

CANADA ENERGY REGULATOR

IN THE MATTER OF the *Canadian Energy Regulator Act*, SC 2019, c 28, s 10 (“**CER Act**”) and the Regulations thereunder;

AND IN THE MATTER OF the Certificate of Public Convenience and Necessity OC-065 (“**Certificate**”) and related orders held by Trans Mountain Pipeline ULC as General Partner of Trans Mountain Pipeline L.P. (“**Trans Mountain**”), in respect of the Trans Mountain Expansion Project (“**TMEP**” or “**Project**”);

AND IN THE MATTER OF the Notice of Motion and Constitutional Question dated 2 December 2021 (“**Motion**”) and Hearing Order MH-005-2021.

REPLY EVIDENCE OF TRANS MOUNTAIN

January 5, 2022

To: The Secretary
Canada Energy Regulator
Suite 210, 517 – 10th Avenue S.W.
Calgary, AB T2R 0A8

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I. INTRODUCTION

1. In accordance with the process¹ established by the Commission of the Canada Energy Regulator (“**Commission**”), Trans Mountain provides this reply evidence in response to certain matters raised by the City of Burnaby (“**Burnaby**”) in its response to the Motion.²
2. To the extent Trans Mountain does not specifically address matters raised by Burnaby in this reply evidence, that in no way implies that Trans Mountain accepts or agrees with Burnaby’s positions on such matters. Further, Trans Mountain will reserve its legal arguments in reply to Burnaby’s response for its written argument to be filed by January 12, 2022.

II. TRANS MOUNTAIN’S TERMINAL DESIGNS COMPLY WITH THE BUILDING CODE AND INTENT OF BURNABY’S FIRE SERVICES BYLAW

3. In his affidavit, the Deputy Chief Building Inspector for Burnaby states:

Through the Building Department's review of the TM Applications (including the FTAPs submitted by Trans Mountain on September 17, 2021), my staff raised concerns that Trans Mountain's fire access at the terminals did not conform with the basic requirements for fire lanes under the Burnaby Fire Services By-law.³

4. As explained by Burnaby’s Fire Chief in his affidavit:

The standards set out in the Fire Services By-law are specifically designed to ensure:

- a. unimpeded emergency access and egress of fire response vehicles (without unnecessary maneuvering due to tight turns and obstructions during response efforts);
- b. that fire response vehicles are able to pass a deployed high-volume inlet and discharge fire hose lines;
- c. that there is space adjacent to fire response vehicles to deploy necessary ground appliances;
- d. right side engine apparatus clearance of a minimum of 2 meters for ground ladder rack deployment; and
- e. left side engine apparatus clearance of a minimum of 2 meters for side mount engine operator working area, and space for multiple high-volume inlet and discharge fire hose lines, external foam proportioners and foam concentrate stock mustering.⁴

¹ [C16618](#), Commission - Notice of Motion and Constitutional Question dated 2 December 2021 Process letter

² [C16975](#), Burnaby - City of Burnaby Response to Notice of Motion and IR#1.

³ [C16975-4](#), Affidavit of P. Kushnir, affirmed December 22, 2021, PDF 6, para 18.

⁴ [C16975-3](#), Affidavit of C. Bowcock, sworn December 22, 2021 (“**Bowcock Affidavit**”), PDF 4, para 12.

5. For the reasons set out below, Trans Mountain’s designs for the Westridge Marine Terminal (“WMT”) and Burnaby Terminal (collectively, “Terminals”) comply with the *British Columbia Building Code*⁵ (“**Building Code**”) and meet the intent of Burnaby Bylaw No. 11860, *Burnaby Fire Services Bylaw, 2004* (“**Fire Services Bylaw**”).

A. Building Code Requirements

6. The Building Code includes requirements for access road designs to ensure appropriate fire response, including access and egress for emergency vehicles, as well as personnel and equipment deployment and staging. These are the same considerations listed by Burnaby’s Fire Chief.⁶
7. Trans Mountain’s designs for fire truck access and egress at the Terminals comply with the requirements of the Building Code,⁷ including access road widths of at least 6 metres, and turning radii of at least 12 metres, as shown in the *Burnaby Terminal FTAP Drawing*⁸ and the *Westridge Terminal FTAP Drawing*.⁹
8. While municipalities are permitted to adopt more stringent requirements than the Building Code,¹⁰ Burnaby has not provided any reasonable explanation for why more stringent requirements are needed for safe fire response at the Terminals, particularly given that Trans Mountain is required to have site-specific fire response plans (Certificate Conditions 125 and 126) and sufficient equipment to respond to a credible worst case fire at both Terminal locations (Conditions 118 and 138), independent of municipal firefighting support.

