

Hearing Order OH-001-2014
Trans Mountain Pipeline ULC (Trans Mountain)
Application for the Trans Mountain Expansion Project (Project)

Final Argument of the District of North Vancouver

January 12, 2016

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1 **1. INTRODUCTION**

2 The District of North Vancouver (the “District”) is a municipality located on the north shore of
3 Burrard Inlet, directly across from Trans Mountain’s Westridge Marine Terminal. The District
4 prides itself on being a community with a spectacular natural setting and abundant natural
5 features, including mountains, forests, rivers, wetlands, and marine waterfront. The District has
6 committed in its Parks and Open Space Strategic Plan to protect and enhance the ecological
7 integrity and beauty of its natural environment as well as to promote sustainability, active living
8 and accessibility, and foster community stewardship, identity and culture for current and future
9 generations.

10

11 The Trans Mountain Expansion Project (the “Project”), if approved, will pose significant
12 environmental and public health risks to the District and will specifically threaten sensitive
13 ecological areas on its waterfront. The proposed increase in Trans Mountain’s pipeline
14 transport capacity with its corresponding increase in tanker traffic significantly increases the risk
15 of an oil spill in Burrard Inlet. This poses a direct threat to the District, whose shoreline borders
16 on Burrard Inlet and whose closest point of land is just one kilometre away from the Westridge
17 Marine Terminal. While the probability of such an oil spill occurring may be low, its
18 environmental consequences are very high. Any spill in Burrard Inlet could have a dramatic and
19 lasting negative impact on the District’s physical and ecological environment as well as its
20 economy, public health and safety.

21

22 The two key issues of concern to the District are:

23 (i) Environmental impacts of the Project, including air quality, human health, parks
24 impacts, natural environment and ecology; and

25 (ii) Emergency spill response, both planning and execution.

26

1 The District's position, having reviewed the Application and information filed in the NEB public
2 hearing process, is that neither of these key issues have been adequately addressed.
3 Consequently, the Project poses an unacceptable level of risk of serious and long-lasting
4 impacts to the District's environment, public health and safety and this risk simply outweighs the
5 public benefits of this Project. The District is further of the view that the risks posed by the
6 Project cannot be effectively mitigated through the imposition of conditions on Trans Mountain
7 by the NEB. Consequently, the District is opposed to the proposed Project and on June 15,
8 2015, North Vancouver District Council passed a resolution formally opposing the Project.

9

10 **2. NEB MANDATE**

11 Under section 52(1) of the *National Energy Board Act*, RSC 1985 c. N-7, the NEB is charged
12 with making a recommendation to the Governor in Council as to whether the Project is required
13 for "the present and future public convenience and necessity" which has been interpreted to be
14 synonymous with "public interest" (*Re Sumas Energy 2 Inc.*, [2004] LNCNEB 1, No. EH-1-2000
15 at para. 40 ("*Sumas Energy 2*").

16

17 The purpose of the NEB, as stated by the Board in *Sumas Energy 2*, is to "promote safety,
18 environmental protection and economic efficiency in the Canadian public interest in its
19 regulation of pipelines, international power lines and energy development, within the mandate
20 set by Parliament" (at para. 22). In that decision, the Board described the public interest as:

21 The public interest is inclusive of all Canadians and refers to a balance of economic,
22 environmental and social interests that changes as society's values and preferences evolve over
23 time. As a regulator, the Board must estimate the overall public good a project may create and its
24 potential negative aspects, weigh its various impacts, and make a decision. (Para. 38)

25

1 In *Sumas Energy 2*, the Board also endorsed the following comments regarding what
2 constitutes “public convenience and necessity” or “public interest” from the Glacier Power
3 decision in Alberta (*Glacier Power Ltd., Dunvegan Hydroelectric Project* (25 March 2003), EUB Decision
4 2003-020):

5 In order to establish whether the project is in the public interest, the Panel must understand its
6 potential economic, social, and other benefits and then determine whether these balance or
7 outweigh the project’s costs and negative impacts on the environment, public health, and safety
8 and other social and economic matters. (Para. 42)

9

10 The NEB must also set out any conditions which the NEB “considers necessary or desirable in
11 the public interest” which should apply to the Project. In making its recommendation, the NEB
12 may have regard to “any public interest” that, in the Board’s opinion, may be affected by the
13 issuance of the certificate of public convenience or the dismissal of the application.

14

15 The public interests that the District advances in this submission are (i) the public interest in the
16 protection and preservation of sensitive ecosystems, foreshore environments and beaches that
17 are vulnerable to the effects of an oil spill in Burrard Inlet; and (ii) the public interest in
18 preserving public safety from adverse health effects.

19

20 The Board’s report must also include its environmental assessment under the *Canadian*
21 *Environmental Assessment Act, 2012*, SC 2012, c.19 (“CEAA”) (since the Project is a
22 “designated project” under section 2 and the regulations of CEAA). The purpose of CEAA is “to
23 protect the environment from significant adverse environmental effects caused by a designated
24 project” (section 4(1)). Its mandate is to do this by applying the “precautionary principle” which,
25 according to the Federal Court of Appeal, provides that “a project should not be undertaken if it
26 may have serious adverse environmental consequences, even if it is not possible to prove with

1 any degree of certainty that these consequences will in fact materialize” (*Canadian Parks and*
2 *Wilderness Society v. Canada (Minister of Canadian Heritage)* 2003 4 FC 672, para. 24).

3

4 Under *CEAA*, the NEB must decide whether the Project “is likely to cause significant adverse
5 environmental effects” (including the environmental effects of malfunctions – s. 19) and, if so,
6 “whether those effects are justified in the circumstances” (s. 52). In light of the oil spill risk,
7 there is certainly the potential for “significant adverse environmental effects” and it is the
8 District’s view that these effects have not been adequately addressed or mitigated in the
9 Application and furthermore that these effects cannot be effectively mitigated through the
10 imposition of conditions.

11

12 The District’s objection to the Project relates to the following issues from the NEB’s List of
13 Issues for the Project:

14 4. The potential environmental and socio-economic effects of the proposed project,
15 including any cumulative environmental effects that are likely to result from the project,
16 including those required to be considered by the NEB’s Filing Manual.

17 5. The potential environmental and socio-economic effects of the proposed project,
18 including any cumulative environmental effects that are likely to result from the project,
19 including the potential effects of accidents or malfunctions that may occur.

20 10. Potential impacts of the project on landowners and land use.

21 11. Contingency planning for spills, accidents or malfunctions, during construction and
22 operation of the project.

23 12. Safety and security during construction of the proposed project and operation of the
24 project, including emergency response planning and third-party damage prevention.

1 **3. DISTRICT OF NORTH VANCOUVER COMMUNITY PROFILE**

2 The District is a community that highly values and strongly identifies with its natural environment
3 and it is a community that expects its municipal government to protect and manage the natural
4 assets of the North Shore. The District has over 40 km of shoreline frontage comprised of both
5 District-owned and private land (residential and commercial), parks, open space and natural
6 areas, all of which border on Burrard Inlet (Affidavit of J. Pavey, para. 4.1). This shoreline is
7 home to the Conservation Area at Maplewood Flats, operated by the Wild Bird Trust, which is
8 the last remaining undeveloped waterfront wetland on the North Shore and whose importance
9 as bird habitat is internationally recognized (Affidavit of J. Pavey, para. 3.2, Filing A4Q0E9).

10

11 In addition to the more natural areas of the waterfront, the District also has an industrial
12 waterfront that forms part of Canada's largest port, is a strategic national economic asset and
13 provides significant business opportunities and local jobs for residents. This shared waterfront
14 along Burrard Inlet shapes and defines the ecology, economy and lifestyle of the North Shore
15 (Affidavit of J. Pavey, para. 2.1, Filing A4Q0E9).

16

17 The District's shoreline is located within very close proximity to the Westridge Marine Terminal -
18 its jurisdictional boundary is within one kilometre and the closest point of land at Cates
19 Park/Whey-ah-Wichen is just 1.2 km from the Terminal.

20

21 The local government of the District is responsible for promoting and enhancing the
22 environmental, social, cultural and economic interests of the community and is the steward of
23 these interests for future generations. This is reflected in the *Official Community Plan* which
24 identifies rivers, creeks and waterfront as highly valued environmental, recreational, cultural,
25 heritage and economic assets (Affidavit of J. Pavey, paras. 3.4 – 3.6, Filing A4Q0E9). Further

1 details regarding the importance of the District's waterfront and its uses are set out in Ms.
2 Pavey's Affidavit, paras. 4.1 – 4.2, Filing A4Q0E9.

3

4 The Project, if approved, would have both environmental and operational impacts on the
5 District. The environmental impacts include effects to air, land and water, caused by emissions
6 from pipeline and marine terminal facility operations, marine shipping activities and potential
7 accidents or malfunctions which could negatively affect sensitive ecosystems and District
8 beaches, parks and shoreline. The operational impacts include emergency response planning
9 necessitated by the increased tanker traffic and corresponding increased risk of an oil spill in
10 Burrard Inlet. This written Argument sets out the District's concerns regarding these serious
11 environmental and operational impacts.

12

13 **4. ENVIRONMENTAL IMPACT**

14 The District is deeply concerned about the potential environmental impact of the proposed
15 Project. Specifically, the District is concerned about the sensitivity and vulnerability of Burrard
16 Inlet and the District's shoreline, parks and beaches in the event of a spill. The Maplewood
17 Conservation Area (the "Conservation Area") constitutes a unique ecosystem which is
18 particularly vulnerable to the effects of a spill. The specific ecological value of Burrard Inlet is
19 discussed below.

20 **4.1 Burrard Inlet Ecological Value**

21 Burrard Inlet has significant and distinct ecological features which are described in detail in the
22 Affidavit of Ms. Pavey, the District's Section Manager for Environmental Sustainability (paras.
23 5.1 – 5.4, Filing A4Q0E9). It is these important ecological values that are at risk in the event of
24 a spill. The District has invested considerable resources in working toward environmental
25 protection and enhancement goals for the foreshore and habitats located in Burrard Inlet. In

1 addition to local initiatives, District staff have participated in the Burrard Inlet Environmental
2 Action Program (BIEAP) (established in 1991 and disbanded in 2013) whose participants were
3 Environment Canada, Fisheries and Oceans Canada, Transport Canada, British Columbia
4 Ministry of Environment, Metro Vancouver, Port Metro Vancouver and bordering municipalities.
5 BIEAP provided a management framework to protect and improve the environmental quality of
6 Burrard Inlet's ecosystem. The group developed an environmental management plan, an
7 environmental indicators system, and a habitat atlas, which included maps displaying the
8 habitats, substrate types and complexity and diversity of the marine foreshore within the District.

