Canadian National

Darren Reynolds
Project Director

61 James Snow Parkway
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July 17, 2019

Lesley Griffiths
Review Panel Chair
160 Elgin St.
Ottawa, ON K1A 0H3

By email
Dear Ms. Griffiths:

RE: CN Closing Statement Submission

I am writing to provide the Panel with CN's written closing submission for the Milton Logistics Hub project.

Thank you for your consideration of this filing.

Sincerely,
<Original signed by>

Darren Reynolds
Project Director

Cc:
William G. McMurray, Review Panel Member (by email)
Isobel Heathcote, Review Panel Member (by email)
Joseph Ronzio, Review Panel Manager (by email)
Mark Lerner, CN Vice President
Luanne Patterson, CN Senior Systems Manager – Environmental Assessment

ENVIRONMENTAL ASSESSMENT OF THE MILTON LOGISTIC HUB PROJECT

CLOSING SUBMISSIONS

CANADIAN NATIONAL RAILWAY COMPANY

JULY 17, 2019

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PART I – OBJECTIVES AND ORGANIZATION

A. Submission Objectives

1. The purpose of the public hearing is to give the Joint Review Panel (the "Panel") an opportunity to gather and test the information it requires to prepare its report under the *Canadian Environmental Assessment Act, 2012* ("CEAA 2012") and to gather the information required for the Canadian Transportation Agency ("CTA") to decide, if necessary, on CN's application under the *Canada Transportation Act*. The hearing is by design focused on the remaining issues arising from the extensive consideration of the material filed with the Panel over the course of the lengthy sufficiency review process.

2. The Panel is already very familiar with the length and breadth of the Environmental Impact Statement ("EIS") and all of the material that was requested and submitted subsequently. Our intent in this submission is to address the assessment of the potential effects of the Milton Logistics Hub Project ("Project") that became the focus at the public hearing.

B. Organization

3. This submission has been structured to first provide some basic context and an overview, followed by a review of the topics that were the subject of the hearing sessions scheduled by the Panel. The context and overview are comprised of Parts I through V. The topic-specific sections, which follow the order of the scheduled hearing sessions, start at Part VI.

4. Each topic-specific section is organized as follows:

   (a) First, we have provided a table with reference to the CEA Registry listing CN's evidence on each topic. In those tables, references to (i) the relevant sections of the EIS Guidelines and EIS, (ii) responses to the Panel's Information Requests ("IRs"), (iii) materials filed by CN in advance of the hearing, and (iv) CN's exhibits and responses to undertakings are all provided.

   (b) Second, in a section entitled "Overview and Conclusions," the results of the technical study or assessment, depending on the subject matter of the Part, are provided together with a statement of CN's position on issues raised. The

discussion within this section is intended to provide the Panel with a concise summary.

(c) Third, we address the key issues raised during the hearing and in the written submissions of interested parties. In this regard, we highlight relevant requirements specified in the EIS Guidelines and other documents, outline CN's approach to addressing those requirements, summarize the views of interested parties, and provide rationale and justification for CN's position on these issues, for the Panel's consideration. Because we cannot, as a practical matter, address every argument made by the participants in this proceeding, we have been selective. The omission of a response to an argument raised by another party should not be interpreted as CN's agreement with it.

PART II – CONTEXT – PROPOSAL, HEARING PARTICIPATION, AND KEY THEMES

A. Proposal Summary

5. CN is a federally-regulated transportation business that offers rail services. As Canada's largest railway, and the only transcontinental railway in North America, CN is engaged in transporting over $250 billion worth of goods annually and carries over 300 million tons of cargo across a network spanning Canada and the United States. CN's vision is to be the safest railroad in North America, and CN continuously works to build an uncompromising culture of safety.

6. As described in more detail in "PART V – CONTEXT – PROJECT DESCRIPTION", CN proposes to construct and operate an inland intermodal rail terminal in Milton, Ontario, on CN-owned land beside the existing CN mainline. The existing CN mainline, which is already double-tracked on part of the CN-owned land in this location, has been operating for more than 100 years. The Project, known as the Milton Logistics Hub, aims to address increasing demand for intermodal rail capacity in the Greater Toronto and Hamilton Area ("GTHA"). The new terminal would become an integral part of the local, provincial, and national supply chain.

7. As described in more detail in "PART III – CONTEXT – PROCESS AND PANEL MANDATE", in March 2015, CN submitted a Project Description to the Canadian Environmental Assessment Agency ("CEA Agency"). Following pubic consultation on the

Project Description, the CEA Agency determined that a federal environmental assessment ("EA") would be required. After further consultation, the CEA Agency released guidelines for the preparation of a detailed EIS ("EIS Guidelines"). The then Minister of Environment referred the EA for review by an independent panel, and in December 2016, the Minister of Environment and Climate Change (the "Minister") appointed the three-member Panel. The mandate and authority of the Panel, as well as the procedures and timelines for the conduct of the review, was set out in an Agreement between the Minister and the Chair of the CTA.

8. CN submitted a comprehensive EIS to the CEA Agency in December 2015. After detailed responses by CN to more than 200 IRs, the Panel determined that it had sufficient information to give notice of and conduct the public hearing. The Panel has now received further information from CN and other interested parties in written submissions, orally at the hearing, and in exhibits and responses to undertakings.

9. CN submits that, considering all of the information available to the Panel, the conclusions set out in the EIS and supplementary information submitted by CN remain valid. With the implementation of the proposed mitigation measures, the Project is not likely to result in significant adverse environmental effects, including cumulative effects.

10. This Project is essential to meeting the growing demand for goods movement infrastructure in the GTHA, and in particular, intermodal rail capacity. As the population in the region expands, and as increasing volumes of containers reach Canadian ports coast to coast, new intermodal rail capacity is necessary to ensure that goods movement infrastructure keeps up with the demand.

11. This Project will increase intermodal capacity in the GTHA and will generate benefits to the region, province, and country. The Milton Logistics Hub will support Ontario's and Canada's goods movement supply chain, accommodating the billions of dollars in goods that will continue to move through the GTHA every day. Adding rail capacity will also promote the "modal shift" from long-haul truck to rail, reducing overall greenhouse gas and other emissions and traffic congestion. And locating the new facility in Milton will strengthen Halton Region's growing logistics sector, create direct and indirect jobs, attract new intermodal oriented development, and contribute to municipal resources.

12. For the reasons discussed in this Closing Submission and through the entire review process, CN submits that the Panel can and should conclude and recommend to the federal government that:

(a) comments from the public, including the interests of the localities, and community knowledge and traditional knowledge have been considered throughout the assessment;

(b) the information in the EIS and submitted throughout this process demonstrates that the Project is urgently needed and that it would result in local, provincial, and national benefits;

(c) alternative means of carrying out the Project have been considered, and the Project as proposed is reasonable;

(d) CN has proposed technically and economically feasible, Project- and site-specific mitigation measures and management plans that should be implemented, including measures that would mitigate adverse environmental effects and protect the interests of localities;

(e) taking the implementation of mitigation into account, the Project is not likely to result in significant adverse environmental effects, including cumulative effects and effects of accidents and malfunctions;

(f) CN has proposed follow-up programs to verify the accuracy of the environmental assessment and the effectiveness of mitigation and that these programs should be implemented; and

(g) the Panel has gathered sufficient information for the CTA to make its decision.

B. Extensive Government and Public Participation

13. The EA process, from the outset, has benefited from extensive expert input from federal and provincial agencies, as well as the active participation of local government and members of the public. The pre-hearing process extended years, and involved an extensive EIS, hundreds of multi-part IRs, and thousands of additional pages of information, reflecting further study, further data, and further analysis.

14. That very active input continued during the hearing process, in which:

(a) a variety of experts from the federal and provincial governments provided written submissions and attended the hearing to present information and respond to questions;

(b) members of the public filed written submissions and presented at the hearing, and asked and answered questions; and

(c) the Halton Municipalities, together with Conservation Halton, filed extensive written submissions, participated in the hearing through multiple expert witnesses on virtually every topic, and asked questions of witnesses through a large team of lawyers.

15. The result has been a thorough, robust, and rigorous evaluation of the potential impacts from the Project.

C. The Halton Municipalities

16. The Halton Municipalities' opposition to the Project has been formally on the record from the beginning. In a letter filed in April of 2015 (seven months before the EIS was filed by CN), legal counsel for the Halton Municipalities wrote to the CEA Agency, indicating very clearly they "do not support the establishment of this project in this location."[1]

17. Since then, the Halton Municipalities, in collaboration with Conservation Halton (the directors of which are appointed by the member municipalities, including the Halton Municipalities), have mounted a strategically orchestrated and diligently executed opposition.