B. Burnaby’s Fire Services Bylaw

9. As explained by Burnaby’s Fire Chief, the intent of the minimum access road width in the Fire Services Bylaw is to provide right and left side engine apparatus clearance of at least 2 metres.
10. Even if Burnaby were to assist with fire response at the Burnaby Terminal or WMT, which it has stated it will not,¹¹ Trans Mountain’s designs will provide safe access for Burnaby Fire Department vehicles, sufficient area for deployment of its largest vehicles, and safe

⁵ Established by the British Columbia Building Code Order, Ministerial Order No. BA 2018 1, as amended.

⁶ Affidavit of Len Garis, affirmed January 4, 2022 and filed with this reply evidence (“**Garis Affidavit #2**”), PDF 4, para 6.

⁷ Garis Affidavit #2, PDF 4, para 5.

⁸ Garis Affidavit #2, Exhibit 1, PDF 8-33.

⁹ Garis Affidavit #2, Exhibit 2, PDF 35.

¹⁰ *Building Act*, SBC 2015, c 2, s 5(4); *Building Act General Regulation*, BC Reg 131/2016, s 2(b).

¹¹ [C16935-2](#), Trans Mountain Response to CER IR No. 1.4(a), PDF 6-7.

egress.¹² In particular, Burnaby's largest fire truck has a driving width of 2.6 metres.¹³ The minimum clearance of 2 metres on either side of that fire truck implies a minimum non-obstructed width of 6.6 metres for fire truck access roads.¹⁴ Trans Mountain's designs for the new access roads for the Terminals generally meet this requirement.¹⁵ As illustrated in the *Burnaby Terminal 3-D Snap Shot*¹⁶ and *Westridge Terminal 3-D Snap Shot*,¹⁷ there are select portions of the new roads at the Terminals where buildings or equipment on both sides of the road reduce the non-obstructed width to less than 6.6 metres. In most of these cases, the road widths are constrained by Trans Mountain's own firefighting systems, which have been specifically designed to allow Trans Mountain to appropriately respond to fires at the Terminals, including a credible worst case scenario, without support from the Burnaby Fire Department.¹⁸

11. Trans Mountain has a variety of firefighting equipment to address a worse case fire scenario, including fixed high-capacity fire-water pump and foam systems, dual early fire detection systems, remote-activated fixed fire suppression systems and an enhanced mobile firefighting system that includes a foam cannon and firefighting equipment to back up the fixed systems. The 6 metre roadway width is sufficient to deploy Trans Mountain's mobile fire response equipment, as practiced and demonstrated during the equipment deployment exercises conducted quarterly at the Terminals and at the unannounced exercise initiated by the Canada Energy Regulator ("CER") on March 4, 2021.¹⁹ No challenges have been encountered in moving fire response equipment through the Terminals.
12. Even in the select areas where the Terminal designs do not allow for the new roads to have non-obstructed widths of 6.6 metres or more, the roads will have a minimum width of 6 metres which will ensure that even Burnaby's largest fire trucks (2.6 metres wide) have sufficient space to pass one another, if needed.²⁰

C. Access / Egress at the Terminals has Already been Considered by the NEB

13. The proposed access routes at the Terminals are being designed and constructed to accommodate wheel loads from emergency apparatuses and equipment, as set out in the International Association of Fire Chiefs Emergency Vehicle Size and Weight Regulation

¹² Garis Affidavit #2, PDF 4, para 9.

¹³ [C16935-2](#), Trans Mountain Response to CER IR No. 1.3(b), PDF 5-6.

¹⁴ Garis Affidavit #2, PDF 5, para 9.

¹⁵ Garis Affidavit #2, PDF 5, para 9.

¹⁶ Affidavit of Dean Palin, affirmed January 4, 2022 and filed with this reply evidence ("Palin Affidavit #2"), Exhibit 1, PDF 7-9.

¹⁷ Palin Affidavit #2, Exhibit 2, PDF 11.

¹⁸ [C16935-2](#), Trans Mountain Response to CER IR Nos. 1.2 and 1.3(b), PDF 3 and 5.

¹⁹ [C16935-2](#), Trans Mountain Response to CER IR No. 1.2, PDF 3-4.

²⁰ Garis Affidavit #2, PDF 5, para 11.