9
10 The BIEAP maps of Areas of Vulnerability in the Event of a Marine Spill are attached to Ms.
11 Pavey's Affidavit as Exhibit D. The District also produced maps of Areas of Vulnerability in the
12 Event of a Marine Spill which are attached to Ms. Pavey's Affidavit as Exhibit C. These maps
13 note the locations from the District's Sensitive Ecosystem Inventory (2011), including the
14 estuarine, intertidal, riparian, river, and wetland areas as well as parks and wharves, all of which
15 are threatened in the event of a spill.

16
17 Ms. Pavey notes that:

18 The diversity of the habitat and substrate types shown on these maps demonstrates the technical
19 challenges involved with protecting these areas from spills and further shows the challenges
20 involved with the clean-up of a spill and the restoration of such diverse and expansive areas. The
21 extensive "mudflats" of the Conservation Area are particularly sensitive due to their close
22 proximity to the Westridge Marine Terminal where the product is loaded onto marine vessels and
23 Second Narrows which is an area of tidally driven mixing processes.

24 (Affidavit of J. Pavey, para. 5.5(c), Filing A4Q0E9)

25
26 The District recognizes that while the likelihood of a spill may be low, the environmental
27 consequences to the ecology and shoreline of Burrard Inlet will be very high and long-lasting.

1 Consequently, the District submits that the public benefits of this Project are outweighed by
2 these environmental, public health and safety risks and therefore the Project should not be
3 approved. The District further submits that these are risks that cannot be effectively mitigated
4 through the imposition of conditions.

5 **4.1.1 Maplewood Conservation Area**

6 A particularly vulnerable area of Burrard Inlet is the Maplewood Conservation Area, as
7 highlighted in the Affidavit of P.M. Banning-Lover, President of the Wild Bird Trust. The
8 Conservation Area, located on federal and District-owned land, is the last undeveloped
9 waterfront wetland ecosystem on the north shore of Burrard Inlet and has regional and
10 international importance. The Conservation Area has been internationally designated as
11 an “Important Bird Area”. The area is preserved as a wildlife sanctuary and carefully
12 managed by the Wild Bird Trust (WBT), a society dedicated to protecting wild birds and
13 their habitat with a particular focus on habitat protection and enhancement. The WBT
14 took what was once a degraded industrial site and remediated and restored it to its
15 natural state. The Conservation Area is now the site of the largest fresh and saltwater
16 marshlands and mudflats in Burrard Inlet (Affidavit of P.M. Banning-Lover, paras. 2.1 –
17 2.2, Filing A4Q0I3). According to Ms. Banning-Lover:

18 The Conservation Area comprises 96 hectares of intertidal area composed of mudflats
19 and salt marsh and 30 hectares of upland area that includes deciduous and mixed forest,
20 rough grassland and freshwater marsh habitats. The Conservation Area is now a
21 breeding habitat for Marsh Wrens, Common Yellowthroats, Wood Ducks, American
22 Coots, Blue-winged Teal, Red-winged Blackbirds, Pied-billed Grebes, Soras and Virginia
23 Rails.

24 (Affidavit of P.M. Banning-Lover, para. 2.4, Filing A4Q0I3)

25

1 The wide range of bird species which may be observed at the Conservation Area are
2 listed in Exhibit C to Ms. Banning-Lover's Affidavit with seasonal occurrence and relative
3 abundance noted. In addition to birds, a diverse range of other wildlife also frequents
4 the Conservation Area (Affidavit of P.M. Banning-Lover, para. 2.5, Filing A4Q0I3).

5
6 The WBT has made numerous improvements to the Conservation Area to facilitate
7 public access and enjoyment of the site. In addition to on-going habitat enhancement,
8 the WBT also conducts a range of educational and other activities. Approximately
9 33,000 visitors of all ages visit the Conservation Area each year (Affidavit of P.M.
10 Banning-Lover, paras. 2.6 – 2.7, Filing A4Q0I3). For details on the ongoing habitat
11 enhancement projects by the WBT at the Conservation Area, see paras. 4.1(a) through
12 (d) of Ms. Banning-Lover's Affidavit (Filing A4Q0I3).

13
14 Significant habitat enhancement by the WBT at the Conservation Area has resulted in an
15 increase in the different species of birds that utilize the site, growing from 208 species in
16 1993 to 245 species in 2014 and including migratory species such as osprey, purple
17 martin and white pelican as well as bald eagles and blue herons (Affidavit of P.M.
18 Banning-Lover, para. 2.9, Filing A4Q0I3). The excerpts from the Bird Survey Report
19 attached as Exhibits to Ms. Banning-Lover's Affidavit provide details regarding the birds
20 observed and recorded at the Conservation area, including the variation of bird species
21 by years seen (Exhibit D), a list of the 242 species observed and recorded (Exhibit E), a
22 list of the 25 most abundant species (Exhibit F) and a frequency list of all birds observed
23 in the bird surveys (Exhibit G). It is clear from these results from the bird survey that the
24 Conservation Area is heavily utilized by a very wide range of bird species.

25

1 Endangered birds (i.e. Red-listed by the BC Ministry of the Environment) and birds at
2 risk (Blue-listed) also make use of the habitat at the Conservation Area. The report
3 regarding red- and blue-listed birds at the Conservation Area which is attached as
4 Exhibit H to Ms. Banning-Lover's Affidavit indicates that there are 27 Blue-listed birds
5 which have been observed and recorded at the Conservation Area. The following six
6 Red-listed (i.e. endangered) birds have been observed and recorded at the
7 Conservation Area: American white pelican, Brandt's cormorant, Lewis' woodpecker,
8 Peregrine falcon, *anatum* subspecies, Sage thrasher, and Western grebe.

9
10 The vulnerability of the Conservation Area in the event of an oil spill and, in particular, its
11 tidal mudflats is dramatically illustrated by the photographs attached to Ms. Banning-
12 Lover's Affidavit as Exhibits I, J, K and L (Filing A4Q013). It is clear from these photos
13 that attempting to clean up spilled oil from the sand, marsh and mud would be an
14 extremely complicated endeavor – in particular, see the mudflat in Photo #2 of Exhibit J.
15 Also, the tidal nature of the lands and the vast expanse of mud and sand exposed during
16 low tides would further confound oil recovery efforts (see images of low tide in Exhibit I
17 and comparison of high to low tides in Exhibit J). Also attached to Ms. Banning-Lover's
18 Affidavit (Filing A4Q013) are images from the 2007 oil spill which was a spill of just
19 50,000 litres and yet reached the shores of the Conservation Area. The impact of this
20 relatively small spill is illustrated in the photos attached as Exhibit L.

21
22 The probability of oiled shoreline at Maplewood Flats in the event of a spill at Westridge
23 Marine Terminal is clearly illustrated by the following table of the results of seasonal
24 stochastic modelling provided by Trans Mountain:

Season	Probability of Oiled Shoreline	Time to First Shoreline Contact
Winter	20%	4 hours
Spring	40%	6 hours
Summer	60%	6 hours
Fall	40%	4 hours

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(Response to District IR 2.06.1(a), Filing A4H8L7)

These figures illustrate how important it is to have a timely, coordinated and effective response to any oil spill event in order to protect the most ecologically sensitive portion of shoreline in the District. Trans Mountain points to its practice of using a containment boom during loading at the terminal to mitigate this risk, but this does not address spills that may happen in transit to or from the terminal. For any spill that occurs in transit, the rapid deployment of booms offshore by boat is critical to prevent any oil from washing onto the mudflats. If weather conditions are poor, this will be very difficult to accomplish.

Given the vulnerability of the mudflats to the effects of a spill as well as the challenges it poses to effective cleanup, it is vitally important to prevent oil from reaching this area. The District is concerned that Trans Mountain has not demonstrated that there is sufficient boom or an adequate emergency response to prevent oil from reaching the mudflats. If the oil is not contained well off-shore, it will reach the mudflats and drape over the exposed substrate on the tide cycles. Furthermore, Trans Mountain's statement that it will use shore-seal booms in this circumstance still allows oil contamination of the substrate to occur on the containment-side of the boom and once

1 on the mudflats, it is unlikely it can be removed (Affidavit of K. Bennett, paras. 3.3., 5.1 –
2 5.4, Filing A4Q0I1).

3
4 Trans Mountain acknowledges that “As coastline, Maplewood Mudflats would be tidally
5 influenced and as such, present unique challenges to cleanup...[B]ecause intertidal
6 mudflats are difficult and possibly hazardous to walk upon, containment boom
7 deployment would likely occur from a boat” (Response to District of North Vancouver IR
8 2.05.06(a), Filing A4H8L7). In section 4.6 of Trans Mountain’s Emergency Response
9 Plan for Westridge Marine Terminal re. Response Tactics for Shorelines (p. 8, Filing
10 A4D3F1), it is stated that it is not possible to clean up “freshwater flats” – it is expected
11 that this would be the case for mud flats and estuarine habitats as well. Consequently,
12 clean up of mud flats simply may not be possible (Affidavit of K. Bennett, paras. 3.3 and
13 5.4, Filing A4Q0I1) and this would be devastating to this important ecological area and
14 its inhabitants. Ultimately, any oil contamination on the mudflats will have long lasting
15 adverse ecological consequences and undermine the ecological value of the mudflats
16 and Burrard Inlet.

17
18 While the District recognizes that the likelihood of a spill may be low, the environmental
19 consequences to the Maplewood Conservation Area and other areas of Burrard Inlet will
20 be very high and long-lasting, if not permanent. Consequently, the District submits that
21 the public benefits of this Project are outweighed by these environmental, public health
22 and safety risks and therefore the Project should not be approved. The District further
23 submits that these are risks that cannot be effectively mitigated through the imposition of
24 conditions.