18. One of the key features of these efforts has been a series of lengthy legal-style "briefs", each of which has sought to reframe the analyses applicable to this EA. Instead of accepting the thrust of the EIS Guidelines – which serve to provide the proponent of and participants in the EA with advance clarity on the scope and nature of the investigation and analysis to be carried out – the Halton Municipalities' briefs have attempted to recast the inquiry in a manner that would

[1] Halton letter to CEAA, April 17, 2015 (CEAR #26), pp. 991-998.

complicate its application in practice. As one example only, and as addressed further in "PART IV – CONTEXT – ENVIRONMENTAL EFFECTS ASSESSMENT METHODOLOGY", the Halton Municipalities' legal briefs seek to multiply the several Valued Components ("VCs") that are reflected in the EIS Guidelines (and in the CN EIS that relied on those guidelines) into 27, and in so doing attempt to inappropriately alter and expand distinct information requirements, contrary to the framework established by the EIS Guidelines. The transparent intent of that rules reformulation was to set up an argument that CN failed to carry out the assessment properly for virtually every subject covered in the EA. It was of course predictable that in the final, five-package, multi-volume legal brief, filed by the Halton Municipalities (on May 29, 2019),[2] the CN EA had – in the assessment of the experts retained by the Halton Municipalities – failed the reformulated test on virtually every front.

19. The spirit reflected in those legal briefs carried over into the hearing, where the experts that were part of the Halton Municipalities' team asserted numerous failures in the work completed by the experts retained by CN. It was, for example, routine for the Halton Municipalities and Conservation Halton experts to opine that CN had failed at a fundamental level to provide the information and analyses necessary to assess the relevant issues, yet those same experts were able (in spite of the apparently fundamental information gaps) to confidently opine that the Project was likely to cause a variety of significant adverse effects.

20. Another reflection of this approach was the reliance on legal arguments in the Halton Municipalities and Conservation Halton written material, like the purported lack of mitigation enforceability, to ground a finding of significant adverse effects. That legal advocacy carried over into the hearing, where many Halton Municipalities and Conservation Halton experts extended outside their areas of expertise to adopt and advance legal arguments:

[2] CEAR #800

(a) One example was when Dr. Bercha, a risk expert, purported to evaluate legal compliance status with respect to the Project, in several cases declaring (incorrectly) that the Project was "not compliant."[3]

(b) Another example was when a witness for Halton – Dr. Scheckenberger – opined on the consequences of not submitting the Project to provincial or municipal regulation, which (in questioning) he readily acknowledged was outside his area of expertise.[4]

21. The result, as discussed further in the topic-specific sections of this submission, was often opaque, unsubstantiated assertions and inaccuracies that undermine the credibility of the Halton Municipalities' conclusions.

22. That advocacy was in stark contrast to the objective demeanor and approach of the experts for the federal and provincial government agencies that provided written submissions and appeared at the hearing before the Panel. None of them assigned sweeping failure to the evaluation of the Project reflected in the extensive record before the Panel. On the contrary, in many cases, the agencies concluded that the methods used and assessments conducted by and on behalf of CN were appropriate and the proposed mitigation and follow-up programs were sound.

D. Key Substantive Themes from the Hearing

23. There were a number of bigger picture themes that emerged from the hearing, which are identified and summarized below. Each of them is discussed in detail in the relevant topic-specific sections, which can be found starting at **Error! Reference source not found.**.

Urgent Need for the Milton Logistics Hub

24. The Panel heard from many members of the national, provincial, and local supply-chain community through the course of the hearing. The clear message was that the need for the

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[3] See Halton Presentation on Accidents, Malfunctions, Risk Management, and Preparedness, June 25, 2019 (CEAR #839); Dr. Bercaha, Transcript, Volume 4, June 25, 2019 (CEAR #837), p. 962.

[4] Dr. Scheckenberger, Transcript, Volume 6, June 27, 2019 (CEAR #887), pp. 1714-1715; Halton Presentation on Hydrology and Water Quality, June 27, 2019 (CEAR #834), slide 7.

Milton Logistics Hub is real, and it is urgent. All of the presentations emphasized the central importance of adding intermodal capacity in this part of the country, and the critical role that the Milton facility would play in helping ensure supply-chain fluidity and relieving the bottle-neck that has developed because of the delays that are occurring today. The adverse impact of those delays has economy-wide implications, and relieving those delays through the Milton Logistics Hub would have equally as widespread economic benefits.

Designed for Customer Service

25. The Panel heard about the vital importance of customer service to CN's business model. CN articulated the in-depth analysis undertaken to quantify the additional capacity needed on its network to continue to efficiently serve the southern Ontario market in the coming years and designed a facility that will effectively meet operational and customer service needs. Sophisticated simulation modeling demonstrated that achieving critical customer service requirements is necessarily dependent on maintaining throughput capacity at or below the design capacity level.

Modal Shift Benefits

26. The Panel also heard that the Milton Logistics Hub would provide a substantial benefit to the airshed by removing long-haul trucks from the highways across the nation and locally. The evidence shows that removing long-haul trucks from highways would result in greenhouse gas ("GHG") reductions, and even deeper reductions of other air contaminants, like particulate matter. That is the reason why transportation thought-leaders like Professor Hatzopoulou consider modal shift to be key to creating a sustainable transportation future.

Ecosystem Benefits

27. The evidence before the Panel was that the Project has been carefully designed to take advantage of the opportunity to improve the local ecosystem. The work proposed for Indian Creek – and the tributaries on-site – will improve the watershed significantly from the degraded condition it exists in today; and the related habitat enhancements along and near its banks, as well as off-site, will result in a better environment for a large variety of wildlife.

Compatible Land Use

28. It has been well known to the Town and the Region for nearly 20 years that the CN lands in Milton were intended for use as an industrial-scale rail facility – either as a rail-served industrial park or an intermodal hub. Both kinds of facilities necessarily involve the large-scale movement of goods by rail, conversion of acres of agricultural land for industrial development, and comparable impacts, including comparable heavy truck traffic generation. All the land uses in the vicinity, including existing and future residential developments, and the Halton Region Waste Management Facility, were proposed and approved over the years in that context. It is reasonable therefore to infer that neither the Town nor the Region would have approved any of those other developments if they believed they were fundamentally incompatible with an industrial rail facility on the CN lands.

29. The Project is also more broadly compatible with objectives set out in provincial and regional policy and planning documents that recognize the importance of and prioritize goods movement and intermodal facilities.

Low Traffic Impact

30. The evidence shows that trucks from the Milton Logistics Hub would be well-distributed over a 24-hour period, which would result in a low impact in practice in any given hour. The Panel saw a video of what that would look like when mixed with other traffic near the entrance to the facility – where the concentration of trucks would be greatest. That video was one of the outputs of a sophisticated micro-simulation model, not an idealized representation. That low impact would dissipate further as the trucks disperse along different arterial roads to get to their different destinations. That is undoubtedly one of the reasons why the Ontario Ministry of Transport witness (Mr. Casey) observed during his testimony that the truck generation from the facility was actually "relatively minimal."[5]

[5] Mr. Casey, Transcript, Volume 12, July 12, 2019 (CEAR #966), p. 3447.

Low Risk Profile

31. The Halton Municipalities placed a special emphasis on the potential safety risk posed by the facility. They did so through a variety of means, including by producing numerous drawings and overhead photos with 300 metre and 1,000 metre buffer lines drawn around the Project development area. They also advanced evidence from Dr. Bercha indicating that the facility posed a high safety risk. It became clear following Dr. Bercha's presentation that his conclusions were based on misinterpretation of Transportation Safety Board ("TSB") data and were not representative of the proposed facility, resulting in exaggerated estimates of the safety risk. This mis-representation of information was later confirmed by Dr. Bercha in correspondence to the Review Panel on July 10, 2019 (CEAR #942). The reality is that intermodal is not a business that handles material quantities of dangerous goods and, given the design of the facility and the nature of the activities occurring on site, the likelihood of incidents is very low. That incontrovertible fact stood up to repeated testing by the lawyers for the Halton Municipalities.

Financial and Traffic Planning

32. Another central theme of the Halton Municipalities was the contention that the proposal to use the CN lands for an intermodal facility was a change in course that would have significant financial and infrastructure planning implications. The evidence before the Panel does not support that proposition.