Guideline.²¹ Trans Mountain's designs comply with the standards for alignment, sag, crest, and horizontal curves and clearances set out in the Guideline.²²

14. Notably, Burnaby raised essentially the same concerns regarding fire access at the Burnaby Terminal during the original hearing, relying on evidence provided by its current Fire Chief. They included concerns that there is insufficient roadway access to allow for safe access and egress for emergency responders.²³
15. After considering concerns regarding fire response (including those raised by Burnaby), the National Energy Board ("NEB") recommended the Project for approval (including the Terminals), subject to conditions.²⁴

III. REDESIGN IS NOT FEASIBLE AND WOULD INCREASE SPILL-RELATED RISKS

16. In his affidavit, Burnaby's Fire Chief states that, on his review of the Fire Truck Access Plans submitted by Trans Mountain, he did "...not see 'site constraints' that would render fire lane widening, or other modification to meet Burnaby fire access standards, impracticable."²⁵ He goes on to suggest that "... the modifications to terminal design and basic civil construction works that would be required to seek compliance are both reasonable in scope, and in proportion to the level of risk mitigation afforded by compliance."²⁶

A. Burnaby Terminal

17. In the case of Burnaby Terminal, the design changes suggested by Burnaby are impracticable due to a number of site-specific circumstances, including terrain constraints, the layout of existing facilities, and the design of the secondary containment areas.²⁷ In particular, the steep terrain at the Burnaby Terminal required a non-traditional and complex design of the new hydrocarbon secondary containment tank lot areas.²⁸ The new fire truck access roads will be constructed between the secondary containment shoring walls and the

²¹ Reply Evidence OH-001-2014 Trans Mountain Reply Evidence (Part 1) - Section 24.0: Trans Mountain Expansion Project Facility Risk Assessment ([A4S7E9](#)).

²² Reply Evidence OH-001-2014 Trans Mountain Reply Evidence (Part 1) - Section 24.0: Trans Mountain Expansion Project Facility Risk Assessment ([A4S7E9](#)).

²³ [A4X4I6](#), Burnaby - Final Argument of the City of Burnaby, PDF 46, 65, 68-69.

²⁴ [A77045](#), NEB Report OH-001-2014, PDF 175.

²⁵ Bowcock Affidavit, PDF 5, para 21.

²⁶ Bowcock Affidavit, PDF 5, para 21.

²⁷ Palin Affidavit #2, PDF 4, para 6.

²⁸ Palin Affidavit #2, PDF 4, para 6.

steep-sloped reinforced earthen berms,²⁹ as shown in the *Burnaby Terminal 3-D Snap Shot*.³⁰

18. As Trans Mountain has previously explained, in considering the physical layout of the Terminals, there is a fundamental trade-off between the areas used for secondary containment capacity to reduce the risks associated with spills and areas devoted to fire response (such as access roads) to reduce the risks associated with fires.³¹ At the Burnaby Terminal, it is not possible to widen the fire truck access roads or increase the setbacks between the new TMEP buildings and the fire truck access roads without negatively impacting the secondary containment shoring walls, the required secondary containment capacity, or the stability of the reinforced earthen berms.³²
19. As discussed above, in Trans Mountain's view, from a fire response perspective there would be no benefit from widening the access roads or increasing building setbacks beyond the current design. On the other hand, such design modifications would directionally increase spill-related risks by reducing the secondary containment areas.³³
20. Trans Mountain notes that it is not feasible to increase the secondary containment capacity in these areas by increasing the height of the secondary containment berms and shoring walls because of space constraints (berms become wider as they become higher) and seismic stability (steeper berms are not technically feasible at this location).³⁴

B. WMT

21. The majority of the new fire truck access roads at the WMT are 8 metres wide, which exceeds Burnaby's bylaw requirement of 7.3 metres.³⁵ The exception is one 90 metre stretch of the access road, which is only 6 metres wide.³⁶ It is not feasible to widen this road or increase the setbacks between the Terminal buildings and the road due to the challenging topography and the restricted available land between the existing buildings and

²⁹ Palin Affidavit #2, PDF 4, para 6.

³⁰ Palin Affidavit #2, Exhibit 1, PDF 7-9.

³¹ Burnaby Terminal Variance Application, NEB File No.: OF-Fac-Oil-T260-2013-03 03, Trans Mountain Response to CER IR 3.5, PDF 15 ([A5Y9T3](#)).

³² Palin Affidavit #2, PDF 4, para 7.

³³ Palin Affidavit #2, PDF 4, para 7.

³⁴ Palin Affidavit #2, PDF 4, para 8.

³⁵ Palin Affidavit #2, PDF 4, para 9.

³⁶ Palin Affidavit #2, PDF 4, para 9.

the rail track right of way.³⁷ These constraints are depicted in the *Westridge Terminal 3-D Snap Shot*.³⁸

IV. ALLEGATIONS OF UNEXTINGUISHABLE FIRES ARE WITHOUT MERIT

22. In his affidavit, Burnaby's Fire Chief states as follows:

14. The Fire Department has documented its concerns with the Terminals extensively on the NEB record. As a Fire Chief with extensive experience in the context of planning hydrocarbon storage facility firefighting response procedures and pre-plan development, it is my view that there are multiple potential tank fire scenarios within the Terminals that would be unextinguishable due to lack of safe firefighting positions. This is, in part, due to the expanded and densified terminal and tank configuration approved by the NEB. With these existing risks in mind, it is very concerning to me that Trans Mountain would be seeking confirmation of fire lane access plans on the basis of a lower standard than the mandatory minimum contained in Burnaby's Fire Services By-law.³⁹