1 **4.1.2 Complexity of Shoreline and Local Oceanographic Conditions**

2 The District maps and BIEAP maps of Areas of Vulnerability (Exhibits C and D to J.
3 Pavey's Affidavit, Filing A4Q0E9) illustrate the significant threat that a spill in Burrard
4 Inlet would pose to the District foreshore. The complexity of the District's shoreline as
5 illustrated in these maps demonstrates the significant technical challenges involved in
6 protecting this shoreline given the diversity of the habitat and substrate types. In fact, it
7 may not even be possible to protect it or to clean it up in the event of an oil spill. Further,
8 if oil reaches these shorelines, cleanup of a spill and the restoration of such diverse and
9 expansive areas would be very challenging. As noted in Ms. Pavey's affidavit, the
10 extensive mudflats at the Maplewood Conservation Area are particularly at risk due to
11 their close proximity to both the Westridge Marine Terminal, where the product is loaded
12 onto marine vessels, and the Second Narrows, which is identified as a restricted area for
13 marine vessel movement and is an area of tidally driven mixing processes (Affidavit of J.
14 Pavey, paras. 5.4 – 5.5, Filing A4Q0E9). Tidally driven mixing could result in spilled oil
15 becoming mixed in the water column and being moved at depth by underwater currents
16 into the deep basin of Indian Arm behind the moraine through the mechanics of
17 estuarine circulation (Affidavit of J. Pavey, para. 5.5(d), Filing A4Q0E9).

18
19 The emergency response measures in the Application for the proposed Project fail to
20 take into account the complexity of the District's multi-faceted shoreline and local
21 oceanographic conditions, such as tidally driven mixing which can entrain oil and
22 complicate cleanup efforts (Affidavit of J. Pavey, para. 8.1, Filing A4Q0E9).
23 Consequently, the emergency response measures proposed (including the proposed
24 improvements) are simply not adequate to protect the District's shoreline.

25

1 **4.1.3 Dilbit and Sediment**

2 The District's concerns about the impact of an oil spill on marine biological communities
3 are heightened by the uncertainty and lack of knowledge surrounding the fate and
4 behaviour of dilbit in the local marine environment. Trans Mountain has made an
5 assumption that dilbit remains floating for 10 days (Application, Vol. 8A, s. 5.5.2, p.606,
6 Filing A3S4Y6). However, this does not take into account wave action, temperature, or
7 the presence or absence of sediments in the water, all of which are key parameters that
8 determine whether dilbit will submerge, sink or float. There is the potential for dilbit to
9 sink and be deposited in the substrate and/or be carried away from the initial spill zone
10 by currents below the surface and be deposited elsewhere. Consequently, it may be
11 difficult or even impossible to fully recover such submerged or sunken oil from the
12 environment. Also, re-emergence of oil and subsequent sheening has been identified as
13 a long-term problem (Affidavit of K. Bennett, paras. 2.3, 3.1 – 3.3, Filing A4Q0I1;
14 Affidavit of J. Pavey, para. 8.2, Filing A4Q0E9).

15
16 Mechanical recovery rates, in optimal conditions, are usually only between 5% and 15%
17 of the oil spilled (Affidavit of K. Bennett, para. 5.1, Filing A4Q0I1). The spilled oil
18 spreads on the water surface and drapes over intertidal zones and across the foreshore
19 and continues to move and spread on the rising and falling tides (as illustrated by the oil
20 spill modelling completed on behalf of the City of Vancouver, City of Burnaby and the
21 Tsleil-Waututh First Nation (the "Genwest Modelling"), Filing A4L6A7). Tar ball
22 formation can occur very quickly and therefore response time is critical and must occur
23 within the first few hours of a spill. Depending on the conditions and size of a spill, full
24 cleanup of diluted bitumen from oiled shorelines will be very difficult and may not be
25 possible, particularly in areas such as tidal mudflats, marsh or sand/cobble beaches
26 (Affidavit of K. Bennett, para. 3.3 and 5.4, Filing A4Q0I1). Attempted cleanup of similar

1 areas in other spills (the beaches and marshes on the Gulf of Mexico, April 2010, and
2 the Kalamazoo River, July 2010) reveals significant long-lasting effects, such as re-
3 emerging tar balls, on-going sheening, formation of hardened asphalt layers in the
4 substrate, and the disruption and cascading of adverse effects through the marine
5 trophic levels with unknown long-term consequences. Sunken dilbit in the substrate
6 cannot be fully recovered and has proven to be a long-term problem (Affidavit of K.
7 Bennett, para. 5.1 – 5.2, Filing A4QOI1).

8
9 Current spill response methods are slow, laborious, very expensive and ineffective in
10 certain circumstances (e.g. over mudflats). To improve spill response and cleanup
11 techniques, further study is required regarding the fate and behaviour of dilbit in the
12 marine environment, including:

- 13 a) the interaction between oil and sediment across a broad range of
14 climate/water/oil interactions;
- 15 b) the interaction of dilbit in low concentrations of suspended solids (<1 ppm) to
16 better understand the lower range in which they will form;
- 17 c) the biodegradation processes and micro-toxicity of dilbit and heavy oils to
18 assess the impacts on aquatic organisms;

19 (Affidavit of K. Bennett, paras. 6.1 – 6.4, Filing A4QOI1)

20
21 The Kalamazoo experience and studies thus far indicate that spilled oil could be very
22 difficult to remove from the various substrates on the North Shore depending on site-
23 specific soil conditions. If not removed, the oil remaining in the sand and mud could
24 form an asphalt-like layer and persist for years (Affidavit of K. Bennett, para. 5.3 - , Filing
25 A4QOI1).

1 Given the experiences in other jurisdictions in which the oil product persisted even after
2 long periods of time, the lasting effects of an oil spill on the environment are a serious
3 concern to the District. The District submits that the potential for these lasting
4 environmental effects on the sensitive ecosystem of Burrard Inlet outweigh the public
5 benefits of the Project and therefore the Project should not be approved. The District is
6 further of the view that these are risks that cannot adequately be addressed or mitigated
7 through conditions imposed on Trans Mountain by the NEB.

8 **4.1.4 Community Investment**

9 There has been significant investment by community stakeholders and volunteers in
10 restoring damaged ecological habitats in the District. These community initiatives, listed
11 below, speak to the importance of the natural environment to the District and its
12 residents. An oil spill in Burrard Inlet has the potential to negatively impact these
13 significant community investments in ecological restoration:

- 14
- 15 (a) Seymour River Estuary Ecological Restoration Project, 2014-15 – expected to
16 increase survival rate of salmonids from the Seymour River and hatchery,
17 provide habitat for riparian wildlife and increase ‘blue carbon’ (carbon
18 sequestration) storage in the estuary (Affidavit of J. Pavey, para. 6.1(a), Filing
19 A4Q0E9);
 - 20 (b) McKay Creek Estuary Restoration Project – restoration of degraded fish and
21 wildlife habitat in McKay Creek estuary, resulting in restoration of salt marsh and
22 riparian habitat (Affidavit of J. Pavey, para. 6.1(b), Filing A4Q0E9);
- 23

- 1 (c) Seymour Salmonid Society – Seymour River Hatchery – operation of hatchery
2 and education centre to enhance Seymour River salmon populations (Affidavit of
3 J. Pavey, para. 6.2(a), Filing A4Q0E9);
- 4 (d) Capilano Hatchery – re-introduced chinook salmon to Capilano watershed;
5 receives more than 200,000 visitors per year (Affidavit of J. Pavey, para. 6.2(b),
6 Filing A4Q0E9);
- 7 (e) North Shore Streamkeepers – studies and monitors the health of 21 streams
8 across the District as well as carries out restoration and enhancement projects
9 (Affidavit of J. Pavey, para. 6.2(c), Filing A4Q0E9);
- 10 (f) Great Canadian Shoreline Cleanup – community cleanup and education events;
11 third largest cleanup in the world (Affidavit of J. Pavey, para. 6.2(d), Filing
12 A4Q0E9);
- 13 (g) Maplewood Conservation Area – last undeveloped waterfront wetland on the
14 north shore of Burrard Inlet and largest area of salt marsh and mudflats in
15 Burrard Inlet; managed by volunteers as a wildlife conservation area (Affidavit of
16 J. Pavey, para. 6.2(e), Filing A4Q0E9)(discussed in detail at section 4.2 –
17 Maplewood Conservation Area).

18

19 These projects illustrate the community's commitment to the restoration of foreshore
20 estuaries, marshes, mudflats and creeks. These are ecological features which are all
21 vulnerable to the effects of an oil spill in Burrard Inlet, both short- and long-term (Affidavit
22 of J. Pavey, para. 6.3, Filing A4Q0E9). Further, no formal provincial or federal process
23 currently exists to address such long-term impacts to the environment or compensation
24 for affected communities (Affidavit of J. Pavey, para. 6.4, Filing A4Q0E9).

25

1 While the likelihood of a spill may be low, the environmental consequence to these
2 important community ecological restoration projects will be very high. Consequently, the
3 District submits that the public benefits of this Project are outweighed by these
4 environmental risks and therefore the Project should not be approved. The District
5 further submits that these are risks that cannot be effectively mitigated through the
6 imposition of conditions.

7 **4.2 Oil Spill Impacts to Wildlife**

8 The impacts of a spill on wildlife are anticipated to be significant and would be greatly increased
9 if the event occurred during seasonal periods with high population levels. A spill could result in
10 significant mortalities to oiled water fowl on Burrard Inlet and at the Maplewood Conservation
11 Area and there is potential for on-going impacts to birds over subsequent years from contact
12 with remaining oiled surfaces, re-emerging oil sheens and tar balls, or from avoidance of their
13 contaminated habitat resulting in stress and weakness on migration (Affidavit of K. Bennett,
14 para. 5.4, Filing A4QOI1). Residual seepage of oil into the substrate could have on-going acute
15 and chronic effects in the long term and could prevent re-colonization of affected areas.
16 Further, the food web could be impacted if the lower trophic levels (plankton, shellfish and prey
17 species for marine fish and salmon) are affected (Affidavit of J. Pavey, paras. 7.10, Filing
18 A4QOE9).

19
20 The management of these impacts to wildlife in the event of a spill is not adequately addressed
21 in the Application in that insufficient resources have been dedicated to this important emergency
22 response activity. The District has significant concerns regarding the regional readiness,
23 capacity and ability to provide oiled wildlife housing and rehabilitation to a large number of oiled
24 wildlife (Affidavit of J. Pavey, paras. 7.7 – 7.9, Filing A4QOE9). The District has suggested in

1 section 4.6 of this Argument certain Conditions which would ameliorate the plan for wildlife
2 management.

3 **4.3 Impacts to Parks, Community and Economy**

4 The District has a significant supply of parks and open space and recreation facilities, with over
5 100 parks (Affidavit of S. Rogers, para. 2.1, Filing A4QOH7). District parks are not only integral
6 to the community's identity, but provide significant recreational, social, cultural and economic
7 value to the District and region. They offer opportunities for people to connect with the natural
8 environment and to pursue a wide range of recreational activities, such as walking, hiking,
9 biking, boating, beach-combing and nature viewing. The increase in marine activity
10 contemplated in the Application as well as the potential for spill events will negatively impact
11 District park environments and public usage as well as parks-related businesses.