33. As noted above, the two kinds of industrial rail facilities (rail-served industrial park vs intermodal) are broadly similar, and, when viewed through a basic planning lens, would (and should) be treated largely the same – as a several hundred million dollar large-scale industrial rail facility that would:

(i) bring a high volume of goods to the CN lands;

(ii) require the conversion of acres of agricultural land;

(iii) attract related industrial development (either on the CN lands or in the geographic orbit); and

(iv) generate truck traffic.

34. Yet the Halton Municipalities contend that only one – the rail served industrial park – would attract new industry and the related development charge revenue; and only the other – intermodal – would generate a material volume of trucks. They planned – they say – for the jobs and cash flow from the rail-served industrial park concept, but they did not plan for the truck traffic it would produce.

35. As further set out in our submissions below, the evidence before the Panel indicates the development charges from the industry that will be attracted by a major new rail facility can still be expected to flow, and the number of trucks the Halton Municipalities must have planned for will be in the same range, if not substantially fewer. The Project will not, therefore, adversely impact the Halton Municipalities' financial or infrastructure planning.

Britannia Road Upgrades

36. Finally, there was some discussion during the hearing of the timing of the imminent upgrades to Britannia Road that Halton Region has taken through years of planning and approval phases, and for which it is now initiating the construction phase. In the Halton Region's most recent public meeting, approximately three months ago, it produced a slide deck that explains that construction will be completed in three phases, with the final phase being completed by the end of 2022. That slide deck – which remained posted on Halton Region's website during the hearing – was filed as Exhibit 6 and reflects Halton Region's official position.[6] The timing reflected in that deck would be in line with the commencement of the operation of the Milton Logistics Hub, if approved.

37. Even if there is some delay to the upgrades through the very early period of operations of the Milton Logistics Hub, the initial volume of traffic using the terminal would be expected to be lower, as would traffic from other residential sources in the area, and the impacts of any construction would be correspondingly lower. The period of delay would also be expected to be of short duration. And, CN would work closely with Halton Region to develop a plan to manage any traffic flow impacts during that limited time.

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[6] Halton Presentation (CEAR #881).

PART III – CONTEXT – DETAILED PROCESS DESCRIPTION AND PANEL MANDATE

A. Preparation and Issuance of the EIS Guidelines

38. On March 23, 2015, CN provided a Project Description to the CEA Agency for the Milton Logistics Hub Project. Because the proposed development includes construction and operation of a new railway yard with a total track length of 20 km or more, it is a designated project under CEAA 2012.

39. Based on the Project Description and public input, the CEA Agency determined that an EA was required under CEAA 2012. The Notice of Environmental Assessment Determination and the Notice of Commencement of an Environmental Assessment were issued on May 22, 2015.[7]

40. On May 22, 2015, the CEA Agency published draft EIS Guidelines for the Milton Logistics Hub Project. After seeking and receiving public input, including input from the Halton Municipalities, as well as federal departments, the CEA Agency released its final EIS Guidelines to CN on July 20, 2015.[8]

41. The final EIS Guidelines specified the scope of the Project and of the assessment. The scope of the designated Project included construction and operation of the following physical components:

(a) Yard tracks;

(b) Realignment of the existing mainline;

(c) Double track extension of the mainline;

(d) Work pads;

(e) Truck entrance/gate;

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[7] Notice of Environmental Assessment Determination, May 22, 2015 (Canadian Environmental Assessment Registry ("CEAR") #7)); Notice of Commencement of an Environmental Assessment, May 22, 2015 (CEAR #8).

[8] EIS Guidelines, July 20, 2015 (CEAR #12).

(f) Operations and maintenance buildings (including administration building, and garage);

(g) Stormwater management ponds;

(h) Vegetation clearing, grading and berms;

(i) Realignments of Indian Creek and Tributary A;

(j) Realignment of overprinted petroleum pipelines;

(k) Lower Base Line Road crossing;

(l) Intersection improvements;

(m) Surface paving activities and paved surfaces used to support operation of the Logistics Hub; and

(n) Vehicular activity within the Project footprint or awaiting access to the project site.

42. The scope of the EA was to "focus on matters within the care and control of the proponent and environmental effects as defined in section 5 of CEAA 2012."[9] The factors to be considered in the EA and the scope of those factors, including the VCs to be examined, were outlined in the final EIS Guidelines.[10]

43. On the same date, the then Minister of Environment announced the referral of the EA of the Project to an independent review panel.[11]

B. Submission of the EIS and Application to CTA

44. On December 7th, 2015, CN submitted the EIS to the CEA Agency in accordance with the EIS Guidelines. The EIS was subsequently posted to the Agency's website.[12]

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[9] EIS Guidelines, July 20, 2015 (CEAR #12), s. 3.1.

[10] EIS Guidelines, July 20, 2015 (CEAR #12), s. 3.2.

[11] Referral of EA to the Review Panel, July 20, 2015 (CEAR #11).

[12] EIS (CEAR #57).

45. CN also applied to the CTA for approval under section 98 of the *Canada Transportation Act* on January 22, 2016; that application was provided to the Panel by the CTA on December 15, 2016 (CEAR #394).

C. Conformity Review of the EIS

46. Following the submission of the EIS, the CEA Agency conducted a conformity review of the EIS to determine whether the EIS Guidelines had been addressed and the EIS completed according to applicable CEA Agency guidance in a manner that would allow the Panel to begin its technical review of the project.

47. On January 14, 2016, the CEA Agency requested submissions from federal authorities in the conformity review. Detailed responses and comments were provided by Transport Canada,[13] Health Canada,[14] Environment and Climate Change Canada ("ECCC"),[15] the CTA,[16] and Fisheries and Oceans Canada ("DFO").[17]

48. The CEA Agency notified CN of additional information requirements on March 15, 2016,[18] July 14, 2016,[19] and July 28, 2016.[20] CN provided the additional information on May 18, 2016,[21] June 17, 2016,[22] and September 30, 2016.[23] A total of 35 different IRs were issued

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[13] Transport Canada Comments on Conformity Review, February 19, 2016 (CEAR #68).

[14] Health Canada Comments on Conformity Review, February 15, 2016 (CEAR #67).

[15] Environment and Climate Change Canada Comments on Conformity Review, February 18, 2016 (CEAR #66); additional comments on CN's greenhouse gas report provided on July 13, 2016 (CEAR #363).

[16] Canadian Transportation Agency Comments on Conformity Review, March 7, 2016 (CEAR #70).

[17] Fisheries and Oceans Canada Comments on Conformity Review, February 18, 2016 (CEAR #65).

[18] CEAA Additional Information Request, March 15, 2016 (CEAR #71).

[19] CEAA Additional Information Request, July 14, 2016 (CEAR #357).

[20] CEAA Additional Information Request, July 28, 2016 (CEAR #363).

[21] CEAA IR 1, May 18, 2016 (CEAR #72).

[22] CEAA IR 1 Supplement, June 17, 2016 (CEAR #81)

[23] CEAA IR 2, September 30, 2016 (CEAR #375).

by the CEA Agency during the conformity review and CN provided 357 pages of additional information in response.

49. The CEA Agency notified CN of the conclusion of the conformity review on December 1, 2016 (CEAR #388).

D. Establishment of the Panel and the Panel's Mandate

i. The Joint Agreement

50. On June 8, 2016, the CEA Agency and the CTA invited the public, Indigenous groups, and governments to comment on the Draft Review Panel Agreement (CEAR #74).

51. After receiving and considering public input, including input from the Halton Municipalities[24] and Conservation Halton,[25] the Minister and the Chair of the CTA finalized the Agreement to Establish a Joint Process for the Review of the Milton Logistics Hub Project (the "Agreement"). [26] The Agreement was posted to the Registry, and the Minister appointed the Panel on December 6, 2016. [27]

52. The Panel is conducting the review process under both CEAA 2012 and the *Canadian Transportation Act*. The Agreement states that the Minister and the Chair of the CTA have together determined that, considering their respective authorities, a joint process for the review of the Project will ensure an efficient single window process for CN, Indigenous groups, those localities that will be affected by the Project, and other review participants. As Chair Griffiths explained in her opening statement, "we have one review process, one review panel, one hearing, but potentially two separate and sequential decisions under two pieces of legislation."[28]

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[24] Halton Comment on Draft Review Panel Agreement (CEAR #344).

[25] Conservation Halton Comment on Draft Review Panel Agreement (CEAR #340).

