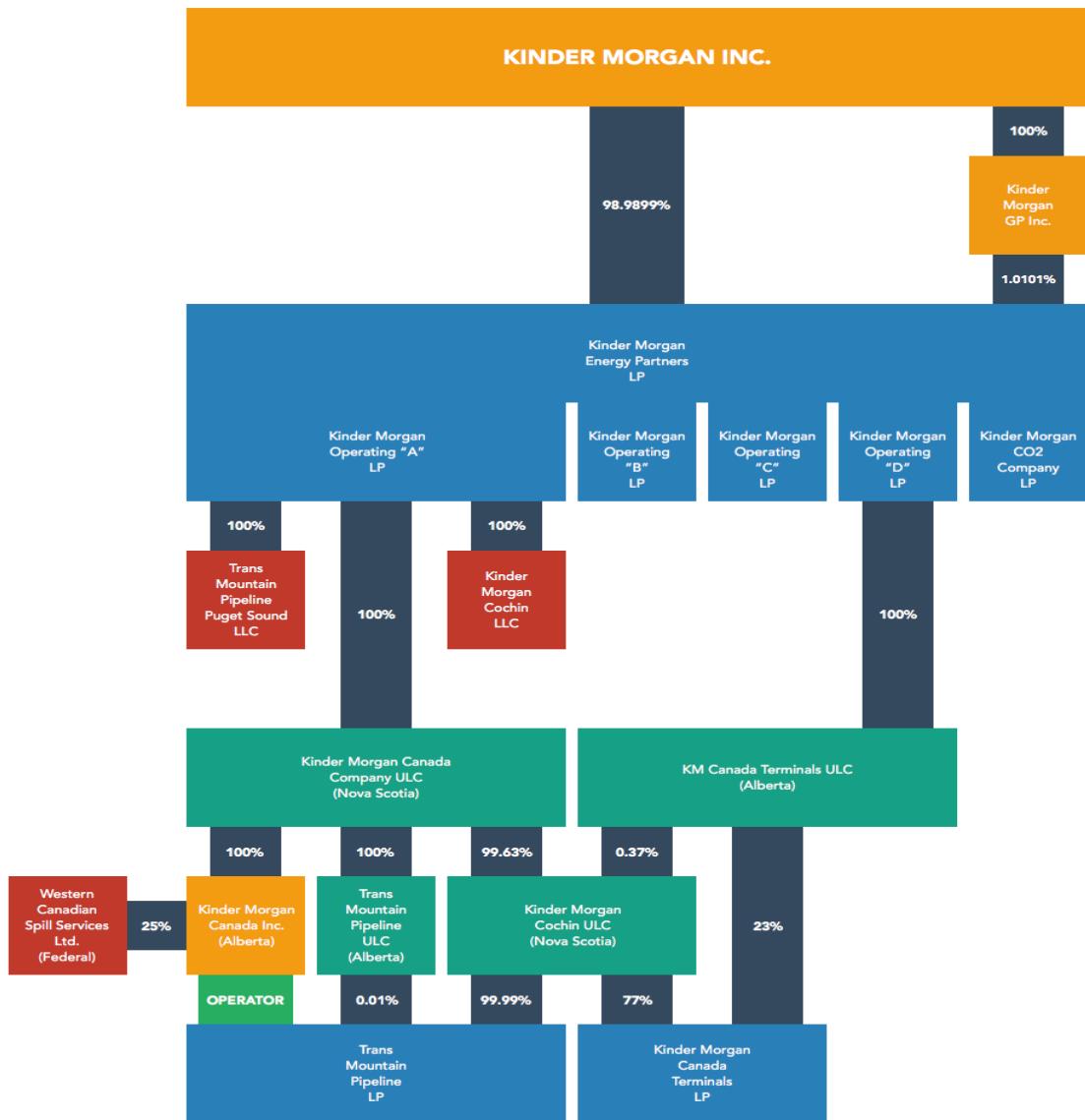
<sup>391</sup> Exhibit C9-28-11 – Robyn Allan – Notice of Motion 10 to Dismiss – Attachment 9 Appendix 1 ([A4H5F9](#))

<sup>392</sup> Exhibit B247-2 – Trans Mountain Follow-Up Response to Allan R F-IR No. 1.04I-Attachment 1 ([A3Z7Y9](#)); and National Energy Board RH-2-2011- Exhibit B13-3 – Trans Mountain Letter regarding Procedural Matters – Attachment 1 Written Direct Evidence ([A2C1W2](#))

<sup>393</sup> Exhibit C69-44-20 – City of Burnaby – Economic Evidence - How Trans Mountain Project will Pump Profits to Its Texas Owners (The Tyee, Jan. 12, 2015) ([A4L8H4](#))

2006. The U.S. government's Securities and Exchange Commission sued Mintz in 2007 for violating anti-fraud laws, aiding and abetting Enron's violations of anti-fraud laws and periodic reporting provisions, and lying to auditors while he was general counsel.<sup>394</sup>

The corporate structure of the proponent is highly complex, and appears to be designed primarily to create tax avoidance, but also to mislead and to minimize liability. The follow chart reproduced from Exhibit C69-44-20, illustrates Trans Mountain's ownership relationship.<sup>395</sup>



<sup>394</sup> Exhibit C69-44-20 – City of Burnaby – Economic Evidence - How Trans Mountain Project will Pump Profits to Its Texas Owners (The Tyee, Jan. 12, 2015) ([A4L8H4](#))

<sup>395</sup> Exhibit C69-44-20 – City of Burnaby – Economic Evidence - How Trans Mountain Project will Pump Profits to Its Texas Owners (The Tyee, Jan. 12, 2015) ([A4L8H4](#))

The Board should consider the values that drive Trans Mountain's parent and how those values are not consistent with the Canadian public interest. Values drive decision-making, and decision-making becomes increasingly important when things do not go according to plan, such as when the parent experiences cash flow pressures, or its pipeline suffers a leak.

The City of Burnaby has direct experience with Kinder Morgan's corporate ethos and how the company's desire to protect its shareholders over stakeholders leads to steps that are not in the public interest including unwarranted court actions. This was Burnaby's experience during a pipeline leak in 2007.<sup>396</sup>

Trans Mountain's structure as a limited partnership, with a general partner 100% owned indirectly through a myriad of entities (as illustrated by the above corporate structure chart), along with a limited partnership control through Cochin Pipelines, is designed to limit Trans Mountain's spill liability and tax burden in Canada, as well as maximize the cash flow drain from Canadian to US entities.

The complex corporate structure is a visual representation of the pains Kinder Morgan goes to ensure maximum return with minimum risk and responsibility. This corporate culture is not in the Canadian commercial economic or public interest.

## **7.5 Tax Drain not Tax Gain**

Trans Mountain has told the Board that the Project will increase corporate income tax flowing to federal and provincial treasuries. Trans Mountain has provided figures that purport to represent fiscal revenues from the operation of the system once the expansion is complete. "The operations phase will boost Canadian GDP by \$17.3 billion over the first 20 years. The Project will generate about \$1.9 billion in additional tax revenues for the federal government during operations and an additional \$1.1 billion in provincial taxes, with B.C. receiving about \$943 million and Alberta receiving about \$360 million."<sup>397</sup> These claims are highly misleading.

Trans Mountain commissioned Mr. Glen Hodgson of the Conference Board to estimate fiscal impact, but did not alert him or he did not consider KMI's tax planning approach.

Mr. Hodgson employed the Conference Board's proprietary tax estimation model as if Trans Mountain's structure reflects a much higher effective corporate tax burden than it can actually be expected to after the Project is complete. Mr. Hodgson undertook his work without reasonable consideration of the likely tax burden Trans Mountain will face and thus, at best, his estimates must be treated as hypothetical.<sup>398</sup>

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<sup>396</sup> Exhibit C9-27-1 – Robyn Allan - Letter in Support of Burnaby Motion on Advertising Costs ([A4H0Y0](#)), p. 12

<sup>397</sup> Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), p. 77, paras. 1355-1358

<sup>398</sup> Exhibit B40-1 - Trans Mountain Response to Allan R IR No. 1 (stricken in part) ([A3X5V9](#)), IR 1.0300, pp. 38, 43

In reality, Trans Mountain will pay little, if any, corporate tax in Canada. That is the way KMI has designed it, and that is one of the company's key drivers—plan corporate structures as tax shelters to transfer would-be corporate income tax revenue away from the public purse to the private benefit of shareholders.

KMI's \$76 billion purchase of KMP and other entities in November 2014 (now seen as unwise) was, according to KMI, largely motivated by tax minimization considerations. The restructuring was intended to generate \$20 billion in tax savings over 14 years.

The purchase price for the acquired assets is at a premium and as a result, according to Richard Kinder, "the purchase price alone, including the "step-up", will result in a \$20 billion tax saving over 14 years." Mr. Kinder, in discussions with investor analysts, referred to the KMI purchase transaction as a "tax shelter". The transaction is intended to protect KMI from corporate taxes which would be payable if KMP were not purchased.<sup>399</sup>

The Board must recognize the facts related to Trans Mountain's contribution to fiscal revenues, not a fantasy based on hypotheticals ignorant of Kinder Morgan's tax strategies. According to Kinder Morgan, from 2009 - 2013 Trans Mountain paid an average of \$1.5 million a year in cash taxes on distributable cash flow of an average of \$172 million. In two of the five years, Trans Mountain received a cash tax refund.