12 **4.3.1 Parks Value and Usage**

13 District parks provide diverse and unique recreational opportunities amid spectacular
14 natural environments and include kilometres of shoreline along Burrard Inlet. The
15 District is the manager and environmental steward of its parks and natural areas with a
16 responsibility to protect and preserve these areas. As stated in the vision for the Parks
17 and Open Space Strategic Plan (POSSPP):

18 The District of North Vancouver will provide a diverse and interconnected parks and trail
19 system which **protects and enhances the ecological integrity and beauty of our**
20 **natural environment, promotes sustainability, active living and accessibility, and**
21 **fosters the development of community stewardship, identity and culture for**
22 **current and future generations** (emphasis added).

23

1 One of the principles of the POSSP is to “ensure that biodiversity and ecosystems within
2 our parks that the public value and care about are preserved in the parks and open
3 spaces” (Affidavit of S. Rogers, paras. 2.3 - 2.4, Filing A4QOH7).

4
5 District parks provide significant recreational and environmental benefits and attract
6 local, regional and international visitors. The parks are highly used and highly valued by
7 residents and visitors. The numerous and varied uses of District parks for recreation as
8 well as business endeavours are set out in detail in the Affidavit of the District’s Manager
9 of Parks and include:

- 10 (a) Special Events - almost 28,000 people attended special events in District
11 parks in 2014;
- 12 (b) Picnic Shelters - there were 5,080 picnic shelter bookings in 2014;
- 13 (c) Boat Launching - the Cates Park/Whey-ah-Wichen boat launch is
14 regionally significant as there are limited boat-launching options for
15 recreational boats in the Burrard Inlet/Indian Arm area. Also, it is the only
16 public boat launch in the District. In 2014, 4,500 tickets and 90 annual
17 passes were sold for its use;
- 18 (d) General Park Use - casual visitors on a summer day at Cates Park/Whey-
19 ah-Wichen can exceed 2,000 to 3,000 visitors per day who come to enjoy
20 the beaches, trails, boating and ocean views;
- 21 (e) Filming – the film industry regularly uses District parks for filming and as
22 staging areas;
- 23 (f) Kayak and canoe rentals and tours;
- 24 (g) Deep Cove Yacht Club;
- 25 (h) Deep Cove Rowing Club;
- 26 (i) Public Wharf in Deep Cove Park

1 (Affidavit of S. Rogers, para. 3.5, 3.6 and 6.2, Filing A4QOH7)

2

3 A biophysical inventory was conducted at Cates Park/Whey-Ah-Wichen and included the
4 terrestrial/wildlife components of the park and the marine ecosystem. This inventory
5 indicated that the marine ecosystem at the park foreshore would be greatly impacted if
6 an oil spill occurred (Affidavit of S. Rogers, para. 3.4, Filing A4QOH7). In fact, Trans
7 Mountain acknowledges that “a marine spill could result in adverse effects on
8 recreational activities, including boating and beach use...Although oil spill risk of the
9 Project was shown to be low, evidence from past spills indicates that if a large oil spill
10 were to affect recreational areas, use of these areas would likely be disrupted, either
11 voluntarily or by regulation, for at least one season.” Such a loss of use of a public
12 recreation area for a season or more would be a significant disruption and loss of
13 amenity to the District and its residents and visitors.

14

15 As stated in the Affidavit of S. Rogers, para. 11.1 (Filing A4QOH7):

16 As described above, the District’s marine waterfront and foreshore parks contribute
17 immensely to the values and lifestyles of District residents as well as park visitors. Any
18 significant accidents or malfunctions associated with the proposed Trans Mountain
19 Expansion Project would significantly disrupt parks services and require the deployment
20 of District resources to clean up. Health and safety of park users may be of concern and
21 any closures would impact visitor services and the long term impacts on natural habitat
22 and marine life could be a high risk. The consequences of an oil spill within the public
23 foreshore and park areas would form a high risk from an environmental, social and
24 economic perspective.

1 **4.3.2 Compensation**

2 Compensation for disruption of the numerous community amenities outlined above is not
3 currently made available to local governments. These community activities are
4 important not only from a social and cultural perspective, but they are also a source of
5 revenue to the District and this revenue would be negatively impacted in the event of a
6 spill that reached the District's shoreline. There is no compensation for this loss of
7 revenue. If the Project is approved, financial compensation should be established for
8 the District's economic losses arising from impacts to its parks and park users in the
9 event of a spill in Burrard Inlet.

10

11 The likelihood of a spill may be low, but the adverse effects on many important
12 community park amenities will be very high and not compensated. Consequently, the
13 District submits that the public benefits of this Project are outweighed by the
14 environmental risks and therefore the Project should not be approved. The District
15 further submits that these are risks that cannot be effectively mitigated through the
16 imposition of conditions.

17 **4.4 Air Quality and Human Health Concerns**

18 The District has identified community-based concerns regarding local air quality and related
19 human health impacts associated with the increase in capacity proposed in the Application and
20 arising from potential spills (Affidavit of J. Pavey, paras. 11.1-11.3, Filing A4Q0E9). Metro
21 Vancouver, as the body responsible for air management activities in the region, has reviewed
22 the Application for air quality impacts and potential health concerns and provided the following
23 assessment of the Project:

1 (a) Spill Volume - The spill volume modelled in Burrard Inlet is inadequate as it is based on
2 the smaller spill volume of 160m³ rather than the larger magnitude spill of 16,500m³ that
3 was considered at Arachne Reef;

4 (b) Spill Modelling – Gaps were identified in the spill modelling;

5 (c) Air Contaminant Emissions - Metro Vancouver retained an air quality consultant to
6 conduct an air quality assessment which considered air contaminant emissions and
7 predicted concentrations of various air contaminants based on the Genwest modeling.

8 The conclusions from this assessment include:

9 (i) Over a million people are predicted to be exposed to benzene levels above the
10 acute inhalation exposure limit;

11 (ii) Life-threatening health effect concerns exist for people on water near an oil slick
12 which may include marine transportation users (e.g. Seabus), tourists, and
13 recreational users;

14 (iii) Concentrations associated with mild, transient health effects have been predicted
15 for more than 31,000 people mainly located in Vancouver, North Vancouver and
16 Burnaby close to the inlet;

17 (iv) The greatest risk to population is within the first few hours of a spill.

18 (Evidence of Metro Vancouver, s. 2.3.1, p. 11, Filing A4L7Y3)

19

20 Exposure to benzene (a component of crude oil) is a significant health risk during an oil spill.

21 Spill response can be hampered and delayed by the effects of inhaled benzene on spill
22 responders and this can then exacerbate the spread of a spill, increasing the risk to shorelines,
23 habitats, wildlife and people in the vicinity (Affidavit of K. Bennett, paras. 4.1 - 4.2, Filing
24 A4QOI1).

25

26 The District's position is that the Project should not be approved unless the concerns identified
27 by Metro Vancouver and the Chief Medical Officer from Vancouver Coastal Health are fully

1 addressed, including the provision of additional air quality monitoring for the District and
2 development of a real-time plan to inform evacuation decisions.

3 **4.5 Conclusion - Environmental Impact**

4 Burrard Inlet is an important marine ecosystem, vulnerable to significant adverse impacts should
5 an oil spill occur. The oil slick trajectory scenarios modeled by Genwest (City of Vancouver
6 Evidence, Filing A4L6A7) show a high probability of oil reaching shorelines in the District.
7 Ecological impact may be much higher at certain times of the year than others, such as during
8 migration periods for birds or fish when mortality rates would be very high within a very short
9 time. Both recent oil spills in Burrard Inlet (Kinder Morgan, 2007 and MV Marathassa, 2015)
10 involved relatively small amounts of oil and occurred when weather conditions were favourable.
11 In spite of this, oil reached adjacent Burrard Inlet shorelines on both occasions. Further,
12 incidents in other jurisdictions have shown that even with very quick response, oil can be moved
13 by currents to other locations causing significant environmental impacts and cleanup costs
14 (Affidavit of J. Pavey, paras. 7.5 - 7.6, Filing A4Q0E9).

15
16 Consequently, the District faces significant increased risk to important and valued ecology and
17 environment as a result of the Project, if approved. While Trans Mountain has focused in its
18 Application on the low likelihood of an oil spill, it fails to adequately balance this against the very
19 high ecological consequences of any sized spill. The District is not satisfied, based on the
20 material presented in Trans Mountain's Application and through the NEB process, that the
21 District's concerns about ecological risks as outlined above have been adequately addressed.
22 The Application does not provide for adequate and effective protection or cleanup of the
23 District's complex shoreline (particularly, the Maplewood Conservation Area), provide for
24 environmental monitoring of the varied and long term effects of a spill on biological
25 communities, provide protection of the District's community ecological investments, provide

1 protection of air quality and human health, and does not address knowledge gaps regarding the
2 behaviour and treatment of dilbit in the marine environment. Consequently, the District's
3 position is that the Project, if approved, will pose an unacceptable risk of serious and long-
4 lasting negative impacts to the District's foreshore and parks in the event of an oil spill in
5 Burrard Inlet and submits that, accordingly, the Application should not be approved.
6 Furthermore, these are risks that cannot be effectively mitigated through the imposition of
7 conditions.