[26] Agreement to Establish Joint Review Process Appendix 1, December 6, 2016 (CEAR #391), s. 2.1, p. 6.

[27] News Release, Establishment of Review Panel, December 6, 2016 (CEAR #389).

[28] Chair Griffiths, Transcript, Volume 1, June 19, 2019 (CEAR #860), p. 7.

53. The Agreement establishes the mandate and authority of the Panel, as well as the procedures and timelines for the conduct of the review.

54. As set out in the Agreement, the Panel must conduct its review in a manner consistent with the requirements of the CEAA 2012 and the requirements of the Terms of Reference set out in Appendix 1 of the Agreement. [29]

ii. The Terms of Reference

55. The Terms of Reference stipulate that the Project for the purpose of EA includes all components associated with the Project that fall within CN's care and control. The components specified in the Terms of Reference are the same as those specified in the EIS Guidelines (as outlined in paragraphs 41 and 42 above).

56. The Terms of Reference also specify the factors to be considered in the EA, which are the factors listed in sections 19(1) and 19(3) of CEAA 2012, and which were also specified in the EIS Guidelines. The Terms of Reference indicate that the scope of the factors to be assessed by the Panel is outlined in the EIS Guidelines.

57. In the Terms of Reference, the Minister, pursuant to section 19(1)(j) of CEAA 2012, also required the Panel to take into account matters that are relevant to section 98 of the *Canada Transportation Act*, specifically requirements for railway operations and services and the interests of the localities that will be affected by the line.[30]

E. Sufficiency Review of the EIS

58. The Terms of Reference required the Panel to review the sufficiency of the EIS. The Panel also invited the public, Indigenous groups, and government departments to comment on the sufficiency of the EIS and on CN's responses to the IRs issued by the Panel.

59. The Panel issued five IR packages, to which CN responded. Based on comments on CN's responses to those IRs received from the public, Indigenous groups, and government

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[29] Agreement to Establish Joint Review Process Appendix 1, December 6, 2016 (CEAR #391), s. 2.1, p. 6.

[30] Agreement to Establish Joint Review Process, December 6, 2016 (CEAR #391), s 2.1.2, p. 3; Agreement to Establish Joint Review Process Appendix 1, December 6, 2016 (CEAR #391), s. 3.3, p. 7.

departments, including the Halton Municipalities and Conservation Halton, the Panel issued three follow-up IR packages, to which CN responded. In total, the eight IR packages comprised 246 questions. In response, CN provided an additional 3,500 pages of information to the Panel.[31]

60. On April 15, 2019, the Review Panel determined that the information received from CN contained sufficient information to proceed to the public hearing.

F. Public Hearing

61. The Panel issued the notice of public hearing on April 16, 2019.[32] The hearing commenced on June 19, 2019. The hearing is scheduled to conclude on July 19, 2019.

62. In advance of the hearing, and in accordance with the hearing procedures issued by the Panel,[33] CN submitted additional technical written submissions to the Panel on May 29, 2019.[34] CN's additional submissions included further assessment of air quality and human health, peer reviews of the assessments of air quality, human health, and noise (acoustics), additional information regarding the design capacity of the Project, updated information regarding Aboriginal engagement and community consultation, and an updated list of proposed mitigation, management plans, and follow-up programs committed to by CN through the EA. Other parties, including the Halton Municipalities and Conservation Halton, also submitted additional technical written submissions to the Panel.

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[31] These information request packages include CN Partial Response to IR1 April 21, 2017 (CEAR #561), CN Response June 19, 2017 (CEAR #574) CN Response to IR2 August 31, 2017 (CEAR #592); CN Response to IR 3 January 24, 2018 (CEAR #613), CN Response to Health Canada's response March 26, 2016 (CEAR #633); CN Response to IR4.1 (Group 1) March 21, 2018 (CEAR #632), CN Response to IR4.1 (Group 2) May 18, 2018 (CEAR #646), CN Response to IR4.1 (Group 3) June 15, 2018 (CEAR #656); CN Response to IR4.2 (Group 1) June 1, 2018 (CEAR #652), CN Response to IR4.2 (Group 2) June 12, 2018 (CEAR #654); CN Response to IR5 (Group 1) May 18, 2018 (CEAR #647), CN Response to IR5 (Group 2) June 12, 2018 (CEAR #655); CN Response to IR6 February 15, 2019 (CEAR #714); CN Response to IR 7 August 20, 2018 (CEAR #680); CN Response to IR8 (Group 1) December 19, 2019 (CEAR #705), CN Response to IR8 (Group 2) February 15, 2019 (CEAR #714), CN Response to IR8 (Group 3) March 1, 2019 (CEAR #722), CN Response to IR8(Group 4) March 22, 2019 (CEAR #732).

[32] Notice of Public Hearing, April 16, 2019 (CEAR #755).

[33] Public Hearing Procedures, April 16, 2016 (CEAR #751).

[34] CN Additional Submissions to the Panel, May 29, 2019 (CEAR #799).

63. During the hearing, the Panel received presentations and heard oral testimony from CN and interested parties, including multiple presentations from the Halton Municipalities and Conservation Halton, federal and provincial agencies, and members of the public.

G. Report of the Review Panel

64. Once the hearing is complete, and the Panel has determined that it has all the information it requires, the Panel will close the record for the EA.

65. After the record is closed, the Panel will write a report of its findings and recommendations to submit to the Minister. The report shall follow the requirements as presented in section 5.18 of the Terms of Reference. It will include the Panel's rationale, conclusions and recommendations on the EA of the Project, including any mitigation measures and follow-up programs. The Panel must also identify those conclusions that relate to the environmental effects of the Project defined in section 5 of CEAA, 2012.

66. If, after considering mitigation measures, the Panel concludes that the Project is likely to cause significant adverse environmental effects, the Panel may include information about whether those effects are justified in its report.[35]

67. The Panel will also summarize information it has received from Aboriginal groups and others regarding the nature and scope of potential or established Aboriginal or Treaty rights in the area of the Project, as well as information on the potential impacts the Project may have on potential or established Aboriginal or Treaty rights, and information regarding any measures proposed to avoid or mitigate the potential adverse effects of the Project on potential or established Aboriginal or Treaty rights. CN has provided the Panel with information in this regard, including most recently in its written submission on May 29, 2019 and during the July 11th hearing session.[36]

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[35] Agreement to Establish Joint Review Process Appendix 1, December 6, 2016 (CEAR #391), s. 5.19, p. 11.

[36] CN Aboriginal Engagement Update Report, May 29, 2019 (CEAR #799); CN Presentation on Aboriginal Engagement, July 11, 2019 (CEAR #915).

H. Decision-Making

68. Following receipt of the report of the Panel, the Minister must decide if the Project is likely to cause significant adverse environmental effects. If the Minister decides that the Project is likely to cause significant adverse environmental effects, the Minister will refer the matter to the Governor in Council (Cabinet) who must decide whether those environmental effects are justified in the circumstances.

69. The Minister will issue a decision statement in accordance with section 54 of CEAA 2012. If the Project is allowed to proceed because the Minister decides that the Project is not likely to cause significant adverse environmental effects, or the Governor in Council decides such effects are justified in the circumstances, the decision statement would include legally binding conditions to CN.

70. As mentioned, CN has also applied for CTA approval under section 98 of the *Canada Transportation Act*. That provision requires the CTA to consider the interests of the localities in determining whether to grant an approval:

> The Agency may, on application by the railway company, grant the approval if it considers that the location of the railway line is reasonable, taking into consideration requirements for railway operations and services and the interests of the localities that will be affected by the line.[37]

71. Subject to the Minister's decision statement under section 54 of CEAA 2012, the CTA will make a determination in accordance with section 98 of the *Canada Transportation Act*, taking into consideration the comments from the localities concerning the location of the railway lines, requirements for railway operations and services, and interests of the localities that will be affected by the lines, any questions and responses to those comments filed by CN, and any replies to CN's comments received from the localities.

72. If the CTA decides to issue an approval for the Project pursuant to section 98 of the *Canada Transportation Act*, the approval will include conditions pertaining to the

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[37] *Canada Transportation Act*, S.C. 1996, c. 10, s. 98(2).

implementation of commitments, mitigation measures, best practices, and procedures after considering the interests of the localities.