**Table 1**  
**Trans Mountain — Distributable Cash Flow (DCF)**  
(Millions \$ CDN)

	2009	2010	2011	2012	2013	Annual Average
Trans Mountain System	\$168.3	\$161.6	\$167.6	\$193.2	\$167.1	<b>\$172</b>
Cash Tax (refund)	(\$3.5)	2.9	\$1.1	\$11.1	(\$4.2)	<b>\$1.5</b>

Source: Kinder Morgan Analysts Conference 2013 (page 4) and 2014 (page 3).  
US dollar figures translated to Canadian using Bank of Canada annual exchange rate.<sup>400</sup>

Trans Mountain relies on hypothetical "what if" scenarios that do not represent the most likely cash tax contribution of the Project to the Canadian economy. The City of Burnaby submits that the scenarios relied on are extremely improbable and misrepresentative of the actual tax contribution that Trans Mountain's expansion will make to federal and

<sup>399</sup> Exhibit C9-14-1 – Robyn Allan - Motion 6 Stay Pending Leave by NEB Nov 23, 2014 pdf ([A4F2E4](#))

<sup>400</sup> Exhibit C9-27-1 – Robyn Allan - Letter in Support of Burnaby Motion on Advertising Costs ([A4H0Y0](#)), p. 4

provincial treasuries; instead, the evidence should be based upon Trans Mountain's past practice and corporate intentions.

The City of Burnaby submits that Trans Mountain does not now, nor will it in the future, pay its share of corporate taxes it uses for its estimates. This loss of tax from Canada by this corporation is a factor to be considered in the assessment of public interest. A corporate culture of tax avoidance is a factor to be considered in the assessment of public interest.

## 7.6 Financial Drain not Financial Gain

The entity driving the Trans Mountain Expansion Project is not Trans Mountain Pipeline ULC, the general partner of Trans Mountain Pipeline LP. It is not the operator under contract, Kinder Morgan Canada ULC., or Nova Scotia registered Kinder Morgan Canada Company ULC, or Kinder Morgan Operating "A" LP., or the Delaware registered, former Master Limited Partnership, Kinder Morgan Energy Partners LP (KMP).

The entity driving the Trans Mountain Expansion Project is Kinder Morgan Inc., Trans Mountain's 100% parent. This is the entity the Board should be familiar with as part of its review. KMI is the entity that makes the decisions and gives strategic direction.

Regrettably, the Board has not asked Trans Mountain any meaningful questions about its owner, KMI, nor has it elected to seek an understanding of the true role Trans Mountain's expansion is intended to play in underwriting KMI's huge cash flow needs.<sup>401</sup> This Board must reconsider this approach in its assessment of the public interest.

Despite the City of Burnaby's requests to compel full and adequate responses, the Board would not require Trans Mountain to answer the City of Burnaby's information requests regarding KMI, the November 2014 transaction, its credit rating impact, spill liability and parental guarantees related to the Project.<sup>402</sup>

Understanding the purpose behind Trans Mountain's expansion is difficult because Trans Mountain's owner, KMI, has designed such a complex corporate structure, and re-organize this structure as necessary to minimize liability and maximize cash flow to its predominantly U.S. based shareholders.<sup>403</sup> However, KMI tells its U.S. based shareholders financial information the NEB should know.<sup>404</sup>

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<sup>401</sup> Exhibit 69-59-6 – City of Burnaby – 5. Kinder Morgan stock under siege, pipeline expansion a shaky bet National Observer ([A4W113](#))

<sup>402</sup> Exhibit C69-35-1 – City of Burnaby – Reply – Notice of Motion Burnaby IR No. 2 ([A4J7Q3](#)), IR 2.127a), p. 107. The Board did not compel sufficient answers to seventeen questions directly related to these issues. See IR 2.127a) and onwards under Economics.

<sup>403</sup> Exhibit C9-28-1 – Robyn Allan - Notice of Motion to Dismiss ([A4H5E9](#)); see also Exhibit C9-28-2 – Robyn Allan – Appendix 1 to Motion 10 to Dismiss ([A4H5F0](#))

<sup>404</sup> Exhibit C69-44-16 – City of Burnaby - Economic Evidence - Exhibit C15-12, Transcript of 2013 Kinder Morgan Canada Investor presentation by I. Anderson, National Energy Board Hearing Order RH-001-2012 ([A4L8H0](#)); See also Exhibit C69-44-17 – City of Burnaby - Economic Evidence - Exhibit C15-13,

Trans Mountain tells US investor analysts that the Project represents a significant cash drain from the Canadian economy. When the capital cost of the Project was \$5.4 billion Mr. Anderson boasted \$850 million a year in earnings before interest, taxes, depreciation and amortization (EBITDA) would be available to KMI during the first full year of Trans Mountain's expanded system's operation.<sup>405</sup>

A capital cost of \$6.8 billion means Trans Mountain's EBITDA available to its owner KMI grows beyond \$1 billion a year. Trans Mountain is a cash cow for KMI. It is the solution to KMI's unwise financial obligations and the key element in the deleveraging strategy KMI promised credit rating agencies in late 2014.<sup>406</sup>

KMI knows interest expense is actually a profit because the company is the source of financing for the expansion Project. KMI also knows little or no cash tax burden exists for Trans Mountain's operations, and depreciation and amortization are non-cash expenses. Trans Mountain is a gold mine, and the gold is destined for Houston.

Trans Mountain withholds relevant information from the Board, while Trans Mountain's parent, KMI, ensures this information is provided to its shareholders. Trans Mountain is designed to siphon away vast financial resources from the Canadian economy while minimizing its corporate tax contribution to federal and provincial treasuries.

Trans Mountain has attempted to keep this information from the Hearing record by refusing to answer Intervenor questions, including questions from the City of Burnaby. Trans Mountain declares these issues are outside the scope of the Board's review.<sup>407</sup> This is transparently incorrect. The corporate culture and values of the company behind the expansion project, and how these ensure substantial financial resources will be drained from the Canadian economy, are critical to a public interest determination.

The Board has an obligation to protect the Canadian economy, society and environment from a company that will not protect the public interest because its corporate culture, corporate structure and financial management is designed to siphon vast financial resources away from the Canadian economy while avoiding its fair share of corporate tax burden. The Project is not in the public interest.

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2013 Kinder Morgan Canada Investor presentation by I. Anderson, National Energy Board Hearing Order RH-001-2012 ([A4L8H1](#))

<sup>405</sup> Exhibit C69-44-16 – City of Burnaby - Economic Evidence - Exhibit C15-12, Transcript of 2013 Kinder Morgan Canada Investor presentation by I. Anderson, National Energy Board Hearing Order RH-001-2012 ([A4L8H0](#)), p. 3

<sup>406</sup> Exhibit 69-59-6 – City of Burnaby – 5. Kinder Morgan stock under siege, pipeline expansion a shaky bet National Observer ([A4W113](#))

<sup>407</sup> Exhibit C69-57-1 – City of Burnaby – Notice of Motion to Compel Full and Adequate Responses to the Replacement Evidence IRs ([A4U8L6](#))

## 7.7 Oil Price Assumptions

Mr. Earnest of Muse Stancil postulates that when an additional 540,000 barrels per day of crude oil are directed away from Canadian and US refineries to refineries overseas, the price will go up for every barrel of crude oil produced in Western Canada, every year for twenty years.<sup>408</sup> The producer benefit figure provided by Mr. Earnest is not reliable. Mr. Earnest states that the world supply of oil will not be affected by Trans Mountain's expansion but this assumption is questionable in respect to basic principles of economics and world oil pricing.

Mr. Earnest's logic is fundamentally flawed and he postulates a hypothetical and unsubstantiated outcome that is not consistent with the evidence filed by Board member Steven Kelly during the Part IV Hearing. Mr. Earnest's netback analysis must be questioned and is not consistent with how the market for crude oil operates in the real world.<sup>409</sup>

## 7.8 Consumer Impacts

It is submitted that the evidence prepared by Mr. Neil Earnest of a gross producer benefit of \$73.5 billion<sup>410</sup> from higher Western Canadian crude oil prices are unrealistic and should not be accepted by the Board. However, if Mr. Earnest's calculations were to be believed, the price lift he postulates is a gross producer benefit, BUT not a net public interest benefit.

If the effect of the Trans Mountain expansion is to increase the price of a barrel of oil, that will directly affect both local refineries, and ultimately consumers. In particular, the Board must consider the potential 5 cent a litre increase at the pumps for BC motorists if the Project proceeds. If consumers must pay more for gasoline in BC, this is a matter that weighs heavily in assessing the public interest and is a net detriment on a social and a financial basis. It cannot be ignored by the Board.