8 **4.6 Conditions - Environmental Impact**

9 *In the event that the Project is approved, the District submits that the following conditions should*
10 *be imposed on Trans Mountain to address environmental impacts:*

- 11 • *include measures in the Emergency Response Plans that will:*
 - 12 ○ *protect sensitive habitats, shoreline and wildlife, specifically including tidal*
13 *mudflats and sand/cobble beaches*
 - 14 ○ *prevent oil from reaching the District's shoreline*
 - 15 ○ *provide for effective cleanup of these shoreline areas and the various types*
16 *of substrate in the event that oil reaches them*
- 17 • *establish and maintain a system for maintaining environmental baseline data to*
18 *inform spill response and long-term remediation (including birds, fisheries data in*
19 *Burrard Inlet, sediment quality and shoreline mapping)*
- 20 • *require environmental monitoring of the varied and long term effects of a spill on the*
21 *affected substrates and associated biological communities*
- 22 • *implement a wildlife response and recovery plan, developed with community input,*
23 *and including the establishment of permanent wildlife response centres (not just*
24 *trailers)*

25

- 1 • *provide the following air quality measures:*
- 2 ○ *create and implement a plan for dealing with air quality events, i.e. criteria*
- 3 *for calling for community shelter-in-place and means for advising the public*
- 4 *(e.g. siren, apps for cell phones, phone calls outs, website, public*
- 5 *advisories);*
- 6 ○ *provide protection for first responders against air quality impacts*
- 7 ○ *determine the potential delay in a response and the consequences resulting*
- 8 *from dangerous air quality levels that could impede first responders*

9

10 *Also, if the Project is approved, the approval should be subject to the conditions set*

11 *out in section 2.3.2 of Metro Vancouver's Evidence Submission (Filing A4L7Y3)*

12 *which the District agrees with and adopts, namely oil spill modelling of 16,000 m³*

13 *throughout Burrard Inlet, real-time air quality dispersion modelling, capability to*

14 *collect real-time air quality measurements of hazardous pollutants from a mobile*

15 *monitoring station, and meteorological station installed in Indian Arm.*

- 16 • *establish a cost recovery model, acceptable to local governments, for compensating*
- 17 *local governments for community impacts in the event of a spill, including spill*
- 18 *response, remediation costs, and economic losses from loss of park and amenity*
- 19 *use*

20

1 **5. EMERGENCY RESPONSE PLANNING & SPILL RESPONSE**

2 **5.1 Coordinated Emergency Response Planning**

3 Planning for the response in the event of a spill is critical in order to protect valuable
4 environmental assets, sensitive ecosystems and human health along the shores of Burrard
5 Inlet. The District has a robust emergency management system that recognizes that
6 responding to and recovering from emergencies requires regional cooperation and coordination
7 as well as planning and practice. However, such cooperation and coordination has not been
8 demonstrated in the context of the Trans Mountain Emergency Management Plan (Application,
9 Vol. 7, Filing A3S4V5), leaving the District with serious outstanding concerns about whether
10 coordinated and effective emergency response measures will be carried out in the event of a
11 spill, accident, malfunction or other incident that threatens the shoreline of Burrard Inlet.

12
13 The District is a member of the tri-municipal North Shore Emergency Management Office
14 (NSEMO) together with the City of North Vancouver and the District of West Vancouver.
15 NSEMO “supports both municipal and regional capabilities for the North Shore by coordinating
16 effective and efficient preparedness, planning, response, and recovery activities by bringing
17 together resources from the three municipalities, response agencies, public safety lifeline
18 volunteers and other organizations on the North Shore” (Affidavit of D. Mason, para. 2.2, Filing
19 A4QOH6). In addition, NSEMO participates in regional emergency planning activities (Affidavit
20 of D. Mason, para. 2.7, Filing A4QOH6). NSEMO’s actions are guided by the Municipal
21 Emergency Plan with respect to preparing for, responding to and recovering from major
22 emergencies. This Plan “provides an all hazards framework and concept of operations which
23 enables [the District] to respond to any type of emergency” (Affidavit of D. Mason, para. 2.2,
24 Filing A4QOH6).

25

1 NSEMO's vision is "*a disaster resilient North Shore*" which means the ability to return to the
2 same or better position than before a disaster (Affidavit of D. Mason, para. 2.4, Filing A4QOH6).

3 To achieve this, NSEMO:

4 (a) is guided by the Municipal Emergency Plan which provides an all hazards
5 framework and concept of operations for preparing for, responding to and
6 recovering from any type of major emergency (Affidavit of D. Mason, para. 2.6,
7 Filing A4QOH6);

8 (b) is constantly testing its readiness to respond to an emergency - regularly testing
9 the activation, set-up, and operation of its Emergency Operations Centre and
10 conducting a range of emergency response exercises (Affidavit of D. Mason,
11 paras. 2.9 and 2.10, Filing A4QOH6);

12 (c) works closely with local industry through the North Shore Hazmat Working
13 Group. This enables NSEMO to be aware of local hazards, obtain information
14 regarding hazardous materials and their properties, and identify response
15 equipment and capabilities. See Canexus example as an illustration of local
16 government-industry cooperation in emergency response (Affidavit of D. Mason,
17 paras. 3.4 and 3.5, Filing A4QOH6) which illustrates NSEMO's coordinated
18 approach to emergency response planning.

19

20 As noted in Ms. Mason's Affidavit, this type of coordinated emergency response planning "has
21 not yet occurred between NSEMO and Trans Mountain" (Affidavit of D. Mason, para. 3.6, Filing
22 A4QOH6). Similarly, until recently, there has been a lack of meaningful involvement of local
23 governments in emergency response planning by Western Canada Marine Response
24 Corporation ("WCMRC"). For example, the only local government involvement in the
25 emergency management exercises specific to Westridge Marine Terminal between 2009 and

1 2014 was the City of Burnaby Fire Department which was involved in just one of the five
2 exercises (Trans Mountain's Response to NEB IR 1.169, pp. 378-394, Filing A3W9H8).

3 **5.2 Gaps in the Trans Mountain Emergency Response Plan**

4 The District's review of the Application and material filed with the NEB revealed significant gaps
5 in the emergency response planning for the Project. These gaps must be addressed to ensure
6 there is an adequate, complete and coordinated response to a spill in Burrard Inlet and the
7 shoreline is protected. The gaps identified by the District in the emergency response planning
8 are as follows:

9 **5.2.1 Role of Local Government in Emergency Response Plan**

10 Trans Mountain has delivered a project proposal that relies on local government
11 emergency response in the event of a spill, yet does not define the roles and
12 responsibilities of such emergency responders. To be effective, ongoing planning and
13 municipal representation are needed in the organizational structure of the Incident
14 Command System to ensure that any response is comprehensive, coordinated and
15 timely and that local concerns and needs are addressed.

16
17 Trans Mountain's Emergency Response Plan – Westridge Marine Terminal (Westridge
18 ERP) (Filing A4D3F1) and the Kinder Morgan Incident Command System Guide (Filing
19 A4D3F0) both refer to acquiring local government assistance in the event of an
20 emergency. The Westridge ERP states with respect to public evacuation that "...duties
21 will be turned over to local response agencies as soon as possible" which suggests that
22 there is an expectation that NSEMO, the District of North Vancouver Fire Department
23 and North Vancouver RCMP will play a role in responding to an emergency relating to
24 Trans Mountain's operations. However, the Trans Mountain Emergency Response

1 Plans do not define the role, capabilities, training or funding for the participation of these
2 emergency responders. These are all matters that need to be clearly addressed in
3 advance in emergency planning. Local governments should be given a specified role in
4 Unified Command to ensure that our communities' concerns, needs, and requirements
5 are appropriately considered and acted upon and that the community's economic,
6 cultural and psycho-social needs are also considered during any spill.

7 **5.2.2 Emergency Response Resources and Planning**

8 In order to be effective, certain emergency response equipment and resources must be
9 in place in advance to ensure a swift and coordinated response to an event. These
10 resources include:

- 11 (a) **Geographic Response Plans** – In order to properly inform and guide
12 emergency response activities and priorities, top-quality Geographic
13 Response Plans should be prepared for Burrard Inlet. Such plans are
14 “critical in determining how to respond to an oil spill and must involve
15 significant input from the communities to identify sensitive environmental
16 areas, high public use areas, culturally significant areas, and other
17 features that are important” (Affidavit of D. Mason, para. 4.2, Filing
18 A4Q0H6).

19
20 It should be noted that the Shoreline Types and Use Maps for Burrard
21 Inlet in section 7.5 of Trans Mountain's Emergency Response Plan –
22 Westridge Marine Terminal (Westridge ERP) (Filing A4D3F1) only show
23 the shoreline at high tide. Accordingly, such maps do not illustrate the
24 true extent of beaches, mudflats and estuaries as they exist at low tide.
25

1 Trans Mountain has indicated that WCMRC is developing a new coastal
2 mapping system, including Geographic Response Strategies, but this
3 system is still under development (Response to District's IR 2.05.07(a),
4 Filing A4H8L7). Consequently, local governments have had limited
5 opportunity to review, comment on or to provide input into these new
6 maps which will shape and guide emergency response measures by
7 WCMRC in their communities.

8

9 (b) **Incident Command Post & Equipment Caches** - An Incident Command

10 Post should be located on the North Shore when there is an event that
11 impacts this community to ensure that there is a coordinated response
12 that takes into consideration local needs. Also, equipment caches (i.e.
13 booming equipment, etc.) should be located on the North Shore and
14 personnel made available to activate this equipment. If municipal staff
15 are to carry out this function, proper training must be provided (Affidavit of
16 D. Mason, para. 7.1-7.2, Filing A4Q0H6). According to Trans Mountain,
17 there is no plan to locate either an Incident Command Post or equipment
18 caches in the District of North Vancouver or anywhere on the North Shore
19 (see Response to District's IR2.01.1(a) and (e), Filing A4H8L7).

20

21 (c) **Emergency Response Exercises** - Emergency response exercises

22 ("tabletops") should be conducted with local governments. Such
23 exercises are "essential in forward planning for any potential oil spill" to
24 clarify roles and responsibilities in emergency response. However, none
25 have been conducted with the North Shore municipalities (District of

1 North Vancouver, City of North Vancouver and District of West
2 Vancouver) (Affidavit of D. Mason, para. 4.1, Filing A4Q0H6).

3
4 (d) **S.C.A.T. Training** - A SCAT (Shoreline Cleanup Assessment Technique)
5 training program should be made available to local government staff so
6 that they can initiate this activity as soon as a spill occurs.

7
8 (e) **Identification of Support Services** - Chapter 2.14 of the Westridge ERP
9 (Filing A4D3F1) lists private "Support Services" that will be called on in
10 the event of a spill. The District requested the response times for the
11 arrival to a spill and/or fire for these support services, but this information
12 was not provided by Trans Mountain. NSEMO cannot carry out proper
13 emergency response planning without knowing what other response
14 resources will be activated and what their capabilities, availability and
15 response times are.

16 (See Affidavit of the Director of NSEMO, paras. 4.1 – 4.2, 7.1 – 7.4, Filing
17 A4QOH6)

18 **5.2.3 Inadequate Oil Spill Modelling**

19 In its Response to District of North Vancouver IR 2.01.6(d) (Filing A4H8L7), Trans
20 Mountain states:

21 Trans Mountain believes that appropriate and credible information on oil spill modeling
22 has been included with the Application. The information included enables the appropriate
23 level of risk assessment to have been conducted and risk-informed decision making in
24 accordance with the National Energy Board's letter, *Filing Requirements Related to the*
25 *Potential Environmental and Socio-Economic Effects of Increased Marine Shipping*

1 *Activities, Trans Mountain Expansion Project* (NEB 2013, Filing ID A3K9I2). No
2 additional modeling or assessment is contemplated.