PART IV – CONTEXT – ENVIRONMENTAL EFFECTS ASSESSMENT METHODOLOGY

A. Evidence of CN

73. CN's evidence on the methodology for the environmental assessment is identified below.

EIS GUIDELINES
Section 3 (Part 1) Scope of the Environmental Assessment
Section 4 (Part 1) Preparation and Presentation of the Environmental Impact Statement
Section 6 (Part 2) Effects Assessment
EIS SECTIONS
December 7, 2015 - section 6.1 Scope of the Assessment (CEAR #57)
December 7, 2015 - section 6.2 Methods (CEAR #57)
IR RESPONSES
May 18, 2016 - CN Response to the CEAA's Information Request 1 (CEAR #72)
September 30, 2016 - CN Response to the CEAA's Information Request 2 (IR 2.25) (CEAR #375)
August 31, 2018 - CN Response to the Review Panel's Information Request 2 (IR 2.2) (CEAR #592)
May 18, 2018 - CN Response to the Review Panel's Information Request 5.3 (CEAR #647)
OTHER MATERIALS
April 11, 2019 - Letter to Review Panel Chair (CEAR #746)
June 25, 2019 - Undertaking #14 – Description of the extent of the socio-economic valued components (VCs) CN considered in its environmental assessment (CEAR #886)

B. Scope of and Framework for the Environmental Assessment

74. As outlined previously in "PART IV – CONTEXT – DETAILED PROCESS DESCRIPTION and Panel Mandate," CEAA 2012, the EIS Guidelines, and the Panel Terms of Reference establish the scope of the EA of the Project, including the factors to be considered and the scope of those factors.

75. The EIS Guidelines also establish a well-articulated framework for the EA based on the requirements of CEAA 2012. The EIS Guidelines specify the nature, scope, and extent of the information required for the assessment. Part 1 of the EIS Guidelines provides guidance and general instruction on the preparation of the EIS. Part 2 of the EIS Guidelines outlines the information that must be included in the EIS. In particular, the EIS Guidelines specify the Valued Components ("VCs") and outline the information required to understand the existing conditions of the physical and human environment, the predicted changes to the environment that will result from the Project, and the predicted effects of the Project on the VCs.

76. The EIS Guidelines were finalized by the CEA Agency, taking into consideration input from the governments, Indigenous groups, and the public, including Halton Municipalities.[38]

77. The EIS and supplemental information provided by CN was prepared in accordance with the EIS Guidelines. [39]

C. Methodology for the Environmental Assessment

78. The EIS Guidelines provide guidance regarding the methodology to be used in the assessment in Part 1, section 4.2.[40] The EIS Guidelines state that the proponent has the discretion to select the most appropriate methods to compile and present data, information, and analysis in the EIS, as long as the methods are justifiable and replicable.

79. The EIS Guidelines also identify the general methodological steps to be followed in the assessment. These are:

- identifying the activities and components of the project;
- predicting potential changes to the environment;
- predicting and evaluating the likely effects on identified valued components;

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[38] See compilation of comments received by the CEAA June 21, 2015 (CEAR# 37).

[39] See also EIS Table 1.2, illustrating the concordance between the EIS and the EIS Guidelines. EIS (CEAR #57), s. 1.7, pp. 16-17.16-17; see also the update table provided in CN's response to IR1-1 (specifically Attachment IR1) on May 18, 2016 (CEAR #72).

[40] EIS Guidelines, Part 1, July 20, 2015 (CEAR #12), s. 4.2.

- identifying technically and economically feasible mitigation measures for any significant adverse environmental effects;
- determining any residual environmental effects; and
- determining the potential significance of any residual environmental effect following the implementation of mitigation.

80. The EIS Guidelines specify additional methodological and information requirements, including, *inter alia*, the requirement to describe the spatial boundaries,[41] the criteria to be used in determining significance,[42] and the approach to identify and assess cumulative effects.[43]

81. The environmental assessment methodology used by CN was outlined in section 6.2 of the EIS,[44] with further information and documentation provided in CN's responses to the CEA Agency's IRs 1 and 2,[45] as well in the response to the Panel's IR 5.3.[46] CN's EA methodology is consistent with the EIS Guidelines and with relevant federal guidance documents as discussed in section 1.4.4 of the EIS and fully outlined in response to the Panel's IR 2.2.[47]

D. Principal Issues Raised

i. Valued Components

82. The EIS Guidelines expressly identify the VCs to be assessed in the EA. Specifically, section 6.3 of Part 2 of the EIS Guidelines requires the assessment of the environmental effects

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[41] EIS Guidelines, Part 1, July 20, 2015 (CEAR #12), s. 3.3.3.

[42] EIS Guidelines, Part 2, July 20, 2015 (CEAR #12), s. 6.5.

[43] EIS Guidelines, Part 2, July 20, 2015 (CEAR #12), s. 6.6.3.

[44] EIS (CEAR #57), s. 6.2, pp. 110-129.

[45] IR 1, May 18, 2016 (CEAR#72); IR 2, September 15, 2016 (CEAR# 372).

[46] IR 5.2, May 18, 2018 (CEAR #647), p. 1.

[47] IR 2.2, August 31, 2017 (CEAR #592), p. 2, tables IR2.1-1 – IR2.2-4.

of the Project, based on the predicted changes in the physical environment, on the following five VCs:

- Fish and Fish Habitat;
- Migratory Birds;
- Species at Risk;
- Aboriginal Peoples; and
- Other Socio-economic Conditions and Heritage Resources.[48]

83. To increase the clarity and accessibility of the information, the EIS separated "Other Socio-economic Conditions and Heritage Resources" into three separate VCs: Human Health; Socio-Economic Conditions; and Archaeological and Heritage Resources.

84. With respect to Aboriginal Peoples, the EIS Guidelines directed CN to provide a description and analysis of how changes to the environment caused by the Project will affect the current use of land and resources for traditional purposes, effects to human health, effects to socio-economic conditions, and effects to physical and cultural heritage, and structures, sites or things of historical, archaeological, paleontological or architectural significance to Aboriginal groups. As noted in section 6.2.2 of the EIS, no current use of land and resources for traditional purposes by Aboriginal peoples was identified in the vicinity of the Project.[49] The other potential effects pertaining to issues raised by Aboriginal communities were considered in the assessments of potential effects on the Fish and Fish Habitat, Migratory Birds, Species at Risk, Human Health, Socio-Economic Conditions, and Archaeological and Heritage Resources VCs.

85. In their written submissions to the Panel, the Halton Municipalities have listed other VCs that they suggest were identified in the EIS Guidelines. In their 2016 Brief, Halton Municipalities suggested that the EIS Guidelines identify 32 VCs.[50] In their most recent Brief,

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[48] EIS Guidelines, Part 2, July 20, 2015 (CEAR #12), s. 6.3.

[49] EIS (CEAR #57), s. 6.2.2, p. 113.

[50] Halton Brief, December 13, 2016 (CEAR #405), p. 12.

submitted in May 2019, the Halton Municipalities suggested that the EIS Guidelines identify 27 VCs (including two proposed VC sub-components).[51]

86. As CN explained in its submission of April 11, 2019 (CEAR #746), while the 27 subject areas listed in Halton Municipalities' most recent Brief are addressed or covered in the EIS Guidelines in some respect, the vast majority of them are not identified as VCs.

87. The EIS Guidelines (Part 1, section 3.3.1) set out a specific way to assess environmental effects. This approach recognizes that environmental effects occur as interactions between the Project and physical receptors in the environment (such as air, water, and land), and subsequently between those receptors and components of the natural and human environment. This is a fundamental relationship reflected in the framework for the EA. Accordingly, the EIS Guidelines establish different information requirements in relation to (1) the Project setting and existing (or "baseline") conditions, (2) predicted changes to the physical environment, and (3) predicted effects on VCs. Clearly the information to be provided in the EIS and the VCs to be assessed are not the same thing.

88. However, in their submissions, the Halton Municipalities have, in effect, inappropriately elevated all those distinct information requirements into stand-alone VCs, contrary to the framework established by the EIS Guidelines.

89. The EIS and the supplementary information submitted by CN provided all of the information required by the EIS Guidelines and assessed the potential environmental effects on the VCs identified in the EIS Guidelines. Moreover, all of the 27 subject areas proposed by the Halton Municipalities in their most recent Brief are encompassed within the EA and have been appropriately addressed in accordance with the framework established in the EIS Guidelines, as outlined in CN's submission dated April 11, 2019.[52] This closing submission addresses both VCs and many of the other non-VC topic areas raised by Halton Municipalities and examined in depth during the hearing.

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[51] Halton Brief on SAEEs, Volume 1, May 29, 2019 (CEAR #800), p. 11.