The impact of Trans Mountain's expansion at the pumps is calculated to represent about 5 cents a litre for BC motorists during the first full year of Trans Mountain's expansion. Detailed calculations for this estimate, along with the references on the Board's hearing record, are provided in the footnote.<sup>411</sup>

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<sup>408</sup> Exhibit B427-2 – Trans Mountain Pipeline ULC – Evidence to Replace the Direct Evidence Prepared by Mr. Steven Kelly for the Project – 2a Muse Stancil, Market Prospects and Benefits Analysis of the TMEP, September 2015 ([A4T6E8](#))

<sup>409</sup> Exhibit C77-54-8 City of Vancouver – Supplemental Written Evidence – Appendix S-8 ([A4W0L3](#)), p. 12, paras 4466-4469; Exhibit C77-27-16 - City of Vancouver – Written Evidence Appendix 15 ([A4L7X3](#)), pp. 4-5; and Exhibit C213-30-2 – Living Oceans Society – Replacement for Attachment F to written evidence of Living Oceans – Public Interest Evaluation – Dr Gunton et al ([A4W0R4](#)), pp. 11-20

<sup>410</sup> Exhibit B427-2 – Trans Mountain Pipeline ULC – Evidence to Replace the Direct Evidence Prepared by Mr. Steven Kelly for the Project – 2a Muse Stancil, Market Prospects and Benefits Analysis of the TMEP, September 2015 ([A4T6E8](#)), p. 7

<sup>411</sup> Calculation of Gasoline Price Impact from Mr. Earnest's Price Lift Estimate -- Methodology: Price lift for light crude oil relied on by Burnaby's refinery converted from real US dollars into 2020 nominal Canadian dollars (the first full year of service for Trans Mountain's expansion) divided by 159 litres per barrel

Surely the Board must care if the Project represents a cost of upwards of \$500 million a year to Canada's refineries unless, of course, they successfully pass this cost onto consumers in Alberta, BC and Ontario.<sup>412</sup>

Trans Mountain has taken deliberate effort to keep the impact on gasoline prices off the Hearing record. Trans Mountain was asked in Round 1 of the Information Requests whether it believed that the cost of gasoline at the pumps is a public interest issue.<sup>413</sup> Kinder Morgan responded that the public is interested, but it is not a public interest issue. Kinder Morgan refused to answer questions because it said higher gasoline prices for consumers is outside the scope of the Board's review and not relevant to the hearing:

Trans Mountain acknowledges that the price of gasoline and other petroleum prices facing end users is of interest to the public...however, the information request is not relevant to one or more of the issues identified in the National Energy Board's List of Issues for the Trans Mountain Expansion Project.<sup>414</sup>

Trans Mountain apparently directed Mr. Earnest to ignore the impact of higher crude oil prices on Canadian refineries that depend on Western Canadian crude oil feedstock, although Mr. Earnest did estimate this impact when he prepared a similar report for

provides the per litre increased cost from higher crude oil prices attributed by Trans Mountain to be a result of the expansion. This represents the marginal increase per litre cost for Western Canadian refineries that rely on Western Canadian crude oil as feedstock. Calculation:

1. Mr. Earnest's report, price lift for Sweet Synthetic during first full year of Trans Mountain's expansion 2019 in real 2015 US dollars = \$2.43. See Exhibit B427-2 ([A4T6E8](#)), page 80, Table A-16.
  2. The first full year of Trans Mountain's expansion has been pushed to 2020 as the in service date is late 2019 according to KMI's October 21, 2015 conference call with investors. See Exhibit C69-59-7 ([A4W114](#)). Trans Mountain discussed the construction delay in its letter to the Board. See Exhibit B423-1 ([A4T2S3](#)), p. 9.
  3. Exhibit B427-2 ([A4T6E8](#)), p. 44 notes an inflation rate of 2.1%. Mr. Earnest's inflation factor of 1.021 from 2015 to 2020 gives an inflator of 1.1095. This factor translates \$2.43 per barrel in real 2015 US dollars to nominal 2020 US dollars.  $\$2.43 \times 1.1095 = \$2.69609$  in US 2020 nominal dollars per barrel of Sweet Synthetic
  4. In Trans Mountain's response to a City of Burnaby IR, Passing Nominal Prices and Exchange Rate Impact onto Consumers, Response 1.4 (g) and (h), it cites \$2.69609 times an exchange rate of .75 cents (or 1.33333) = \$3.59478 5, and therefore a price lift for Sweet Synthetic is \$3.59478 per barrel. See Exhibit B430-3 ([A4U6X3](#)), pp. 38-39
  6. \$3.59478 divided by 159 litres = 2.261 cents per litre Canadian in 2020
  7. Per litre increased cost from crude oil price lift during first full year of operation = 2.3 cents a litre
- <sup>412</sup> Exhibit C69-59-4 – City of Burnaby - Update of Market Prospects and Benefits Analysis for the NGP ([A4W111](#)), p. 7, Table 3, p. 71, Table A-19, p. 72, Table A-20; Exhibit 12-09-04 – International Reporting Inc. – OH-001-2011 Hearing Transcript – September 4, 2012 – Volume 69 ([A2Z8E3](#)), paras. 14471-14477, pp. 24-25. This report was produced by Neil Earnest of Muse for OH-4-2011, the same author and company that provided the economic evidence for the Project.
- <sup>413</sup> Exhibit B40-1 - Trans Mountain Response to Allan R IR No. 1 (stricken in part) ([A3X5V9](#)), IR 1.23 (I), p. 207
- <sup>414</sup> Exhibit B40-1 - Trans Mountain Response to Allan R IR No. 1 (stricken in part) ([A3X5V9](#)), IR 1.23 (I), p. 208

Enbridge's Northern Gateway Project. Trans Mountain does not want the Board to recognize the cost to oil refiners that its expansion represents.<sup>415</sup>

The City of Burnaby also notes that both Mr. Earnest and Mr. Hodgson have failed to consider in their assessment of economic costs the net effect of displacement of existing rail transport. A full accounting of losses as well as benefits should be required for any transparent analysis. The economic treatment of the displacement of rail capacity as if there is no impact or related cost is inappropriate.

Overall, the gross producer benefit calculated by Mr. Earnest, and advanced by Trans Mountain in its final argument, has ignored:

- i) the increased feedstock costs to Canadian refiners when crude oil prices rise;
- ii) the post-expansion impact of a doubling of spot toll charges for conventional oil and petroleum products transported along the existing Trans Mountain pipeline that serves the product needs of the BC market;<sup>416</sup>
- iii) costs to consumers and business who face higher end user prices when crude prices and transportation costs are passed on—Trans Mountain's expansion means an increase of about 5 cent a litre at the pump<sup>417</sup>; and,
- iv) the cost to the transportation sector when pipeline capacity is substituted for rail transport.

The only way the Board can conclude that the Project is of economic benefit to the Canadian economy is to accept Mr. Earnest's questionable assumptions of price lift and then ignore all negative impacts associated with its derivation. This is not in the public interest.

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<sup>415</sup> Exhibit B430-4, Trans Mountain Responses to City of Vancouver Replacement Evidence IR ([A4U6X4](#)), IR 5c), p. 20; Exhibit B430-3, Trans Mountain Responses to City of Burnaby Replacement Evidence IR ([A4U6X3](#)), IR 1.2 "Passing Increased Prices onto Consumers", p. 22

<sup>416</sup> Exhibit C69-59-2 – City of Burnaby – 1. Toll Structure, Application for Approval of the Transportation Service ([A4W1H9](#)); Exhibit C69-59-3 – City of Burnaby – 2. Evidence of G. Schink, January 10, 2013 ([A4W1I0](#)), p. 57, footnote 147

<sup>417</sup> The methodology to conclude that the Project will lead to a 5 cent increase is calculated as follows: The doubling of toll rates for refined product and light oil on the existing pipeline as provided in Exhibit C69-59-3 ([A4W1I0](#)) and Exhibit C69-59-2 ([A4W1H9](#)) along with the revised capital cost of \$6.8 billion in Exhibit C69-59-7 ([A4V1I4](#)) for an in-service date of 2019 and the toll rates this higher cost represents triggers a per litre cost of 2.23 cents a litre at the rate of 159 litres per barrel. The increased crude oil prices predicted by Mr. Earnest in Exhibit B427-2 ([A4T6E8](#)) in Canadian dollar equivalent, in 2019 dollars at Mr. Earnest's inflation rate of 1.021 represents a further 2.32 cents a litre for a total increased cost of 4.6 cents a litre rounded to 5 cents a litre.

## 7.9 Conclusion

The proposed Trans Mountain Expansion Project fails the Board's public interest test and has not passed the basic requirements of a number of issues in the Board's list of issues because:

- i) the economic benefits Trans Mountain has attributed to its Project are not credible and are outweighed by the economic burdens associated with the project;
- ii) Trans Mountain has failed to provide information required under the legislation governing the review of the proposed Project and the NEB's Filing Manual. This information is critical to the public interest assessment of the Project, and Trans Mountain's failure to provide it is fatal to any positive recommendation;
- iii) the Project is not economically feasible and Trans Mountain has failed to provide evidence that indicates a realistic or achievable financing plan; and,
- iv) the Project, while it may be in the urgent and private interest of Kinder Morgan Inc., is not in the public interest of Canada or Canadians.

## 8. Burnaby Land Use and Planning and Bylaw impacts

This project involves an unprecedented and major intrusion through a number of highly developed municipal areas. The most significant impact of all is to the City of Burnaby.

As noted above, the fact that the route of the existing pipeline may have been considered to be in the public interest in 1952 does not justify a similar assumption in 2016. The municipality of Burnaby (as well as Coquitlam, New Westminster, Surrey, Langley and Abbotsford) have very substantially developed since the original approval. Further, that pipeline was much smaller volumes, and for the purposes of supplying local refineries, serving the municipality.

Secondly, the arguments made by Trans Mountain that following an existing route relieves them (and the NEB) of an obligation to consider alternative routes, has no application in Burnaby. Through Burnaby, the proposed route is almost entirely new and does not follow the original route.<sup>418</sup>

Whether or not a pipeline to the West Coast can be found to be in the national public interest, that does not mean it is *this* pipeline. It is Burnaby's submission that in 2016 it is not appropriate, and the national public interest does not justify, the placement of the significant high risk pipeline (particularly one carrying diluted bitumen in the volumes proposed here) through the central core of a major municipality. The impacts and risks of such a pipeline in a major municipality are vastly magnified over a pipeline that goes through rural or unoccupied areas. To accept those greater risks and impacts would require a very substantial showing of a compelling and unique need, not met by any other alternative, and a clear and substantial evidentiary base in respect of the unavailability of other routes.