3
4 The District does not accept that adequate oil spill modelling has been included in the
5 Application. The District agrees with and adopts the submissions of Metro Vancouver
6 with respect to the inadequacy of the oil spill modelling. Trans Mountain assumed a
7 worst case scenario of just 160m³ while the Nuka Report's assessment of a worst-case
8 oil spill at Westridge Terminal used a spill volume of 8,000 m³. According to the Nuka
9 Report, 160m³ is "not a credible worst case scenario, and does not align with best
10 practices for oil spill modelling." Other limitations to the oil spill modelling noted in Metro
11 Vancouver's evidence submission are the number of scenarios, locations, and the range
12 of weather conditions considered (Evidence of Metro Vancouver, s. 2.4.1.1 and 2.4.1.2,
13 pp. 14-15 and Nuka Report attached as Exhibit 2A, Filing A4L7Y3). Given the
14 inadequacy of the oil spill modelling, it cannot be said that appropriate risk assessment
15 has been completed and the low spill volume used in the modelling by Trans Mountain
16 means that the risks of the Project have necessarily been underestimated.

17
18 Also, Trans Mountain's spill modelling is based on a spill at Westridge Marine Terminal,
19 an oil handling facility, but does not address spills in a ship-source context, i.e. incidents
20 which may occur en route to or from the terminal. Trans Mountain asserts that such
21 spills are the responsibility of the tanker owner. This is true, however the emergency
22 response plans related to Trans Mountain's application for increased capacity must
23 address and account for both types of spill sources – from the loading operation and
24 from the tankers transporting Trans Mountain's product. Failing to address ship-source
25 spills leaves a significant gap in the emergency response plan.

26

1 In order to be prepared to respond to a spill, emergency planners and responders also
2 need specific information about the spilled products - what products are involved and
3 what the properties of those products are, how they will behave in various marine
4 environments and weather conditions and what risks they pose to human health and the
5 environment (Affidavit of K. Bennett, para. 2.2, Filing A4Q011).

6

7 When it comes to dilbit, as noted previously (s. 4.1.3), its interaction with marine
8 environments is not fully understood:

9 Based on current research, it is clear that the current understanding of the fate and
10 behaviour of dilbit in water, especially marine water, and the treatment options for a
11 marine spill of dilbit is very limited and not well understood^{1,2,3}. The lack of understanding
12 of the fate and behaviour of these products is a significant limitation to effective spill
13 response, containment, recovery and restoration efforts in Burrard Inlet.

14 (Affidavit of K. Bennett, para. 2.3, Filing A4Q011)

15

16 It is impossible to properly prepare and plan for the spill of a product when details about
17 how it will behave in the local environment are not known.

¹ *The Behaviour and Environmental Impacts of Crude Oil Released into Aqueous Environment*. Stakeholder Consultations, Webinars: Feb. 4-5, 2015 & April 8-10, 2015. Royal Society of Canada.

² *Federal Government Technical Report: Properties, Composition, and Marine Behaviour, Fate and Transport of Two Diluted Bitumen Products From the Canadian Oil Sands*. Environment Canada et al. Nov. 30, 2013.

³ *A Review of Canada's Ship-Source Oil Spill Preparedness and Response Regime: Setting the Course for the Future*. Transport Canada. Tanker Safety Expert Panel. Nov. 15, 2013

1 **5.2.4 Speed of Response**

2 Speed of emergency response to a spill is critical to its success. When oil is spilled on
3 water, lighter fractions of oil can evaporate and tar balls can begin to form very quickly in
4 the presence of wave action and suspended solids. Consequently, “Response time is
5 critical within the first few hours to minimize the spread of the oil and to reduce tar ball
6 formation due to evaporation...Without a rapid, effective response and quick
7 containment and recovery of a spill within the first few hours, it is likely impossible to
8 avoid the formation of tar balls and the spread of oil on the water surface and
9 subsurface. Surface oil will spread quickly to the shore and the subsurface oils and the
10 resultant sheening will produce long lasting adverse effects” (Affidavit of K. Bennett,
11 para. 3.3, Filing A4Q011).

12
13 It has been proposed that WCMRC emergency response times will be reduced to within
14 2 hours of notification for spill volumes up to 2,500 tonnes inside the Designated Port
15 Area of Vancouver (Application Volume 8A – Table 5.5.3) (down from the current
16 standard of 6 hours). Given the experience with the April 2015 spill as discussed in
17 Sections 5.2.5 and 5.2.6 below, a two-hour response time seems unlikely and the
18 District is not persuaded that it can realistically be accomplished. Furthermore, even if it
19 is possible to achieve, a 2-hour response time is likely still inadequate to protect the
20 District’s shoreline ecological assets (Affidavit of J. Pavey, para. 7.4, Filing A4Q0E9).

21 **5.2.5 Capacity**

22 The capacity of the spill response measures in Trans Mountain’s Emergency
23 Management Plan is a key concern for the District. The District’s review of the
24 Application reveals that there are insufficient booms, equipment and personnel
25 immediately available to protect its shoreline. This insufficiency will be exacerbated in

1 adverse conditions, such as storm events, high winds and waves, tidal change, currents,
2 fog, and spill vapours effects on first responders (Affidavit of J. Pavey, paras. 7.5, Filing
3 A4Q0E9). The experience with the recent spill in English Bay on April 8, 2015 from the
4 MV Marathassa raises significant doubts regarding the capabilities of the Coast Guard,
5 Westridge Marine Terminal, WCMRC and the Port of Vancouver to handle a modest
6 spill, much less a much larger one. This spill involved a relatively small volume of spilled
7 oil (2,700 litres/94 barrels), yet resulted in oil reaching several highly used public
8 beaches on the North Shore and beaches being closed for five weeks (Affidavit of D.
9 Mason, para. 6.8(d), Filing A4Q0H6). This response clearly demonstrated that existing
10 spill response plans, resources and equipment are inadequate to ensure that the
11 District's coastline is properly and sufficiently protected.

12 **5.2.6 Deficiencies in Current Emergency Response Model**

13 As noted above, gaps in the current spill response model were clearly illustrated during
14 the April 2015 spill, including serious gaps in coordination and communication with local
15 governments as well as a lack of definition around clean-up end points (discussed
16 below). NSEMO's Director states that "experiencing the emergency response to the oil
17 spill in English Bay has left NSEMO with concerns regarding emergency spill response
18 in Burrard Inlet" (Affidavit of D. Mason, para. 6.1, Filing A4QOH6). This event
19 demonstrated the following specific issues and limitations of the model for emergency
20 response to a marine spill in Burrard Inlet and its implementation:

- 21
- 22 (a) **Roles in Unified Command Unclear** - The role of local governments, the
23 Responsible Party and the International Tanker Owners Pollution
24 Federation (ITOPF, an organization that represents ship-owners and
25 insurers) in spill response efforts is unclear, particularly with regard to

1 determining the level of clean-up to be conducted (Affidavit of D. Mason,
2 paras. 6.2(a) – (c), 6.3, 6.10, Filing A4QOH6);

3
4 (b) **Resources for Managing Beach Closures and Other Spill-Related**
5 **Activities** - There are significant logistical challenges in trying to close off
6 large areas, such as parks and beaches, in the event of a spill. In the
7 April 2015 spill, there was a lack of resources provided to local
8 governments to assist with managing beach closures and other spill-
9 related activities, such as (a) posting signage, (b) assigning personnel to
10 close beaches and inform the public, (c) inspecting beaches to ensure
11 they have been sufficiently cleaned up, and (d) managing volunteers
12 wanting to assist with cleanup (Affidavit of D. Mason, para. 6.9, Filing
13 A4QOH6). Also, additional security was only provided to keep people off
14 of public beaches after it was requested by NSEMO (Affidavit of D.
15 Mason, para. 5.13, Filing A4QOH6). These necessary activities must be
16 planned for and adequate resources made available to implement them;

17
18 (c) **Communications and Document Management** – There is no system
19 for consistent and coordinated communication of information to the public
20 and also no formal document management system to guide document
21 retention and information-sharing (Affidavit of D. Mason, paras. 6.6-6.7,
22 Filing A4QOH6);

23
24 (d) **No De-Mobilization Procedure** – There is no procedure for managing
25 the transition from response to recovery and no plan for on-going
26 monitoring of waterfront areas for the re-appearance of oil after closure of

1 the Incident Command Post (Affidavit of D. Mason, para. 6.12, Filing
2 A4QOH6); and

3
4 (e) **Beach Clean-up and End Points** – The system for managing beach
5 cleanup, both in terms of the initial response as well as monitoring long
6 term effects, is unclear. Endpoints are not clearly defined (i.e. what level
7 of cleanness of shorelines must be achieved by spill response before an
8 area is deemed adequately ‘clean’). Also, there is no consideration of the
9 different public use levels of different beaches (Affidavit of D. Mason,
10 para. 6.8, Filing A4QOH6).

11
12 Trans Mountain had this to say about establishing cleanup endpoints:

13 Members of the Unified Command, including participating local
14 stakeholders, will have input into establishing cleanup endpoints.
15 Endpoints will typically be determined through a Net Environmental
16 Benefit Analysis (NEBA). As applied to an oil spill incident, NEBA is a
17 formal process to evaluate the risks and benefits of certain proposed
18 cleanup techniques and strategies. NEBA is a stakeholder’s
19 performance metric that weighs many factors against the cleanup
20 endpoints established by the Unified Command (UC). This analysis will
21 consider the specific treatment options appropriate to the response; the
22 potential for successfully implementing those discrete options; the
23 environmental trade-off attached to each technique; and, lastly, the type
24 of treatments that can be authorized within the existing regulatory
25 framework.

26 (Response to District’s IR 2.05.06(e), Filing A4H8L7)

27

1 This description of how emergency response is to be conducted is not
2 reflective of what occurred during the April 2015 oil spill. There did not
3 appear to be any objective criteria for establishing cleanup end-points.
4 For example, in the case of John Lawson Beach, a highly used and highly
5 accessible public recreation beach, there were no pre-established criteria
6 for when cleanup would be considered complete. The District of West
7 Vancouver advocated for clean-up to the level of the 'sticky glove' test
8 (i.e. if the oil was touched it would not come off), but this was not agreed
9 to until Environment Canada finally confirmed that this was the
10 appropriate standard for this popular public beach (Affidavit of D. Mason,
11 para. 6.8, Filing A4Q0H6).

12
13 Cleanup endpoints must be clearly defined, specifically tailored to the
14 geographic locations and their users (both human and wildlife) and
15 communicated to stakeholders. A lead agency must be identified to
16 ensure continued monitoring of affected areas and assurance that if an
17 end point turns out to be inadequate and adverse effects remain, the
18 Responsible Party will continue to be responsible for returning the area to
19 an acceptable state.