[52] CN Response to Halton Brief, April 11, 2019 (CEAR #746).

ii. Mitigation and enforceability

90. As noted previously, CEAA 2012, the EIS Guidelines, and the Panel Terms of Reference require the EA to consider measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project.

91. CN identified proposed feasible mitigation measures in the EIS and in supplementary information.[53] The list of CN's proposed mitigation and other relevant commitments was updated in CN's submission to the Panel on May 29, 2019.[54] To further assist the Panel, and to capture the additional CN commitments made during the hearing, an updated consolidated list of CN's commitments to mitigation, management plans, follow-up programs, and ongoing consultation efforts will be submitted to the Panel prior to the conclusion of the hearing.

92. The EIS Guidelines direct CN to provide conclusions on the residual environmental effects of the Project after taking mitigation measures into account. CN therefore considered the proposed mitigation measures when determining whether the Project would have a residual environmental effect on any VC. CN also provided information regarding the effectiveness of the proposed mitigation measures and described how the mitigation measures would be implemented, including the environmental management framework.

93. In their recent Brief to the Panel dated May 29, 2019, and in many of their oral presentations to the Panel during the hearing, the Halton Municipalities have suggested that only mitigation that is federally enforceable should be considered by the Panel.[55] Halton Municipalities further suggested that much of the mitigation proposed by CN is not federally enforceable and should therefore be disregarded by the Panel. On this basis, Halton

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[53] See EIS section 6.5, EIS Table 7.1, and EIS Appendix G (CEAR #57), Attachment IR23 in CN's response to the CEA Agency's IR1 (CEAR #72), and Attachment IR5.1 in CN's response to IR5.1 (CEAR #655).

[54] CN Updated Commitments Tables, May 29, 2019 (CEAR #799).

[55] See, e.g., Halton Brief on SAEEs, May 29, 2019 (CEAR #800); Halton Brief, April 9, 2019 (CEAR #742); Mr.Mr. Benson, Transcript, Volume 2, June 20, 2019 (CEAR #862), p. 257; Ms. De Angelis, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1413, Mr. Dougan, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1967, 1977-1978; Halton Presentation on Hydrology and Water Quality, June 27, 2019 (CEAR #834), slide 7.

Municipalities concluded that significant adverse environmental effects are likely to result from the Project.

94. The approach suggested by the Halton Municipalities and Conservation Halton is not consistent with the EIS Guidelines and does not accurately reflect the legislative framework that applies to the Project.

95. Section 6.4 of Part 2 of the EIS Guidelines clearly states that mitigation measures may be considered for inclusion as conditions in the Minister's decision statement and/or in other compliance and enforcement mechanisms provided by other authorities' permitting or licensing processes. This was confirmed by the CEA Agency during the hearing on July 11, 2019.[56]

96. As CN stated during the hearing, CN expects the mitigation measures, management plans, and follow-up programs which it has committed to implement would be included as conditions in the Minister's decision statement and/or in other federal authorizations, such as an approval that may be issued by the CTA pursuant to the *Canada Transportation Act* and/or an authorization that may be issued by DFO pursuant to the *Fisheries Act*.[57]

97. Through its active participation in this Panel, the CTA has received information about CN's commitments and proposed measures to protect the interests of the localities. It is therefore reasonable to expect that, in any approval it may issue with respect to the Project, the CTA will include one or more conditions that incorporate the commitments and mitigation measures proposed by CN.

98. Further, in their presentation on June 28, 2019, DFO confirmed that the mitigation measures proposed by CN to avoid or reduce potential adverse environmental effects on fish and fish habitat are appropriate and comprehensive and further noted that DFO will include site-specific mitigation as conditions of the *Fisheries Act* Authorization.[58]

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[56] Mr. Chapman, Transcript, Volume 11, July 11, 2019 (CEAR #953), p. 3118.

[57] Mr. Lerner, Transcript, Volume 1, June 19, 2019 (CEAR #860), p. 209; Ms. Patterson, Transcript, Volume 1, June 19, 2019 (CEAR #860), p. 92; Mr. Lerner, Transcript, Volume 6, June 27, 2019 (CEAR #887), p.1722; Mr. Reynolds, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1982.

[58] DFO Presentation on Fish and Fish Habitat, June 28, 2019 (CEAR #828)

99. Together, these mechanisms will be adequate to ensure the mitigation measures proposed by CN, including the commitments and measures CN has proposed to implement to protect the interests of the localities, can be enforced.

100. It is therefore reasonable to take all of CN's commitments, mitigation measures, and management plans into consideration when determining whether the Project will have any residual environmental effects.

101. CN's conclusions in the EIS and supplementary information regarding the predicted residual environmental effects of the Project on VCs reflects this consideration of technically and economically feasible mitigation measures.

iii. Cumulative Effects

102. CEAA 2012, the EIS Guidelines, and the Panel Terms of Reference require the EA to take into account any cumulative environmental effects that are likely to result from the Project in combination with other physical activities that have been or will be carried out.

103. The EIS Guidelines further clarify that any residual adverse environmental effect predicted to result from the Project after taking mitigation into account should be carried forward into the cumulative effects assessment, regardless of the significance of the residual effect.

104. Consistent with the EIS Guidelines, CN assessed cumulative effects in any case in which residual environmental effects were predicted for any VC. Specifically, CN assessed potential cumulative effects for all VCs identified in the EIS Guidelines, as summarized in CN's submission dated April 11, 2019 and below:[59]

Valued Component	Where Cumulative Effects Addressed
Fish and Fish Habitat	EIS section 6.6.1.1 and response to IR 5.9
Migratory Birds	EIS section 6.6.1.2 and response to IR 5.7
Species at Risk	EIS section 6.6.1.3 and response to IR 5.8

[59] CN Response to Halton Brief on Sufficiency. April 11, 2019 (CEAR #746), p. 6.

Human Health	EIS section 6.6.1.4 and response to IRs 4.29 and 5.5
Socio-Economic Conditions	EIS section 6.6.1.5 and response to IR 5.6
Archaeological and Heritage Resources	EIS section 6.6.1.6 and response to IR 5.10

105. In relation to Socio-Economic Conditions, for traffic and safety, the assessments included with the response to Panel IR 2.33 also considered the effects of the Project and of Project-associated traffic in combination with the effects of existing and future traffic from other sources.[60] Further, predicted changes in the physical environment, including air, noise, and light (documented in the EIS and in the response to Panel IRs 3.16, 5.4, and 8.2) took into consideration the changes caused by the Project in combination with existing and future background conditions.[61]

106. In their most recent Brief dated May 29, 2019, as noted previously, the Halton Municipalities identified 27 subject areas, which they referred to as VCs, and, by disregarding the mitigation measures proposed by CN, concluded that the Project is likely to result in residual adverse environmental effects on all of those VCs.[62] The Halton Municipalities then suggested that those residual adverse environmental effects should have been, but were not, carried forward into a cumulative effects assessment. The Halton Municipalities subsequently concluded that the Project is likely to result in residual adverse cumulative environmental effects on many of the subject areas they refer to as VCs, some of which they consider to be significant.

107. The approach adopted by the Halton Municipalities is not consistent with the EIS Guidelines nor with available federal guidance pertaining to cumulative effects assessment. In particular, the subject areas purported by the Halton Municipalities to be VCs are not in fact VCs, as explained previously in paragraphs 85-89. Further, the Halton Municipalities have not taken feasible, effective, and enforceable mitigation into account when determining whether the

[60] IR 2.33, August 31, 2017 (CEAR #592).

[61] IR 3.16, January 24, 2018 (CEAR #613); IR 5.4, May 18, 2018 (CEAR #647); IR 8.2, March 22, 2019 (CEAR #732).

[62] Halton Brief on SAEEs, May 29, 2019 (CEAR #800).

Project is likely to have residual adverse environmental effects on the VCs. This is a prerequisite step to assessing cumulative effects and omitting it is contrary to the EIS Guidelines. As the EIS Guidelines state, "[a]fter having established the technically and economically feasible mitigation measures, the EIS will present any residual environmental effects of the project on the VCs."[63] As a result of these methodological errors, the Halton Municipalities significantly overstate the potential for the Project to result in adverse cumulative environmental effects.

108. In contrast, in the EIS and supplementary information provided to the Panel, CN has determined, taking technically and economically feasible mitigation into account, whether the Project would have a residual adverse environmental effect on the VCs. In all cases where the Project was predicted to have a residual adverse environmental effect on any VC, CN has considered how those effects may interact cumulatively with the potential effects of other past, present, or reasonably foreseeable physical activities on the VCs.