Neither of those findings can be made in this case, because Trans Mountain has failed to produce that evidence, and this NEB panel has failed to require that evidence.

Once established, a pipeline within a major municipality creates much greater -- and effectively permanent -- risks and complications on future planning and future development alternatives than a normal pipeline would on unoccupied lands or farmers' fields in areas outside established municipalities. Burnaby has filed evidence, as have other municipalities, showing the very significant and prolonged adverse effects that a pipeline creates in managing the future planning, future road and development construction which cause adverse impacts to a municipality that ought not to be easily outweighed by a generalized public interest that could be fulfilled by alternative routes.

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<sup>418</sup> Exhibit B33-12 – Trans Mountain Response to NEB IR No. 184a-Attachment1 12 of 12 ([A3W9Q8](#)), p. 2; Exhibit B290-2 – Trans Mountain Pipeline ULC – Project and Technical Update No. 4, Part 1 of 2 – Westridge Delivery Line Routing Update ([A4F5D5](#)); Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR 1.01.02, p. 3. The latter reference notes “[t]he pipeline route involves a new right-of-way over 90% of its distance in Burnaby”

Trans Mountain has completely failed to provide an evidentiary basis for a rational and reasoned comparison of other possible routes, and therefore failed to provide any reasonable rationale for using the route it proposes – other than it is mostly an existing route even though circumstances have changed so dramatically – rather than a route which avoided a core municipal impact. Trans Mountain seeks to avoid a rational planning process and instead seeks to piggy-back on a decision for the earlier pipeline – one made over 60 years ago in a very different time and about a very different place.

## 8.1 Operational Impacts

The Report from Associated Engineering, prepared for the five municipalities of Burnaby, Surrey, Coquitlam, Abbotsford and Langley<sup>419</sup> contains a detailed outline of some of the many ways in which a pipeline, once constructed, could constrain or complicate future development.

If built, this pipeline and its associated aided right-of-way and buffer zones would repeatedly impact the municipality of Burnaby (and the other municipalities) in significant ways, on an effectively permanent basis. Some of these costs are capable of estimation in monetary terms (e.g. additional maintenance and repair expenses, higher future infrastructure costs, infrastructure project delays, etc.); other impacts are more difficult in quantification (e.g. impacts to future planning and development options, reduced area for utilities, constraints on area-specific growth, etc.), but these latter impacts are undoubtedly real, and in a growing major metropolitan area, a significant concern.

Under existing NEB policy and Trans Mountain practice, once a pipeline has been built, all future additional infrastructure costs for repairs to roads and utilities is at the expense of the road or utility owner – which in many or most cases is the municipality, without right of compensation from Trans Mountain, no matter how great an inconvenience or additional cost the existence of the pipeline creates.

Further, the pre-existing *NEB Crossing Regulations*<sup>420</sup> and experience with current practice would usually require the municipality or utility owner to obtain written permission from Trans Mountain prior to repair or construction activities, and inevitably in practice to accept any conditions imposed by the pipeline company. It requires notice of construction, and that work be carried out under the supervision of Trans Mountain, and in most cases puts the pipeline company in position to insist on compensation for its additional costs. The Written Arguments filed by Surrey and the other municipalities

<sup>419</sup> Exhibit C69-44-8 – City of Burnaby - Exhibit A - Cost Impact of the TM Expansion on Lower Mainland Municipalities - CV of Larry Martin ([A4L8G2](#)); Exhibit C69-44-9 – City of Burnaby - Exhibit B - Part 1. Report and Appendix A - Cost Impact of Trans Mountain Expansion on Lower Mainland Municipalities ([A4L8G3](#)); Exhibit C69-44-10 – City of Burnaby - Exhibit B - Part 2. Appendices B-E - Cost Impact of TM Expansion on Lower Mainland Municipalities ([A4L8G4](#)); ♦see also Exhibit C77-27-1 – City of Vancouver - Written Evidence ([A4L7V8](#)), pp. 47-52; and Exhibit C77-28-6 – City of Vancouver – Written Evidence - Appendix 52 ([A4L7L1](#))

<sup>420</sup> *National Energy Board Pipeline Crossing Regulations, Part 1* (SOR/88-528) and in the *National Energy Board Pipeline Crossing Regulations, Part 2* (SOR/88-529)

are correct, and contain more detail of the complications engaged by the existing and other pipelines, and the frustrations experienced by municipalities in fulfilling their on-going municipal obligations to repair, upgrade and construct new infrastructure.

This is yet another reason to reject the proposal to build a pipeline through highly-developed urban areas in major municipalities.

The Associated Engineering Report attempts to quantify at least the additional monetary costs – which are estimated at approximately \$93,000,000.<sup>421</sup> The unquantifiable costs of lost planning options, lost utility routings and other enhanced risks are largely unquantifiable, but are likely much higher.

Unlike other utilities, like sewers, water pipes, electricity and fiber optic cables, and roads which are for the benefit of the residents of the municipality, the Trans Mountain pipeline is for export and not to serve the municipal residents. Even if in theory, this pipeline would serve a higher ‘national purpose’, there is no justification for demanding that the residents of the municipality bear the whole future costs of such additional expenditures, certainly not the quantifiable ones. The necessity for these future expenditures are obvious, they must be taken into account now.

To partially address these issues requires that those costs must be wholly and fully imposed upon the users and beneficiaries of a pipeline by providing that Trans Mountain must agree to compensate the municipalities for all future additional costs. The other municipalities have suggested a number of requirements<sup>422</sup> – as one potential mitigation. While those suggested obligations are absolutely appropriate and should be imposed as a minimum if the pipeline were being considered further, Burnaby submits that those conditions cannot make the pipeline in this location acceptable. The better approach is to reject the pipeline in these municipal locations.

It must be noted that these significant costs to municipalities are only necessary because of the decision of Trans Mountain to apply, in the 21<sup>st</sup> century, to build its pipeline directly through a number of major municipalities, through the core of Burnaby’s commercial and residential areas. These future costs would not be likely or relevant if this pipeline were proposed for a different location, where it did not conflict with development and major populations.

Other non-quantifiable costs must be considered, and are even higher and not mitigable. A modern municipality like Burnaby is constrained in its boundaries and facing growing population pressures to densify in a carefully planned manner, and must look ahead decades in building urban centres, and successful and efficiently planned neighborhoods. In areas of densification, pressures on roads and sharing limited space for utilities require a difficult balancing act. In such areas, the existence of a pipeline of this magnitude, with a mandated right of way and 30 metre buffer zone, will reduce

<sup>421</sup> Exhibit C69-44-9 – City of Burnaby - Exhibit B - Part 1. Report and Appendix A - Cost Impact of Trans Mountain Expansion on Lower Mainland Municipalities ([A4L8G3](#)), p. i

<sup>422</sup> See City of Surrey’s written argument – list of the “Joint Municipal Conditions”

future options and space for other growth, and alter current planning decisions and future growth options in ways that cannot be clearly outlined today, but given modern growth, will be inevitable. How does one put a price on the interference with municipal planning and growth for the next 50+ years? These are factors that Trans Mountain ignores, but that this Panel must consider in assessing the ‘public interest’ of a pipeline through a major municipality.

The City of Burnaby fundamentally contends that the public interest requires that this project should not be considered on its current proposed routing through major municipalities, and in particular through the City of Burnaby. Even if a pipeline was needed and was found to be in the public interest, such a pipeline should not be built through the developed core of major municipalities. Then, issues of future cost would be avoided.

### **8.1.1 Trans Mountain’s Argument in Reply**

In Trans Mountain’s Final Argument, it confirms that it accepts that there will be additional costs to municipalities for future repairs and new infrastructure once the pipeline is in place, but regardless of the fact that their pipeline is being imposed on municipalities without their consent, Trans Mountain also confirms that it will “look to the municipality for reimbursement”. Trans Mountain gives two justifications for this extreme position: (1) it pays taxes, and (2) “standard industry practice is for subsequent utilities to accommodate prior utilities”.<sup>423</sup>

Burnaby submits that the Trans Mountain argument would purport to use taxes as an ‘offset’ against direct additional municipal costs is both incorrect in policy and inconsistent with their arguments elsewhere that ‘taxes’ should be considered a benefit to the public interest. All businesses in the municipality pay taxes, which is part of the cost of carrying on business in a modern municipality and serves to provide the general services to which all residents are entitled. Payment of taxes does not operate to exempt a business from direct additional costs. The NEB must reject that rationale.

Further, Trans Mountain relies elsewhere in this argument for the proposition that payment of municipal taxes is to be counted in favor of the project as an economic ‘benefit’. Use of the ‘taxes’ argument as a mitigation of direct costs caused by their activities is double-counting. These taxes cannot be a ‘benefit’ if they are also an offset. Indeed, it may be triple-counting in that Trans Mountain also elsewhere claims a right to other services, such as fire and police, without an agreement with the municipality or compensation, simply because it pays taxes.

‘Standard industry practice’ is also not an appropriate policy base for ignoring these additional costs. Utilities provided by a municipality for the benefit of its residents, such as the road itself, and the sewer and water lines underneath it, are such that the

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<sup>423</sup> Exhibit B444-2 - Trans Mountain Revised Final Argument (clean) ([A4W6L8](#)), pp. 115-116; citing Exhibit B418-4 - Trans Mountain Reply Evidence - Attachment 1.05 - Reply to Cost Impacts to Municipalities ([A4S7K2](#)), p. 8

residents normally bear the costs of changes to its own intersecting utilities. In the case of other independent private or public or non-municipal utilities such as electrical lines or gas pipelines, such utilities are also usually for the benefit of the residents. Further, these utilities are subject to municipal permitting, and are voluntarily accepted by the municipality.<sup>424</sup>

Finally, Trans Mountain is simply wrong in suggesting those utilities are exempt from further costs – as noted in the arguments of Coquitlam and Surrey, such utilities are usually subject to cost-sharing mechanisms for costs in alteration.