23. The Burnaby Fire Department's concerns referenced by the Fire Chief are extensively documented on the records of NEB and CER proceedings, including for the original Project hearing (OH-001-2014), the reconsideration hearing (MH-052-2018), and Condition 22.⁴⁰

24. Notwithstanding the Burnaby Fire Department's concerns, the NEB approved the tank layouts for the Burnaby Terminal and WMT. The NEB also imposed conditions to ensure that Trans Mountain implements measures to reduce fire-related risks at the Terminals to levels As Low As Reasonably Practicable ("ALARP") while complying with the Major Industrial Accidents Council of Canada ("MIACC") criteria considering all tanks in each respective terminal (Condition 22 and 129).⁴¹

25. With respect to the Burnaby Terminal, the NEB considered similar concerns of Burnaby and the Burnaby Fire Department questioning Trans Mountain's risk assessment methodology and choice of worst case scenario. In its decision approving Trans Mountain's Condition 22 filing, the NEB accepted Trans Mountain's risk assessment methodology, finding that Trans Mountain had demonstrated appropriate risk mitigation measures and ignition source control through its terminal design, the application of industry standards, and its fire suppression systems.⁴² The NEB's approval of Trans Mountain's Condition 22

³⁷ Palin Affidavit #2, PDF 4, para 9.

³⁸ Palin Affidavit #2, Exhibit 2, PDF 11.

³⁹ Bowcock Affidavit, PDF 5, para 14.

⁴⁰ See e.g. Condition 22: Updated Terminal Risk Assessment for Burnaby Terminal ([A81937](#)), Trans Mountain Response to CER IR No. 2 ([A85834](#)), Trans Mountain Response to CER IR No. 3 ([A89029](#)), Trans Mountain Reply to Burnaby ([A92010](#)), NEB Letter Report 17 (approving Condition 22 filing for Burnaby Terminal ([A92675](#))).

⁴¹ Certificate Conditions 22 and 129.

⁴² NEB Letter Report 17 approving Condition 22 filing for Burnaby Terminal ([A92675](#)).

filing means that Trans Mountain's design for the Burnaby Terminal meets the ALARP standard and the MIACC criteria for fire risks at this location.

26. The Burnaby Fire Chief's assertions that fires at the Terminals will be "unextinguishable," presumably based on scenarios previously rejected by the NEB, are contrary to the prior NEB approvals.
27. Further, Condition 129 requires Trans Mountain to file with the CER, for approval, final risk assessments for the Terminals at least three months prior to applying for leave to open. As a result, Trans Mountain will not be permitted to commence service using the expanded Terminal facilities until it has satisfied the CER that the Terminal designs and emergency response plans, including fire truck access and fire response plans, will reduce fire-related risks at the Terminals to levels that are ALARP and that comply with the MIACC criteria for risk acceptability. Burnaby and the Burnaby Fire Department will be able to raise any specific concerns about Trans Mountain's Condition 129 filings once they are made.

V. TRANS MOUNTAIN'S DESIGNS CONSIDERED THE FIRE SERVICES BYLAW

28. Burnaby's Fire Chief suggests that "... Trans Mountain and its contractors were not considering the fire access standards established by Burnaby's Fire Services By-Law" when designing the Terminals.⁴³ This assertion is incorrect.
29. Trans Mountain considered the specific requirements of the Fire Service Bylaw and the needs of the Burnaby Fire Department's equipment throughout the design process for the Terminals, including at the initial design phase as reflected in the Design Basis Memoranda for the Terminals that were prepared in 2016. As clearly shown in the letter accompanying a fire truck access plan submitted by Trans Mountain for the Burnaby Terminal, under the heading "COB Design Requirement",⁴⁴ Trans Mountain considered each requirement of Burnaby's Fire Services Bylaw in its design for the Terminals' access roads and provided rationale where Burnaby's standards cannot be met.
30. Despite Trans Mountain's ongoing efforts, Burnaby and the Burnaby Fire Department have not meaningfully engaged with Trans Mountain to address the areas where strict compliance with Burnaby's Fire Services Bylaw simply cannot be achieved (for the reasons discussed above). Their insistence on strict compliance with the Fire Services Bylaw even where such compliance is impractical or impossible forced Trans Mountain to file the Motion.

⁴³ Bowcock Affidavit, PDF 5, paras 17-18.

⁴⁴ [C16404-8](#), Affidavit of Osama Moin, affirmed November 26, 2021, Exhibit 8, Part 1 of 2 – Fire Truck Access Plan, PDF 5.