109. The Halton Municipalities also suggest that the Panel consider assessing cumulative effects through the lens of the Regional Official Plan ("ROP"), which they suggest balances "cumulative interests for an area."[64] In particular, the Halton Municipalities state that "whether or not a development conforms to the applicable municipal official plan is a useful starting point to assess cumulative effects." [65]

110. "Cumulative interests" are not the same thing as cumulative effects within the meaning of CEAA 2012. Further, conformity with the ROP cannot serve as a test to determine whether the Project is likely to result in cumulative effects. The EIS Guidelines require that cumulative effects be assessed in relation to the specific predicted residual environmental effects of the Project on the VCs, and that the cumulative effects assessment also consider how the VCs may be affected by other past, present, or reasonably foreseeable physical activities. These Project- and VC-specific effects were not identified or assessed in the regional plans referred to by the Halton Municipalities. Those plans therefore cannot substitute for the Project- and VC-specific

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[63] EIS Guidelines, Part 2, July 20, 2015 (CEAR #12), s. 6.5.

[64] Halton Brief on SAEEs, Volume 1, May 29, 2019 (CEAR #800), pp. 19-20.

[65] Halton Brief on SAEEs, Volume 1, May 29, 2019 (CEAR #800), p. 19.

cumulative effects assessment carried out by CN. Conformity with a municipal plan will have no bearing on whether these specific cumulative effects may be present or the nature of these potential effects.

iv. Use of standards to determine significance

111. The EIS Guidelines identify criteria to be considered when determining the significance of residual environmental effects. These criteria include, *inter alia*, "environmental standards, guidelines or objectives for assessing the impact," "such as prescribed maximum levels of emissions or discharges of specific hazardous agents into the environment."[66]

112. This is consistent with the current guidance, which indicates that management-level benchmarks may be used, among other purposes, to understand the levels at which potential effects may occur.[67]

113. The responses to Panel IRs 2.1 and 2.2 described how various management level benchmarks and other standards, guidelines, and objectives were considered in the assessment, including whether and how they informed the determination of significance. In addition, management level benchmarks were used in the assessment to inform the evaluation of effects and determination of significance, as described in the EIS and in the Technical Data Reports ("TDRs") in Appendix E of the EIS,[68] and supplemental IR responses.[69]

114. As noted in CN's submission dated April 11, 2019, whether a predicted change in the physical environment or predicted effect on a VC exceeds or meets a benchmark is, on its own, not sufficient to determine significance. Rather, it triggers a consideration of other relevant

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[66] EIS Guidelines (CEAR #12), s. 6.5.

[67] Operational Policy Statement, *Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under CEAA 2012* (Canadian Environmental Assessment Agency 2015); Interim Technical Guidance, *Determining Whether a Designated Project is Likely to Cause Significant Adverse Environmental Effects under the Canadian Environmental Assessment Act, 2012* (Canadian Environmental Assessment Agency 2018).

[68] Particularly Appendix E.1 Air Quality, Appendix E.7 Human Health, Appendix E.8 Light, Appendix E.10 Noise, Appendix E.13 Soil, Appendix E.14 Archaeology, Appendix E.15 Surface Water, and Appendix E.18 Vibration.

[69] IR 2, August 31, 2017 (CEAR #592), attachment IR2.33-3 - IR2.33-4; IR 3, January 24, 2018 (CEAR #613) attachment IR3.16-1; IR 4.1, March 21, 2018 (CEAR #632), attachment IR4.29-1, attachment IR4.40-1; IR 8, December 19, 2018 (CEAR #705), attachment IR8.11-2.

information, including but not necessarily limited to the reference criteria, such as magnitude, extent, frequency, duration, and context, to determine significance. This is consistent with the original 1994 Reference Guide, *Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects* (FEARO 1994), which acknowledged the limitations of using standards, guidelines, and objectives for determining significance.

115. In their materials, the Halton Municipalities identify a number of "standards" against which they purport to evaluate the significance of potential effects of the Project. However, many of the "standards" proposed by the Halton Municipalities in their Brief do not comprise a management level benchmark that can be used for the determination of significance. Rather, many are derived from provincial or regional policy statements that prohibit development unless an EA or other studies are conducted and/or certain topics considered to protect features of concern.

116. As noted previously, all of the 27 subject areas proposed by the Halton Municipalities in their most recent Brief (CEAR #800), and in respect of which they propose "standards" for consideration, are encompassed within the EA and have been appropriately addressed in accordance with the framework established in the EIS Guidelines.

117. In some cases, the "standards" proposed by the Halton Municipalities refer to provincial or municipal permits, which have not yet been determined to apply to the Project. For example, the sole standard that Halton suggests to assess changes to flood risk is whether the proponent obtained an Environmental Compliance Approval from the Ontario Ministry of the Environment, Conservation, and Parks ("MECP").[70] Even if this or other permits were determined to be required, they would not be expected to be obtained until after the EA is completed and so cannot serve as a basis for determining the significance of residual adverse environmental effects in the EA. Rather, as noted by the Panel Chair during the hearing on June 27, 2019, the relevant matter for consideration during the EA is the actual impact of the Project.[71] The focus of a

[70] Halton Brief on SAEEs, May 29, 2019 (CEAR #800), p. 52.

[71] Chair Griffiths, Transcript, Volume 6, June 27, 2019 (CEAR #887), p. 1541.

CEAA 2012 review is on environmental effects, not compliance with local and provincial regulatory regimes.

118. In the EIS, for each VC, CN defined thresholds beyond which a residual adverse environmental effect would be considered significant. CN also provided a rationale for each threshold. These thresholds were based on clearly identified environmental standards, guidelines, or objectives (where available), among other inputs as described in section 6.2.6 of the EIS. These thresholds provide an appropriate and transparent framework for the determination of significance for predicted residual effects.

PART V – CONTEXT – PROJECT DESCRIPTION

119. CN proposes to build an inland intermodal rail terminal called the Milton Logistics Hub on CN-owned property in south Milton. As populations have increased and consumer and manufacturer demands have changed, there has been considerable growth in intermodal container goods movement. A new inland intermodal rail terminal is critical to meet this growing demand and to strengthen Canada's overall supply chain.

120. CN originally proposed that an intermodal terminal be developed in south Milton in 2001. A public meeting was held on April 18, 2001, providing general information regarding the proposed project and intent of CN to pursue railway activities in south Milton.[72].

121. As a result of continued growth in the region and with a shift from carload shipping to intermodal containers in recent years, the logistics industry has embraced and is promoting the transportation of goods via standard-sized intermodal containers adopted for global and domestic shipping. By using the same containers, goods can seamlessly move from one shipping mode to the next: from ship, to rail, to truck. Intermodal containers typically transport finished products for wholesale distribution and for retail to consumers. As Mr. Lerner said in his opening statement, "if you wear it, you move it or you drive it, we probably move it through intermodal."[73]

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[72] See EIS s. 3.1 (CEAR #57), which provides an overview of CN milestones prior to announcement of this Project.

[73] Mr. Lerner, Transcript, Volume 1, June 19, 2019 (CEAR #860), p. 26.

122. The railway is a key component of a strong intermodal supply chain. Rail is the most fuel-efficient way of moving freight over land. One intermodal train can replace 280 trucks, and trains are approximately four times more fuel efficient than trucks. Moreover, a strong intermodal rail network ensures that goods reach consumers on time and at a competitive price.

123. But to ship containers by rail, there must be terminals in population and manufacturing centres where the containers can be transferred between rail and truck and vice versa. These terminals are known as inland intermodal rails terminals. With increasing demand for goods shipped in intermodal containers, and increasing container volumes at existing and expanding coastal ports, additional inland intermodal capacity is necessary to accommodate future growth.

124. Without inland rail terminal capacity, shippers will be left with no choice but to move new container growth over land by truck. This would increase costs, congestion on roads, and GHG and other emissions. For these reasons, federal, provincial, and regional planning policies identify efficient goods movement as a priority.

125. The GTHA is one of Canada's largest population centres and has been experiencing rapid growth. An estimated $3.5 billion worth of goods already moves by truck and rail every day through Southern Ontario and the GTHA. CN currently serves virtually all its intermodal traffic in the region through Brampton Intermodal Terminal ("BIT"). But because growth in intermodal volume tends to follow growth in population centres, it will be increasingly difficult for BIT to accommodate the region's needs on its own.