Alternatively, if Trans Mountain refuses to pay the additional costs that will be inevitably incurred by the municipality for Trans Mountain's involuntary placement of its pipeline into areas that conflict with municipal infrastructure then special rules should apply at the time of construction requiring it to build the pipeline in areas of lesser conflicts, and to build it deeper and in ways that will not conflict with municipal and other existing infrastructure. Trans Mountain cannot claim a right to unilaterally use road rights-of-way for its pipeline (because it is cheaper than private land), and at the same time ignore the inevitable future costs this will impose on the municipality. Yet, Trans Mountain has not proposed special construction measures that would eliminate future adverse impacts, again presumably because it is interested only in minimizing its own costs.

Trans Mountain makes spurious, unsupported and unenforceable claims that it is “willing to work with municipalities to minimize impact”, but this promise is of little value, given past experience<sup>425</sup> with Trans Mountain and given its view that municipalities must reimburse costs.

## **8.2 Additional Impacts of an Oil Spill within a Major Municipality**

The above submissions are made in respect of issues that arise in everyday operation and location of an oil pipeline, functioning as it should. However, it must also be accepted that, in the event of an oil spill, on land or on municipal shores, the impacts to the citizens of a major municipality will be proportionately greater than an oil spill occurring outside a municipality on unoccupied or sparsely occupied lands. These impacts, including to human health and the environment, are considered elsewhere. The fact is however that the potential impacts are much greater, and in some scenarios, catastrophic.

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<sup>424</sup> Trans Mountain criticizes the AE report for not taking stock of the public benefit that it provides to the five municipalities from the transportation of oil, and therefore treating the Project pipeline differently than it would treat other utilities such as BC Hydro, Fortis, Spectra and Telus – See Exhibit B418-4 Reply Evidence-Attachment 1.05-Reply to Cost Impacts on Municipalities ([A4S7K2](#)). However, the utilities mentioned by Trans Mountain actually contribute goods and services to the municipalities. Contrary to Trans Mountain’s assertions, its product is solely meant for export, and does not benefit the local municipalities. Differential treatment of the Project is justified.

<sup>425</sup> For example, the city of Surrey was forced to pay Trans Mountain \$1,767,682.59 to have the existing pipeline lowered in order to allow the city to build an underpass under Highway No. 1. See Exhibit C76-9-23 – City of Surrey - Affidavit of Kenneth Zondervan sworn May 26 2015 (Part 1) ([A4L9U6](#)). The City of Burnaby’s experience with the Westridge spill, and subsequent litigation shows difficulties.

The potential costs of these greater impacts is a factor that must be considered by the Panel in assessing the ‘public interest’ of a pipeline built through major populations in comparison to a pipeline built in a more sensible location.

However, the other, less obvious cost, is the need to react to the ‘risk’ of an oil spill or other accident or emergency in the future growth of the municipality. The location of this pipeline through and adjacent to municipal lands must necessarily impact future development decisions, and constrain choices. It will reduce the desirability of certain developments and development options for the next 60+ years, and inevitably have impacts on the growth patterns of the municipality. Residents are less likely chose to live in risky areas, and developers are likely to factor this reticence into future choices for projects.

Of greater concern, if the pipeline, and in particular, the substantial expansion of the tank farm is approved, city planners must now also factor this increased risk into city decisions. Options for development on Burnaby Mountain must necessarily be constrained by the increased fire and explosion risk. Future plans for what should be highly desirable neighborhoods may have to be redesigned or altered. This cost is difficult to quantify, but given the importance of community planning in Burnaby, the loss of options should be considered to have a very considerable weight. The Panel must not allow the proponent to ignore this cost, and must consider the impacts of a project of this magnitude and its components on future planning options as a very significant adverse cost, which is not in the public interest.

### **8.3 Inappropriate Assumptions of Municipal Support**

The Report filed by Burnaby, *Assumptions of Trans Mountain Pipeline ULC for the Trans Mountain Expansion Project in the City of Burnaby*<sup>426</sup>, contains a detailed analysis of the many unjustified and unsupported assumptions that Trans Mountain has made in its Application and in its responses to Information Requests.

The NEB has a duty to consider the scenarios and assumptions described in the TMEP Application and whether those assumptions should be reasonably accepted, and to do so in the face of the best evidence available.

The Report notes that Burnaby Council has determined, along with other municipalities, that the process followed to date by the NEB is deeply flawed from the perspective of municipal interests and inadequate to assess the health and safety risks of the proposed pipeline and facility expansion to its citizens. The citizens of Burnaby have spoken clearly that the pipeline does not have social licence, and is not justified within the municipality. Under those circumstances, asking the municipality to take on additional costs, to have its citizens and lands take on additional risk, and to provide staff or resources to assist the project in future, will not be justified. Trans Mountain

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<sup>426</sup> Exhibit C69-44-11 – City of Burnaby - Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#))

cannot unilaterally demand those additional services nor does the NEB have a jurisdiction to order provision of municipal services or future cooperation with Trans Mountain. As of the time of writing of this submission, Trans Mountain has not made formal or informal arrangements for many of the necessary services, resources and planning initiatives that it contemplates or assumes in its Application will be available. In those circumstances, many of the assumptions that Trans Mountain makes concerning emergency services, emergency planning, evacuation, availability of external resources, fire services, police services, traffic management, planning and development, land use, access to water, noise and compensation, are either incorrect or unsupported by commitments from Burnaby.<sup>427</sup>

Further, as noted below, a number of the assumptions Trans Mountain makes are contrary to existing Burnaby bylaws that have been enacted in the public interest and that Burnaby has an obligation to and intends to enforce.<sup>428</sup>

In the absence of social licence and support from the municipality, Burnaby submits that the NEB has a burden to assess the wisdom and the ‘public interest’ in authorizing a proposed pipeline route through the core of a municipality – whose citizens are opposed to the pipeline – particularly where alternative routes are outside of core municipal areas which do not raise such issues, and which have not to date been explored because of the failure of Trans Mountain to seriously examine alternative routes and the inherent flaws of a process where the NEB does not require such examination of alternatives.

To impose this pipeline (and the expanded tank farm and marine terminal) on an unwilling municipality is unacceptable and unnecessary.

Given the failure of Trans Mountain to reach any agreements with Burnaby in respect of resources which its Application assumes will be available, there remain many unanswered questions which the NEB must address before making a Section 52 decision. Some of these include:

- Emergency preparedness – Trans Mountain’s assessment of emergency preparedness, emergency services and emergency planning remains completely inadequate. Their dependence upon assumptions that they could draw on the resources of the City of Burnaby is long, and requires a reassessment. The assumption that they could rely also on resources of other municipalities or regional services is also unsupported, given that such services rely upon municipal sharing agreements.<sup>429</sup>

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<sup>427</sup> Exhibit C69-44-11 – City of Burnaby - Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#)), pp. 5-15

<sup>428</sup> Exhibit C69-44-11 – City of Burnaby - Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#)), pp. 15-20

<sup>429</sup> See Exhibit C69-44-11 – City of Burnaby - Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#)), pp. 5-15; Exhibit B5-35 - V5B ESA 10of16 SOCIOEC ([A3S1S4](#)), s. 5.5.6.1, Emergency and Protective Services, p. 5-160

- Emergency resources – in the absence of assumptions of equipment and material from outside agencies, Trans Mountain’s Application does not disclose that Trans Mountain has the capacity, the equipment, sufficient personnel, or expertise to handle a large list of emergencies that the Application considers credible – including fire risk at the tank farm, pipeline ruptures and marine oil spills and other incidents.<sup>430</sup>
- Evacuation – Trans Mountain’s evacuation plans rely entirely on outside agencies.<sup>431</sup> The risks to innocent residents, in the absence of an appropriate evacuation plan, are unacceptable, and potentially catastrophic in relation to some potential emergencies. The absence of an established evacuation plan is a fundamental failure.
- Traffic control and emergency traffic management – Trans Mountain assumes – without any supporting evidence whatsoever – that in the event of an emergency pipeline rupture or a fire at the tank farm – that traffic management in an evacuation would resolve some issues. This is particularly significant in the case of a potential conflict between the Simon Fraser University students and residents and an emergency at the tank farm.<sup>432</sup>
- Water – Trans Mountain’s assumption that it can obtain additional water connections to supplement the expanded tank farm may be incorrect. If additional water is required for safety, the NEB must require a solution before approval of the project. It is not sufficient to propose as a condition that Trans Mountain come up with a ‘plan’ in the future – without a solution, this project is not in the public interest. Further, Trans Mountain assumes that Burnaby will allow access to streams or water courses for construction. Other assumptions in respect of water are set out in the Burnaby Report.<sup>433</sup>
- Access to lands, roads and rights of way.