20
21 The emergency response as experienced in the April 2015 spill as outlined
22 above is clearly inadequate and ineffective and must be reconceived and
23 properly resourced going forward.

1 **5.2.7 Funding for Emergency Response Planning & Response**

2 Trans Mountain has delivered a project proposal that relies on local government
3 emergency response in the event of a spill, yet does not provide any specific
4 funding or training in order for local governments to prepare, train and equip its
5 crews for such participation. In its Response to the District's IR 2.01.2(a) (Filing
6 A4H8L7), Trans Mountain stated that while it is prepared to invite external
7 agencies to participate in emergency response exercises, continuing education
8 programs, and consultation meetings and will cover the costs of instruction, it will
9 not cover the costs associated with attendance, such as responder wages,
10 benefits and employment costs. In the Response to the Province of BC IR No. 1
11 (Filing A3Z2A6, p. 34), Trans Mountain states that "In the normal course of
12 events Trans Mountain does not plan to provide up front automatic funding for
13 on-going training, planning and participation in incident management and
14 response in relation to risks related to its operations, but will consider requests
15 from municipalities on a case by case basis in the event participation would
16 otherwise be limited due to a lack of available funds."

17
18 In its Response to the District of North Vancouver IR 2.01.2(a) (Filing A4H8L7),
19 Trans Mountain asserts:

20 Trans Mountain has completed a comprehensive risk assessment for a marine
21 spill and has concluded that the Project changes little [with respect to the role
22 and responsibilities of local government]. Potential consequences already exist
23 and the risk assessment shows that the credible worst case event for Burrard
24 Inlet is a 100 m³ [should read "160 m³"] spill during cargo transfer at the
25 Westridge marine terminal, which would largely be contained by the pre-
26 deployed oil spill containment boom. The risk assessment shows the probability

1 of such an event occurring is once in 234 years. **As a result, Trans Mountain**
2 **believes that the TMEP project will not place material additional demands**
3 **on municipal operations resources and services** (emphasis added).
4

5 The statement that the Project “will not place material additional demands on
6 municipal operations resources and services” is not accurate nor is it based on
7 evidence or experience. Local governments will need to undertake emergency
8 response planning, training, and resourcing in response to the increased spill
9 risk. Without clarity regarding the role of local government in spill response (see
10 s. 5.2.1), the additional demands on municipal operations, resources and
11 services cannot be quantified. However, as a distinct additional responsibility,
12 impacts on local resources are a certainty and these additional demands should
13 be funded by Trans Mountain, not local governments.
14

15 In terms of compensation for spill response activities, during the April 2015 spill,
16 ITOPF and Emergency Management BC indicated that the compensation to be
17 paid to local governments for staff wages is limited to only overtime hours
18 (Affidavit of D. Mason, para. 6.13 (Filing A4QOH6). This completely ignores the
19 fact that countless staff hours are spent during regular working hours dealing with
20 the oil spill and its effects. During such time, these staff are not carrying out their
21 regular duties and functions. There is no justification for compensation to be
22 limited only to overtime hours and local governments should not have to bear the
23 cost of staff time spent dealing with a spill caused by a private company. The
24 Responsible Party (RP) should be required to pay for all of the local
25 governments’ staff costs (regular hours and overtime hours) related to dealing

1 with a spill originating from that RP's vessel and compensation should not be
2 limited to just over-time hours.

3
4 In terms of economic benefits of the Project overall, Trans Mountain estimates
5 that the Project will result in \$309 million and \$727 million of additional tax
6 revenue to the Province of BC for development and 20 year operations,
7 respectively (Application, Volume 2, Page 2-42, Filing A3S0R0). In its Response
8 to the District's IR2.01.2(g), Trans Mountain stated: "It is likely that the additional
9 tax revenue to the Province would result in some benefits to the District" (Filing
10 A4H8L7). This statement is purely speculative - there is no direct benefit flowing
11 to the District from this tax revenue that is going to the Province of BC.

12 **5.3 Conclusion - Emergency Response Planning & Spill Response**

13 After reviewing the Project Application and information available through the National Energy
14 Board (NEB) Hearing, the District is not satisfied that the emergency response measures as
15 proposed in the Application are adequate to protect its physical and ecological environment,
16 economy, public health and safety from the potentially devastating and lasting effects of an oil
17 spill in Burrard Inlet. As noted in section 5.2 above, there are significant gaps in Trans
18 Mountain's Emergency Response Plan regarding roles, resources and capacity and it is the
19 District's view that the proposed improvements to spill response (i.e. 6-hour response time
20 shortened to 2-hour response time by WCMRC) will not be adequate to protect its shoreline
21 environmental and ecological assets.

22
23 In light of the short-comings in the Trans Mountain Emergency Response Plan outlined in
24 section 5.2 above, the Project should not be approved. In the event that the Project is approved,
25 Trans Mountain must be required to ensure that the capacity and overall effectiveness of the

1 emergency response measures are vastly improved such that oil is prevented from reaching the
2 District's shoreline or, if it does reach the shore, it is effectively and thoroughly cleaned up.
3 Also, there should be a system to provide financial compensation to local governments and
4 agencies for spill-related planning and response.

5

6 **5.4 Conditions re. Emergency Response Planning & Spill Response**

7 *In the event that the Project is approved, the District submits that the following conditions should*
8 *be imposed on Trans Mountain regarding emergency response planning and spill response:*

- 9 • *Include local government participation in the development of Emergency*
10 *Management Plans and Emergency Response Plans*
- 11 • *Produce Emergency Response Plans that:*
 - 12 ○ *clearly define the role and responsibilities of local governments and their*
13 *emergency planners and responders;*
 - 14 ○ *give local governments a seat at Unified Command; and*
 - 15 ○ *include the location of an Incident Command Post on the North Shore for any*
16 *event that affects the District*
 - 17 ○ *take into account:*
 - 18 ▪ *the complexity of local oceanographic conditions, such as tidally*
19 *driven mixing, particularly at the First and Second Narrows, and*
 - 20 ▪ *distinct ecological habitats, such as the mud flats at the Maplewood*
21 *Conservation Area*
- 22 • *Develop top-quality Geographic Response Plans (GRPs) that must be approved by*
23 *the District and made publicly available on a website*

- 1 • *Provide a life of project commitment to, at regular and specified intervals (5 years),*
2 *review the Best Available Protection and update the GRPs and equipment as*
3 *appropriate*
- 4 • *Conduct emergency response training exercises and tabletops that are realistic*
5 *scenarios, that consider/involve key stakeholders and make the findings public*
- 6 • *Provide, at its cost, a SCAT (Shoreline Cleanup Assessment Techniques) training*
7 *program for municipal staff*
- 8 • *Include plans for volunteer management, communications, and document*
9 *management in emergency response plans*
- 10 • *Provide support (either financially or with resources) to local governments for*
11 *training, exercising and additional planning required as a result of the increase in*
12 *Trans Mountain's operations*
- 13 • *Demonstrate that there is a funding model in place that compensates local*
14 *governments for the true costs of emergency response planning activities and*
15 *participation in response related to a spill of Trans Mountain's product, including staff*
16 *wages (not limited to overtime costs) and other employment costs. Such*
17 *compensation should encompass planning for, responding to and recovering from a*
18 *spill event.*
- 19 • *Be held to a commitment to provide emergency response times for an incident in*
20 *Burrard Inlet to no more than two hours (where "response time" means the amount of*
21 *time it takes to arrive at the scene and begin deployment of the response)*
- 22 • *Demonstrate that adequate spill response capacity (personnel, equipment, and other*
23 *resources) are in place*
- 24 • *Supply and locate equipment caches (i.e. booming equipment, etc.) on the North*
25 *Shore at locations mutually agreed to by the North Shore municipalities and commit*
26 *to providing trained personnel to activate this equipment in the event of a spill. If*

1 *there is an expectation that municipal staff are to use the equipment, Trans Mountain*
2 *should provide appropriate training, at its cost.*

- 3 • *Establish beach cleanup end points that are acceptable to District that take into*
4 *account the level and type of beach use (both human and wildlife)*
- 5 • *Establish a lead agency to ensure continued long term monitoring of affected areas*
6 *beyond the end-point clean-up criteria*
- 7 • *Locate equipment caches (i.e. booming equipment) on the North Shore and make*
8 *personnel available to activate this equipment. If there is an expectation that*
9 *municipal staff are to use the equipment, appropriate training should be provided*

10

11 *In addition, the District adopts the conditions included in Metro Vancouver's Evidence*
12 *submission (s. 2.3.2, p. 13-14, Filing A4L7Y3) as follows:*

13 *If the Project is approved, Trans Mountain should be required to model a credible worst-case*
14 *oil spill of 16,000 m³ throughout Burrard Inlet with a minimum one to five years of meteorology*
15 *and tidal conditions with a meaningful analysis that provides results that can be used to*
16 *determine shelter-in-place and/or evacuation zones. The assessment should be conducted*
17 *in consultation with Metro Vancouver and other agencies, such as local governments and*
18 *health authorities. The assessment must be completed prior to approval so that shelter-in-*
19 *place and evacuation zones are understood by Trans Mountain and the relevant authorities in*
20 *advance of an accident or malfunction. A complete understanding of the risks is necessary if*
21 *any type of meaningful emergency response is expected.*

22

23 *In addition to these modelling parameters, the District submits that the fate and behaviour of*
24 *submerged and sunken dilbit in Burrard Inlet should be part of the modelling exercise to*
25 *determine the best response techniques to limit submerged and sunken oil and to identify areas*
26 *that may be affected that are remote to the actual spill location.*

1 **6. RISK TOLERANCE CRITERIA**

2 The District is located in an area of steeply sloping terrain which is interspersed with many
3 creeks, ravines and greenbelts. These areas contain certain natural hazards and after a
4 landslide in 2005, the District adopted a new approach to natural hazards risk management.
5 The District developed risk tolerance criteria for natural hazards as a model for approaching
6 risks in our community. The criteria were based on public input into acceptable levels of risk as
7 well as defining what is acceptable for a given type of risk. This approach results in the
8 establishment of criteria for the degree of risk that is acceptable to the community that is faced
9 with the risk. In recognition of its efforts, the District received the United Nations Sasakawa
10 Award for Disaster Risk Reduction and is also recognized as a Role Model City for the United
11 Nations Resilient Cities campaign (Affidavit of F. Dercole, the District's Manager of Public
12 Safety, para. 3.9, Filing A4Q0I6).