Exhibit B313-28 Trans Mountain Response to City of Burnaby IR No. 2 ([A4H8A1](#)), IR No. 2.132e, pp. 372-374, Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR No. 1.01.03a, p. 4, IR No. 1.01.04d, p. 6

<sup>430</sup> Exhibit B5-35 - V5B ESA 10of16 SOCIOEC ([A3S1S4](#)), s. 5.5.6.1, Emergency and Protective Services, p. 5-160; Exhibit B11-2 - V6A ENVIRO COMPLIANCE ([A3S2S1](#)), p. 8-1; Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR No. 1.01.04b, p. 6, IR No. 1.03.08c, p. 69, IR No. 1.07.29y, p. 201

<sup>431</sup> See Exhibit C69-44-11 City of Burnaby – Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#)) pp. 5-12; Exhibit B118-1 - Trans Mountain Response to City Burnaby IR No. 1 ([A3Y2E6](#)), IR 1.01.04a-f), pp. 5-7 IR No. 1.07.09d, p. 157, IR No. 1.07.17h, pp. 177-178, IR No. 1.07.29z, p. 201

<sup>432</sup> See Exhibit C404-5-2 – Simon Fraser University - Revised Report - Etkin, Higuchi, Thompson and Dunn – ([A4Q5Z1](#)); Exhibit C69-44-11 City of Burnaby – Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#)) pp. 5-12

<sup>433</sup> Exhibit C69-44-11 City of Burnaby – Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#)) pp. 12-13

There are numerous additional assumptions set out in the Burnaby Report. Burnaby submits that the Application, which is based upon assumptions have clearly been contradicted by the City of Burnaby (and which also remain unresolved in other municipalities) is a fatal flaw in the Application. Without answers to these significant questions, this project cannot be found to be in the public interest. The NEB has a statutory and moral obligation to ensure that the assumptions in respect of emergency response and planning are realistic. Trans Mountain has failed to respond credibly to the numerous Information Requests on this matter, and the NEB must assume in those circumstances that answers do not exist or are not readily available.

It would be irresponsible for the NEB to make a determination on the public interest of this project in its report to Cabinet in May without resolving these issues. It is not sufficient to simply provide solutions by ‘draft conditions’ required in future plans. To defer these important assessments would be an indication that the public interest is not considered by the NEB to require credible and realistic emergency plans, procedures and resources.

#### **8.4 Conflicts with Existing Bylaws**

The Burnaby Report also sets out a detailed analysis of the many bylaws which will be implicated if this project were to be approved.<sup>434</sup>

The BC Supreme Court has ruled that bylaws which implicate routing may be declared constitutionally inapplicable through the principles of interjurisdictional immunity and paramountcy.<sup>435</sup> That decision is under Appeal to the BC Court of Appeal.

However, the fact that bylaws *can* be overwritten by the use of blunt Federal powers does not mean that the contravention of local laws *should* be ignored by the NEB. The public interest includes the desirability of the application of local decision-making and compliance with municipal bylaws. The Supreme Court of Canada has recently stated:

Interjurisdictional immunity — premised on a notion that regulatory environments can be divided into watertight jurisdictional compartments — is often at odds with modern reality. Increasingly, as our society becomes more complex, effective regulation requires cooperation between interlocking federal and provincial schemes. The two levels of government possess differing tools, capacities, and expertise... This Court has recently stressed the limits of interjurisdictional immunity. “[C]onstitutional doctrine must facilitate, not undermine what this Court has called ‘co-operative federalism’” and as such “a court should favour, where possible, the ordinary operation of statutes enacted by both levels of government”<sup>436</sup>

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<sup>434</sup> Exhibit C69-44-11 – City of Burnaby - Assumptions of Trans Mountain for the Trans Mountain Expansion Project in the City of Burnaby ([A4L8G5](#)), pp. 15-20

<sup>435</sup> *City of Burnaby v. Trans Mountain et al*, 2015 BCSC 2140

<sup>436</sup> *Tsilhqot'in Nation v. British Columbia*, 2014 SCC 44

Where a project must inevitably breach local bylaws – even in the situation where Federal power is clear – this is obviously not a desirable situation, and is a situation in which the NEB should factor in the conflicts with local authorities as a matter affecting the public interest.

Obviously, a pipeline routing which should not go through the core of a developed municipality, and which did not require the flaunting of local bylaws or interference with the local parks, local planning and development objectives would be more desirable in the public interest.

Further, it is clear that Trans Mountain is prepared to carry forward in breach of municipal by-laws, whenever *in its opinion*, it believes there is a conflict, and that it is entitled to do so. In the event that this project proceeds, Burnaby asks that the NEB establish a condition requiring the proponent to operate within the terms of all municipal by-laws, unless it seeks a prior written ruling from the NEB or a court of competent jurisdiction.

## **8.5 Summary**

The location of this pipeline on its current proposed routing through major municipal areas is not reasonable and is not in the public interest. The impacts of a pipeline through developed municipal areas cause much greater impacts, risks and operational conflicts for the life of the pipeline. Trans Mountain has failed to consider alternatives and failed to justify these greater impacts, risks and conflicts. The pipeline will cause operational and planning conflicts that even where quantifiable Trans Mountain will not be required to pay, and many costs that can't be quantified. The NEB should not impose those costs on the municipalities. The Project application through these areas must be rejected.

Further, the impacts of accidents and spills are much higher and affect more citizens in developed municipal areas. The costs of risk prevention and emergency preparedness fall on the municipalities.

Trans Mountain has also made clear that they will not follow local by-laws, and it is clear that their proposed Project will conflict with local laws. The breach of local laws can be avoided by a different location outside municipal areas. The public interest is in respecting local laws and the NEB should consider a location where there are fewer conflicts with local decision-making, planning and development objectives.

In the absence of social licence and support for this pipeline within Burnaby, Trans Mountain should not assume the provision of many services which Trans Mountain's application wrongly assumes will be available. The NEB must assess the efficacy of the pipeline's operations and risk assumptions in the light of Burnaby's clear declaration of non-support, and Trans Mountain has failed to provide evidence to answer those questions.

## 9. Operational Impacts

The Project's anticipated regular operations will cause major impacts to the Lower Mainland, Burrard Inlet and its surrounding area, and many of the high density of uses that take place within it. In contrast to the grave risks that the regions populace, flora and fauna face from a spill, which is detailed in Section 6, these operational impacts are near certain to occur and cannot be avoided based off the project activities as proposed by Trans Mountain. The operational human health impacts are described in Westridge Marine Terminal Section 5, while the impacts to Burnaby businesses, the city and its residents from the excavation and insertion of the pipeline through the middle of the municipality is detailed in the Impacts to Land Use Section 8, and as such, neither will be repeated in this section.

The project will negatively impact access to recreational activities both on land and in the water. Boating, fishing and near shore recreational opportunities will be curtailed in the surrounding marine area by increased regular tanker movements, while Burnaby parks and the recreational uses they support will be impacted periodically through pipeline construction and through maintenance operations. The environmental impact of regular operations will be most felt by the marine organisms that rely on the Burrard Inlet, while the sensitive riparian environment of the many waterways within and around the city of Burnaby that the Project will transect will also be impacted by the construction of the pipeline at least periodically, and perhaps permanently, unless Trans Mountain changes its proposal such that it mitigates these impacts

### 9.1 Impacts to Recreation in the Burrard Inlet

The Burrard Inlet, and in particular the Central Harbour and Indian Arm is a high traffic area for recreational users, ranging from sea kayaking, canoeing, paddle boarding, sailing, dragon boating, fishing and crabbing, bird and wildlife watching, scuba diving and more. This area and the activities it maintains are highly valued for supporting local businesses and bringing in revenue for the local governments, encouraging physical activity and the visiting the outdoors, and supporting community development.

Trans Mountain substantially underestimates the amount of recreational boaters that make use of these waters, especially in the Central Harbour in which its ships will circle, anchor, dock, load and transit both to and from. By only taking stock of recreational boats on the water early in the morning or on weekdays, or not taking stock of recreational marine traffic at all,<sup>437</sup> Trans Mountain belies the high amount of recreational use and the value of the uses to residents and tourists alike. Despite determining that the likelihood of the Project causing an alteration of existing marine vessel movement patterns is high, Trans Mountain does not consider this to be significant.<sup>438</sup>

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<sup>437</sup> Exhibit C259-8-30 - NSNOPE written evidence (H Crozier - Pt 1) ([A4L5Y0](#)), p. 10

<sup>438</sup> Exhibit B18-29 - V8A 4.2.12.2 TO T5.2.2 MAR TRANS ASSESS ([A3S4Y3](#)), Table 3.4.11.3, p. 8A-394

Access to recreational boating opportunities will be restricted and heavily impacted by a sevenfold increase in Aframax size tankers transiting the Burrard Inlet. Each and every time a tanker will pass through<sup>439</sup> the Burrard Inlet, a 40 minute closing of the waterway under the Ironworkers Memorial and CN Rail Bridges is required. This is amplified by the limited 30 minute window for boats to transit this area at high slack tide due to the formation of whirlpools when the tide is running.<sup>440</sup> A dedicated shipping lane that has been proposed for the Central Burrard Inlet will only further restrict access for these boaters.<sup>441</sup> Considering that Project-related tankers can only transit through the Burrard Inlet during daylight hours, the impact from increased tanker trips is further amplified for recreational boating.

The expansion of the terminal will restrict the area that boats may pass between Cates Park and the Westridge Marine Terminal. The Central Harbor will be further cluttered by a proportionate increase in the amount of tankers having to dock in the vicinity of the Westridge Marine Terminal, and taking up valuable and limited anchorage locations in and around the Westridge Marine Terminal, forcing recreational ships to navigate around these obstacles. Aframax tankers also spew large plumes of diesel emissions that are harmful to human health from their regular operations. Recreational users of the water in the vicinity of these tankers risk exposure to these harmful chemicals, in addition to being at the highest risk of a spill therefrom.

Port Metro Vancouver patrol vessels escort tankers through the First and Second Narrows whenever possible in order to ensure recreational boaters are adhering to applicable navigation regulations, rules and practices of good seamanship.<sup>442</sup> Port Metro Vancouver imposes a requirement that recreational boats be at least 300 metres away from anchored boats at all times,<sup>443</sup> while the operational regulations give the automatic right of way to boats that are at least 20 metres in length.<sup>444</sup> The foregoing navigational impacts will heavily restrict the areas and the times in which recreational boaters will be able to operate in the Central Harbour and the Burrard Inlet.

In spite of speed limit restrictions that would be imposed on tankers travelling in the Burrard Inlet, the Aframax tankers will nonetheless produce wake waves. While these waves may not have a major impact to shoreline habitat, it will greatly influence recreational boaters, particularly paddle boarders, kayakers, canoers and dragon boaters who will face unsafe paddling conditions. The Lotus Sports Club, a popular non-profit organization which teaches various paddling sports and organizes large scale

<sup>439</sup> Exhibit C259-8-29 - NSNOPE written evidence (T. Paradis) ([A4L5X9](#)), p. 5

<sup>440</sup> Exhibit C259-8-30 - NSNOPE written evidence (H Crozier - Pt 1) ([A4L5Y0](#)), p. 11

<sup>441</sup> Exhibit C216-3-1 – Lotus Sports Club - Lotus Notice of Motion IR Responses No. 1 ([A3Y8E3](#)), Motion 4&5

<sup>442</sup> Exhibit C365-7-2 – Port Metro Vancouver - Responses to City of Burnaby Information Request ([A4R3W0](#)), IR10. n), p. 2

<sup>443</sup> Exhibit C353-4-6 – Transport Canada – TMEP Termpol Report Link 2 – PMV Port Information Guide ([A4F8Z7](#)), pp. 77-78

<sup>444</sup> Exhibit C353-4-6 – Transport Canada – TMEP Termpol Report Link 2 – PMV Port Information Guide ([A4F8Z7](#)), p. 50

annual competitions for its members, has admitted that, due to operational impacts, it will effectively have to cease operations if the Project is approved.<sup>445</sup>

The dredging required in the construction of the facility, and chronic oiling to the surrounding area that would take place from regular tanker loadings will impact the sensitive marine environment in and around the footprint of an expanded Westridge Marine Terminal. This will affect and encroach on the local fishing and popular crabbing areas, and impact the marine environment, including the Eastern Burrard Inlet Rockfish Conservation Area, which borders the Westridge Marine Terminal and over which tankers will travel west along its shipping route.<sup>446</sup>

If the Project is approved, the exercise recreational uses in the marine environment will be greatly diminished. This presents a loss to the community, to cultural heritage, to healthy living, access to and promotion of the stewardship of the environment as well as a loss to the small businesses that rely on supporting and servicing different recreational uses.

## **9.2 Impacts to Land-Based Recreational Uses**

The City of Burnaby has the goal of creating a community that provides opportunities for an active and healthy lifestyle. In furtherance of this aim, the City maintains a number of parks and trails. Many of these parks will be negatively impacted from the construction and the operation of the pipeline alone. Quite apart from the environmental effects to the wildlife that inhabit these parks and conservation areas, the disturbance to access and use of these public resources will have a significant adverse impact to the ability of Burnaby residents to access nature, and to live an active and healthy lifestyle.

The Brunette-Fraser Regional Greenway links Burnaby Mountain to the Fraser River with a 16km trail and greenway. Annual use has reached a high point of 196,676, and it becomes particularly busy in the months from May to October.<sup>447</sup> Along this route, there are several of Burnaby's most important parks, including Squint Lake, Stoney Creek, Burnaby Lake Regional Park, and the Brunette River and Conservation Area.

During the construction of the pipeline, the Brunette River Conservation Area, Stoney Creek, and the high traffic Brunette-Fraser Regional Greenway will be disturbed and the high level of recreational use that these areas support will be interrupted. Exploratory drilling work undertaken in the fall and winter of 2014 has already caused environmental and social disturbances at the Burnaby Mountain Conservation Area. Should the project settle on the tunneling option through the Mountain, the park will face further impacts which cannot be adequately assessed due to the dearth of information submitted by Trans Mountain.

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<sup>445</sup> Exhibit C216-0-1 – Lotus Sports Club - Application To Participate ([A3U1H3](#)), p. 3

<sup>446</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 36

<sup>447</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), pp. 31-32

Barnet Marine Park is Burnaby's only salt-water beach and is a popular place to explore with a network of trails, nice views of Indian Arm and to Deep Cove with a dock for fishing, watching boats in the water and launching canoes and kayaks.<sup>448</sup> The Park houses the Lotus Sports Club, but also is a popular area for launching boats, swimming, dog walking, picnics and is abundant in marine life with intertidal pools with starfish and other crustaceans, and for birdwatching. More so than with other parks, the Barnet Marine Park is at high risk of being affected by the project due to its close proximity with the Westridge Marine Terminal and high ecological value and sensitivity of the park. The Park stands to be affected mainly by chronic oiling from tanker loading, the construction and other physical impacts from the operation of the Westridge Marine Terminal and the tanker transits.<sup>449</sup>

### **9.3 Environmental Impacts**

The Supplementary Report Supporting Environmental Evidence for Metro Vancouver Report submitted by Zoetica Environmental Research Services notes the following:

[t]he TMX and associated shipping route has the potential to affect 34 fish-bearing waterways and water bodies; 40 City or Regional Parks; 14 Ecological Reserves, Important Bird Areas (IBAs), Conservation Areas (CAs), RAMSAR sites, or Wildlife Management Areas (WMA); 3 Provincial Parks; 1 National Wildlife Area (NWA); and 2 Regional Landscape Plans within the Metro Vancouver region. As many as 135 species of conservation concern, may occur in areas associated with the TMX route, many of which are protected under the *Species at Risk Act* and are not found elsewhere in Canada or in B.C.<sup>450</sup>

Areas along the potential zone of impact of the proposed TMX project provide habitat that could support at least 135 species or subspecies at risk or of conservation concern (federally-designated for SARA listing &/or provincially listed), including: 21 birds, 16 mammals, 7 reptiles and amphibians, 11 fish, 24 invertebrates, and 56 plants (vascular and non-vascular).<sup>451</sup>

Many of these protected areas are located in Burnaby, and in addition to their provincial and federal value and protected nature of the species, they are highly valued by Burnaby citizens. A Project-related oil spill poses a great risk to the environment, the protected and conservation areas, and the many Species of Conservation Concern ("SCC") that inhabit these areas. However, the Project-related operational impacts will cause significant negative effects to these areas and the organisms they support solely

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<sup>448</sup> Exhibit C259-8-31 - NSNOPE written evidence (H Crozier Pt 2) ([A4L5Y1](#)) p. 31

<sup>449</sup> Exhibit C216-0-1 – Lotus Sports Club - Application To Participate ([A3U1H3](#)), p. 3

<sup>450</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 7

<sup>451</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 48

based upon the planned operations and the limited mitigation measures chosen by Trans Mountain in its Application. Many of these valued environmental areas have been the site of significant investment and rehabilitative work by the three levels of government, the private sector and civil society to better support fish, wildlife and their habitat.

The construction of the pipeline will have a significant impact on the many species that inhabit the proposed Right of Way (ROW). The ROW will traverse critical habitat of many SCC and the construction of the Westridge Marine Terminal will involve the destruction of 19,577 m<sup>2</sup> of the seabed environment in the vicinity of the terminal,<sup>452</sup> while posing a longer term threat of chronic oiling in the area. Once shipments begin, further operational impacts will include the effects of wake waves, acoustic impacts, and ship strike incidents.

#### **9.4 Impacts to the Marine Environment**

The Burrard Inlet is a highly biodiverse environment, which hosts over 1,200 verified species,<sup>453</sup> and provides habitat for federally-listed harbour porpoise & two populations of Killer Whales.<sup>454</sup> The Burrard Inlet Important Bird Area (IBA) is considered to be globally significant for several species and nationally significant for the Great Blue Heron. The IBA is habitat for many local birds and tens of thousands of migratory birds along the Pacific Flyway each year.<sup>455</sup>

In spite of the speed restrictions in the Burrard Inlet, the Aframax tankers ship-induced waves and “wave wash” can cause impacts to marine invertebrates throughout their life cycles and to fish at early life stages.<sup>456</sup> This is of special concern considering the Burrard Inlet is at the mouth of several important fish bearing rivers including the Capilano, Seymour and Indian Rivers that are crucial for migrating salmon, while eulachon and herring also play important roles in the area.

Acoustic impacts affect much of the marine wildlife, as sound travels farther and more efficiently than it does through the air. The initial impacts of the dredging and other in-water construction will scare off fish and wildlife in the area. More concerning is the effect of increased shipping on the marine wildlife, particularly the mammals and whales that rely on their acoustic abilities for navigating and coordinating their life cycles.

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<sup>452</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 64

<sup>453</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 33

<sup>454</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 33

<sup>455</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 33

<sup>456</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 2 ([A4T0R7](#)), p. 98

Studies have shown that small boat traffic causes Killer Whales to avoid boats using evasive tactics, which alters their activity budget to spend less time on their feeding.<sup>457</sup> Other studies have shown that ship noise can reduce a whale's foraging efficiency, elevate risk of ship strikes and cause measurable physiological stress in blood cortisol levels.<sup>458</sup> Studies have shown that due to the high background noise generated by passing tankers (and other large vessels), it becomes more difficult for Killer Whales to use echolocation in tracking prey; thus they have to increase the amplitude of their foraging calls, with consequent energy costs.<sup>459</sup> This issue is compounded by the increasingly scarce Chinook salmon, the primary staple of the killer whale diet.<sup>460</sup>

TM's own analysis indicates that there will be significant effects to Killer Whales that cannot be mitigated. The impacts are especially significant as the Killer Whales have experienced almost no population growth over the past four decades and they have declined in the last two decades.<sup>461</sup> It is clear that the population can ill afford new negative pressures.