13
14 "Risk analysis" is the systematic use of information to identify hazards and estimate the
15 frequency and severity of undesired consequences to people, property, the environment and
16 other things of value. "Risk evaluation" is the process by which risks are examined in terms of
17 costs and benefits, and evaluated in terms of acceptability of risk considering the needs, issues
18 and concerns of stakeholders. "Risk tolerance" is the readiness to bear the risk after risk
19 treatment in order to achieve its objectives (Affidavit of F. Dercole, the District's Manager of
20 Public Safety, paras. 2.1 – 2.3, Filing A4Q0I6).

21
22 As noted in para. 2.4 of Ms. Dercole's Affidavit, "Decisions regarding risk management should
23 take account of the wider context of the risk and include consideration of the tolerance of the
24 risks borne by parties **other than the organization that benefits from the risk.**" This principle
25 is both a Canadian and an international standard of risk management. The Project, if approved,
26 will significantly increase the risk of an oil spill in Burrard Inlet given the increase in tanker traffic

1 from 5 tankers per month to 34 tankers per month. This increased risk is borne by all of the
2 communities that border this body of water.

3

4 In spite of this, there has been no community consultation process with the communities located
5 along Burrard Inlet to determine these communities' acceptable levels of risk with respect to the
6 Trans Mountain Pipeline Expansion Project and the increased risk of oil spills that it brings to
7 the region. Consequently, it is not known what the risk tolerance of the affected communities
8 are for this type of industrial activity. Approval should not be given to the Project Application
9 without a thorough assessment of the affected communities' risk tolerance with respect to risks
10 associated with the Project.

11 **7. COMMENTS ON NEB DRAFT CONDITIONS**

12 The District has reviewed the Draft Conditions issued by the NEB on August 12, 2015. The
13 District is of the view that the risks posed by the Project cannot adequately be addressed or
14 mitigated through conditions imposed on Trans Mountain by the NEB. However, in the event
15 that the Project is approved, the District's comments regarding the Draft Conditions are set out
16 in Appendix A.

17 **8. CONCLUSION**

18 Even with the best possible emergency response system in place, if there is an oil spill in
19 Burrard Inlet, oil is likely to reach the District's shoreline. The complexity of this shoreline and
20 the effects of local oceanographic conditions make it very difficult, if not impossible, to
21 completely protect it against spills. If oil does reach this shoreline, there are areas from which it
22 likely cannot be removed, such as the bird sanctuary and tidal mudflats at the Maplewood
23 Conservation Area. Such a spill would also negatively impact the significant investments by
24 community stakeholders and volunteers in ecological restoration in the District and there would

1 be impacts to District parks and beaches that would restrict public use and interfere with
2 waterfront businesses and amenities. A spill that reaches the shoreline would result in serious
3 and lasting negative impacts on the District's physical and ecological environment as well as its
4 economy, public health and safety.

5

6 There is no question that, if approved, the Trans Mountain Expansion Project will result in an
7 increased risk of an oil spill in Burrard Inlet. This risk has been underestimated in the Application
8 due to the inadequate oil spill modelling conducted and this is exacerbated by the lack of
9 knowledge about the interaction of dilbit with the marine environment. Further, this risk has not
10 been adequately addressed by the emergency response measures proposed in the Application.
11 As set out in detail in section 5 of this submission, the emergency response measures proposed
12 in the Application (including the proposed improvements) have serious gaps and limitations and
13 are simply not adequate to protect the District's shoreline and sensitive ecological areas in the
14 event of a spill or to effectively clean these areas after oil reaches them.

15

16 In light of this, the District's assessment of the Trans Mountain Expansion Project is that the
17 environmental, public health and safety risks posed by this Project plainly outweigh its potential
18 economic, social or other benefits. The District is further of the view that these risks simply
19 cannot be adequately mitigated by any conditions that may be imposed on Trans Mountain by
20 the NEB. Accordingly, the District submits that the NEB should not recommend approval of the
21 Project to the Governor in Council.

22

23 All of which is respectfully submitted.

24

1 **9. APPENDIX A – DISTRICT OF NORTH VANCOUVER**

2 **COMMENTS ON NEB DRAFT CONDITIONS**

3

CONDITION	COMMENT
19. Air Emissions Management Plan for Westridge Marine Terminal	<p>Re. Condition 19(b), an air monitoring station should be required in the District given its proximity to the Westridge Marine Terminal.</p> <p>Re. Condition 19(j), Trans Mountain should be required to consult with the North Shore local governments and any other interested local governments with respect to the Air Emissions Management Plan for Westridge Marine Terminal.</p>
29. Updated terminal risk assessments	A list of the identified risks and mitigation measures taken to reduce risks at Westridge Marine Terminal should be provided to the District and any other interested local governments for emergency planning purposes since our communities can be directly impacted by a release of product into the air and/or Burrard Inlet. This information is needed to inform emergency response activities, including evacuation, shelter-in-place, shoreline protection, etc.
54. Fugitive Emissions Management Plan for the Westridge Marine Terminal	A requirement should be included to inform the District and any other interested local governments of the types of fugitive emissions that could be expected and for prompt notification in the event of actual releases.
64. Westridge Marine Terminal Environmental Protection Plan	Re. Condition 64(g), Trans Mountain should be required to consult with the District and any other interested local governments with respect to the Westridge Marine Terminal Environmental Protection Plan.
66. Light Emissions Management Plan for the Westridge Marine Terminal	Condition 66 should also require a Noise Management Plan for Westridge Marine Terminal as well as a complaint tracking and resolution process.
68. Quantitative Geohazard Frequency Assessment 69. Risk Management Plan for geohazards 71. Seismic reports – liquefaction potential 72. Fault studies	A requirement should be included to assess the potential for seismic damage to the Westridge Marine Terminal as an earthquake could cause system failures resulting in product entering the atmosphere and Burrard Inlet.
87. Emergency Response Plan for construction	<p>Local governments should be given the opportunity to review the Emergency Response Plan for construction prior to it being filed with the NEB.</p> <p>Trans Mountain should be required to use vegetable-based oils in hydraulic equipment working near or over water.</p>
88. Consultation on improvements to Trans Mountain's Emergency Management Program	Since Trans Mountain's operations are not directly within the District's jurisdiction, the District would like confirmation that it will be one of the local governments consulted. Also, the "commitments made during the consultation" should be made available to local governments to enable them to track and monitor these commitments.

<p>91. Authorization under paragraph 35(2)(b) of the <i>Fisheries Act</i> – Westridge Marine Terminal</p>	<p>If an Authorization is issued that requires habitat compensation that involves District shorelines, Trans Mountain should be required to notify and consult with the District regarding suitable areas.</p>
<p>109. Terminal fire protection and firefighting systems</p>	<p>A copy of the report confirming the adequacy of the proposed fire protection and firefighting systems implemented or planned to be implemented at the Westridge Marine Terminal should be provided to the District and any other interested local governments.</p>
<p>112. Final terminal assessments</p>	<p>To help local governments understand possible emergency response requirements for their communities, they should be provided with copies of the final risk assessments required per Condition #112.</p>
<p>114. Marine shipping-related commitments</p>	<p>Re. Condition 114(b), a response time of 36 hours is too slow to protect District shorelines</p>
<p>116. Pre-operations full-scale emergency response exercises</p>	<p>As indicated in the Nuka Report, a spill volume 160m³ does not represent a true worst-case scenario. Rather, a spill volume of 8,000 m³ should be used for the purposes of the emergency response exercises required by this Condition.</p> <p>This Condition does not indicate who the participants in the emergency response exercises will be. This Condition should include a requirement that the District and any other interested local government may participate in the exercises and that funding be provided to fully cover the costs of attendance, including employee wages and other employment costs.</p> <p>Trans Mountain should also be required to file proof with the NEB that it has taken the steps necessary to correct the deficiencies identified in the emergency response exercises (rather than just identify what steps need to be taken, which is what Condition 116(c)(iii) currently requires).</p>
<p>117(c). Reporting on improvements to Trans Mountain's Emergency Management Program</p>	<p>This requirement should include the list of which parties are to be consulted and the District and any other interested local government should be included on that list.</p>
<p>119. Emergency Preparedness and Response Exercise and Training Program</p>	<p>Re. Condition 119(d), the description and schedule for all emergency response exercises should be made available to the District and any other interested local governments to ensure they are informed and can make arrangements to participate.</p> <p>Re. Condition 119(f), the objectives for the emergency response exercises should include specific requirements that Trans Mountain engage and communicate with the District and all other local governments which may be effected, either directly or indirectly, in the event of an emergency.</p>
<p>120. Notification and reporting on emergency response exercises</p>	<p>This Condition should require that Trans Mountain notify the District and any other interested local governments of the opportunity to participate in emergency response exercises and that this notification be given at least 30 days prior to such an exercise.</p>
<p>122. Implementing improvements to</p>	<p>This Condition should include a requirement to inform the District and any other interested local governments of updates and improvements</p>

Trans Mountain's Emergency Management Program	to Trans Mountain's Emergency Management Program.
123. Emergency Response Plan for the pipeline and the Edmonton, Sumas, and Burnaby Terminals	<p>This Condition should include a requirement to provide copies of these Emergency Response Plans to the District and any other interested local governments.</p> <p>Condition 123(b)(ii) should include a requirement to include contact information (regular and emergency) of local governments to ensure they are contacted as soon as possible in the event of an emergency that may affect their community.</p>
124. Emergency Response Plan for the Westridge Marine Terminal	Condition 124 should require Trans Mountain to undertake significant engagement with the District and any other interested local governments in the preparation of geographic response plans to ensure that all high consequence areas are properly captured. The geographic response plans required in this Condition should be required to identify and take into account municipal needs, environmental sensitivity, cultural significance and high public usage.
136. Full-scale emergency response exercises during operations	This Condition should also require a full-scale exercise scenario of a full-bore rupture into Burrard Inlet. Also, Trans Mountain should be required to provide the results of the exercises to the District and any other interested local governments.
Additional Condition	Pre-construction design and mitigation should be required to take into account the recommendations of the "Marine Resources Report", Stantec (Dec 2013, Filing A3S2R7) along with improved marine species baseline data and an impact assessment that prescribes mitigation measures (not just recommended) preceding the design and construction.
138. Community Benefits Program	Condition 138 should include a requirement to provide a copy of the progress report to the District and any other interested local governments to provide an understanding of the types of initiatives that may be considered. The District should be given an opportunity to participate in these initiatives and given adequate notice for such participation.