Although with the percentage of tankers that the project would represent in the Port of Vancouver is only 12-14%,<sup>462</sup> the impacts of the project cannot be considered in isolation from the existing and likely future tanker traffic in the area. While the impacts from Project's shipping are extensive in themselves, the cumulative shipping impacts of the Project with the existing and future planned shipping in the Port of Vancouver suggests the incremental impacts will cause significant effects to the marine wildlife through normal operations.

## **9.5 Operational Impacts to the Land-Based Environment**

Burnaby parks and conservation areas have a number of protected species along with a diversity of wildlife that inhabits them. Several of these fish bearing waterways or conservation areas that are put at risk are located in Burnaby.<sup>463</sup> These areas are important for the habitat of migrating salmon, as well as the Nooksack Dace and Cutthroat Trout.

Many of these ecosystems have been remediated and rehabilitated, at great time and expense by through both public and private efforts. Through the work of a local NGO,

<sup>457</sup> Exhibit C291-1-5 - Attachment D to written evidence of Raincoast - Potential acoustic impact of vessel traffic on SRKW - Dr Clark PDF ([A4L9G0](#)), p. 8

<sup>458</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 2 ([A4T0R7](#)), p. 97

<sup>459</sup> Exhibit C291-1-6 - Attachment E to written evidence of Raincoast - Population Viability Analysis - Dr Lacy et al. ([A4L9G2](#)), p. 25

<sup>460</sup> Exhibit C291-1-6 - Attachment E to written evidence of Raincoast - Population Viability Analysis - Dr Lacy et al. ([A4L9G2](#)), p. 18

<sup>461</sup> Exhibit C291-1-6 - Attachment E to written evidence of Raincoast - Population Viability Analysis - Dr Lacy et al. ([A4L9G2](#)), p. 36

<sup>462</sup> Exhibit C234-15-3 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 2 ([A4T0R7](#)), p. 96

<sup>463</sup> These areas include: Brunette River, Austin Creek, Stoney Creek, Keswick Creek, Burrard Inlet, and Stoney Creek.

Stoney Creek has been restored as salmon spawning habitat, & the Brunette River & Stoney Creek systems combined have hosted approximately 8,520 spawning Chum, 1,433 spawning federally listed Coho, & 55 spawning Pink Salmon since 2008.<sup>464</sup> The Brunette River & Brunette Conservation Area is the site of a longstanding effort to rehabilitate the basin from past industrial activity. A successful fish enhancement program carried out from the three levels of government has restored salmon to the area which also forms critical habitat for the second largest of the remaining populations of Nooksack Dace and Cutthroat Trout.<sup>465</sup>

In Burnaby alone, the pipeline ROW will disrupt key habitat of the following fauna and flora: the Nooksack Dace, Oregon Forestsnail, Northern Red-Legged Frog, Pacific Coastal Painted Turtle, Great Blue Herron, Green Herron, Vancouver Island Beggarticks, Barn Swallow, Coastal Cutthroat Trout, Bearded Sedge, and False Pimpernel. The tank farm expansion area as well as other parts of the ROW is critical areas frequented by the breeding populations of the Northern Red-Legged frogs.<sup>466</sup>

Considering that many of the threatened species are small or difficult to detect, the destruction of their habitat or the direct mortality of the species is much more likely than Trans Mountain would have the public believe. Small changes in shade, water quality/hydrology, fragmentation, and (in the case of the Brunette River and Fraser River Shorelines) the release of buried historical contaminants can all have a significant impact on these protected species.

In light of this risk, a precautionary approach would suggest that an industrial development would implement feasible mitigation practices to avoid or safeguard the sensitive environments. However, Trans Mountain has not made sufficient effort to avoid sensitive areas in its project routing. In Burnaby alone, Trans Mountain plans to route the pipeline through the Brunette River Conservation Area, Burnaby Mountain Conservation Area, and Stoney Creek, all three of which are protected areas and the latter of which are the subject of multi-level successful remediation efforts. Further, Trans Mountain has not committed to using trenchless construction in all riparian areas. This stance speaks volumes to the value that Trans Mountain places on riparian environments.

In many relevant regards, Trans Mountain has also not committed to compliance with municipal bylaws in that would ensure the protection of these valued areas and species.

The existence of 23 NEB Draft Conditions related to environmental management indicates that there are a wide variety of outstanding environmental issues with the Project Application that the Board recognizes that have yet to be resolved, or mitigated.

<sup>464</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 32

<sup>465</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 31

<sup>466</sup> Exhibit C234-15-2 – Written Evidence of Metro Vancouver - Revised Exhibit #30, Zoetica Environmental – Clean Version Part 1 ([A4T0R6](#)), p. 51

In particular, the Conditions will require environmental protection plans for the facilities (62), pipeline (63), and terminals (64), management plans for rare plants (50), access (55), marine sediment (65), riparian habitat (79), Nooksack Dace and Salish Sucker (99), protection, mitigation and/or restoration plans for species at risk (44 & 78), wetlands (52), marine mammals (128), and post construction monitoring reports generally (140) and specifically for riparian habitat (141), rare plants (142) and wetlands (143). The NEB Conditions suggest that important routing location decisions remain outstanding as it is requiring an account of notable watercourse crossings (67 & 100) and contingency crossings (101).

The only logical conclusion that can be drawn from the Draft Conditions is that the Project Application does not avoid, account for or properly mitigate impacts to many protected species and protected areas it will impact from its planned Project activities. Unless this information is submitted on the public record and submitted to proper scrutiny, the Board cannot properly assess the potential environmental effects from the both the land-based and shipping components of the project, much less determine that these impacts will not be significant. Without assessing these two critical issues, the Board cannot conclude that the Project is in the Public Interest.

## **9.6 Summary**

Even aside from spills and accidents, the regular operations of the Project, including the pipeline, the tank farm and the marine terminal and shipping will cause major and unreasonable impacts to the Lower Mainland. The environmental, recreational and operational impacts will be substantial, and should be avoided by rejection of the Project in this location.

## 10. Conclusions

The City of Burnaby respectfully submits that the Trans Mountain Expansion Project must be rejected. The Board should recommend to the Governor-in-Council pursuant to s. 52 of the NEB Act that the Application for a Certificate be dismissed. The Project is not in the public interest.

Further, the Board should conclude, pursuant to the Canadian Environmental Assessment Act, that the Project is likely to cause significant adverse environmental effects that cannot be justified in the circumstances, and should therefore be rejected.

Burnaby has concluded that the Application should be rejected, on numerous grounds:

- This pipeline has substantial public opposition in the Lower Mainland, and throughout B.C., the West Coast and Canada. It has no social licence to proceed and is not in the public interest;
- The process followed by the Panel did not constitute a proper public hearing, failed to properly examine and test the evidence of the proponent, and has not created public trust;
- The Applicant has not provided any or adequate evidence to consider alternative routes, one that would not create the adverse impacts and substantial risks of this proposal through municipalities and requiring shipping and oil spill risk in Burrard Inlet and the Salish Sea and to the communities bordering and relying on those waterways. A proper planning process, even if a pipeline were desirable, would consider alternatives and the best available location;
- The proponent has failed to demonstrate a sufficiently compelling need for this particular route through developed municipalities and shipping through sensitive and constrained areas, and has failed to consider other alternatives;
- The expansion of the Burnaby Terminal Tank Farm within its current location is unjustified, and creates unacceptable and severe risks that cannot be adequately mitigated to the City of Burnaby, the surrounding residents, to Simon Fraser University and its residents and to firefighters and emergency personnel. This is the wrong location for an expanded tank farm;
- The proponent has failed to consider alternative sites for the expanded Burnaby Terminal Tank Farm, and failed to justify the use of this site for the expanded terminal under any reasonable modern planning criteria;
- The risks of the Westridge Marine Terminal in its current location are too great. There has been an inadequate consideration of geotechnical risks, oil spill risks and air emissions. The proposed expansion of the Marine Terminal at this site is not in the public interest;

- The consequences of oil spills in relation to this project in the proposed locations make this project unacceptable. The probable consequences are too great to be mitigated. Trans Mountain has failed to properly analyze the risk, its oil spill modelling evidence lacks credibility, and neither government agencies nor the NEB have yet considered the risk appropriately;
- The economic evidence provided by Trans Mountain is inadequate, incomplete and misleading. The economic benefits are outweighed by the burdens associated with the project, and the many substantial risks to the lower mainland environment and citizens, cannot be justified on the economic evidence;
- The location of this pipeline through major municipal areas is not reasonable and is not in the public interest. The impacts of a pipeline through developed municipal areas cause much greater impacts, risks and operational conflicts for the life of the pipeline. Trans Mountain has not dealt adequately with the many conflicts that will arise, nor addressed the risks and problems that will arise from wrong assumptions of services and conflict of laws;
- Even aside from spills and accidents, the regular operations of the Project, including the pipeline, the tank farm and the marine terminal and shipping will cause major and unreasonable impacts to the Lower Mainland. The environmental, recreational and operational impacts will be substantial, and should be avoided by rejection of the Project in this location.

Submitted by the City of Burnaby  
January 12, 2016