126. Thus, to meet the growing demand for intermodal rail capacity in the region and country, CN proposes to construct and operate the Milton Logistics Hub Project. This Project will be built on approximately 400 acres of CN-owned land adjacent to the existing CN mainline in south Milton, near the Halton Region Waste Management Facility. This location is ideally situated in the GTHA's growth centre. The Town of Milton is also a preferred place to build an intermodal terminal as it has become a hub for logistics and distribution industry. Indeed, the Town promotes these areas as key economic development strategies.

127. The proposed terminal will generally be bounded by Britannia Road to the north, First Line to the east, Tremaine Road to the west, and Lower Base Line to the south. Several features of this site make it a superior location for the new terminal:

(a) The lands for the site are largely flat, which minimizes the amount of grading necessary to build the site, and in turn, minimizes the potential interference with the natural environment;

(b) The lands are adjacent to and parallel to the mainline, which allows for an arriving container train to efficiently move directly into and through the terminal[74];

(c) The lands and site are near 400-series highways, with multiple regional arterial roads designed to accommodate truck traffic;

(d) The lands are sufficiently large to allow the operating area of the terminal (rail yard) to be located centrally and separated from surrounding residential areas;[75] and

(e) The lands are designated for either employment uses or future strategic employment uses by the Region's Official Plan.

128. The terminal will consist of a truck gate, several service and pad tracks, work pads, an administration building, and a maintenance garage. The terminal will be served by four intermodal trains per day, which will arrive and depart at scheduled times. The train schedule is crucial to preventing backlogs on CN's network and to ensuring the timely delivery of goods. Trains will enter the terminal and either go to the service or pad tracks. The service tracks will facilitate "steel wheel moves", which is the transfer of a block of rail cars from one train to another, as well as the arrival and departure of trains. The pad tracks (and work pad areas) will comprise the operating area or rail yard portion of the Project, and is where containers will be transferred from truck to train and train to truck. CN uses mobile reach stacker-type cranes to facilitate these transfers. Reach stackers are widely used across CN's inland intermodal network, and at every intermodal terminal handling this level of throughput. Reach stackers provide a

[74] See Site Selection Study, EIS Appendix F (CEAR #57); IR 2.9 (CEAR #592).

[75] See CN's response to Undertaking 13-B, CEAR #922, which identifies the working footprint of the terminal.

flexible, scalable, and nimble operation when compared to larger gantry cranes and allow CN to meet customer expectations.

129. Trucks will enter and exit the site through a private CN-built 1.7 kilometre access road off Britannia Road. Community members voiced concerns about traffic around the terminal, including the potential for queuing on public roads near the truck entrance. Thus, CN designed the private access road with sufficient length to ensure that trucks do not back up onto Britannia Road, including in the event of a gate malfunction.[76] CN will also construct a grade separation where Lower Base Line crosses the existing mainline at grade just east of Tremaine Road. This will avoid disruption to vehicular traffic while trains enter or exit the Terminal.

130. CN will install inspection portals along the access road that will photograph the trucks and containers, which will capture the condition of equipment entering and leaving the terminal. Trucks accessing the terminal will also be monitored use biometric scanning at the gate, which will be used to confirm the ingress and egress of containers, provide instructions to drivers and terminal staff, and track turn times. These data will be used by CN to inform terminal operations in order to meet customer expectations.

131. The administration building will provide facilities for management and other staff who will be operating the terminal. It will include office space for the anticipated 100 employees at the facility. The maintenance garage attached to the administration building will be used to inspect and maintain terminal equipment only.

132. The Project will not rely on municipal water, stormwater, or sanitary infrastructure, nor will it rely on municipal waste services. The terminal will be supplied with potable water by a licensed bulk water delivery contractor; potable water will be stored within underground storage tanks for use at the administration building. A stormwater collection and drainage system will be installed and maintained that includes storm sewers, oil grit separators, grassed swales, and stormwater management (SWM) ponds to manage run-off, while drainage ditches will convey external drainage around the terminal. Sanitary waste will be collected in holding tanks, which will be pumped out and disposed of at a licensed disposal facility. Waste management, including

[76] See the Terminal Gate Queuing Assessment, CN's response to IR2.35 (Attachment IR2.35-2) (CEAR #592).

disposal of any hazardous solid and liquid waste, will be hauled off-site by licensed contractors to licensed disposal facilities.

133. There will also be noise berms / barriers around the terminal to mitigate noise that may come from the site. The berms will be planted with native vegetation to provide a natural visual barrier; the extent and location of berms will be determined during detailed design.

134. CN's full overview presentation is available online and in the transcript for the first day, pages 20 to 100.[77]

Terminal components and operation

135. Below, we provide an overview of the main project components:[78]

(a) ***Realignment and doubling of the existing CN mainline***. To accommodate the terminal and facilitate rail operations in and through the area, CN will realign the mainline eastward by a maximum distance of 98 m from the centre line of the existing mainline. CN will also extend the existing double-track to improve the fluidity of train movements and allow mainline trains to pass without delay. No container transfers will occur on the new realigned and doubled mainline track. The footprint of the realignment and extension of the mainline will all be within CN's property.

(b) ***A truck entrance/gate and access road, including an overpass***. Truck access in and out of the terminal will be off Britannia Road, east of the existing mainline crossing at Britannia Road. The entrance is proposed to be signalized to accommodate safe vehicle movements, as well as other cyclists and pedestrians on Britannia Road, and is proposed to include turning lanes for trucks entering the terminal from the east and west. Trucks would enter the terminal through a new 1.7 km private access roadway built entirely on CN property. The access road will include a new two-lane overpass to enable truck access over the CN mainline and

[77] See CN Opening Presentation, June 19, 2019 (CEAR #860); Transcript, Volume 1, June 19, 2019 (CEAR #841).

[78] For a more detailed description of the Project components, see EIS (CEAR #57), ss. 1.2.1, 3.3, pp. 4, 44.

yard tracks. At the gate, trucks will go through an inspection portal and biometric gate before entering the pad area.

(c) ***Service tracks*.** The facility will feature three service tracks. These tracks are designed to handle arriving and departing trains and provide temporary staging of "blocks" or "sets" of railcars that will be transferred from one train to another. The service tracks vary in length with a minimum length of around 8,000 feet long. Long tracks such as those proposed minimize the train movements required to disassemble and assemble trains, in turn minimizing the amount of time a locomotive spends on site and the number of coupling (connecting of two rail cars) events required.

(d) ***Pad tracks*.** The terminal will also have three 8,000 foot pad tracks to facilitate the transfer of containers off and on the trains. These pad tracks will be located beside the work pads and will be accessible to the cranes that perform the transfer of containers between trucks and trains. Compressed air will also be available at all tracks, which will allow a set of cars to recharge their braking system before the arrival of the locomotives. This again minimizes the amount of time a locomotive spends on site.

(e) ***Work pads and temporary container storage***. The facility will have two work pads adjacent to the pad tracks where the cranes will load and unload containers from trucks and rail cars. The work pads will also be used for the temporary staging of containers that have been unloaded from trains that are awaiting pick-up by truck, or that have been delivered by truck and are awaiting being loaded onto a train. Containers are either staged in stacks on the pad or on parked chassis (wheeled storage) awaiting pick-up.

(f) ***Administration Building and Maintenance Garage*.** The administration building will be a 2,500 m^2 building consisting of an office area (offices/cubicles), a lunchroom/kitchen, locker room, and washroom and shower facilities for employees. This building will be equipped with energy-efficient features such as rooftop solar panels. The 1,200 m^2 garage will be connected to the administration

building for maintenance and washing of yard equipment and vehicles. No third-party equipment will be maintained within the garage.

(g) ***Lower Base Line crossing grade separation*.** To avoid disruption to vehicular traffic while trains enter or exit the terminal, CN proposes to build a grade separation via an underpass where Lower Base Line crosses the existing mainline at grade. CN will be responsible for the design and construction of the underpass and will work collaboratively with the municipal road authority to incorporate its requirements.

136. The Project will also feature a SWM System; vegetation clearing, grading and berms; naturalization and restoration efforts; electrical and communications infrastructure; realignment of existing petroleum pipelines; and realignment of Indian Creek and Tributary A. The realignment of the creek and tributary are discussed in more detail in other sections of this Closing Submission (see Part XV "FISH AND FISH HABITAT").

137. For the terminal to operate efficiently, trains must arrive and depart on schedule. The Project will be mainline-served, meaning that inbound and outbound trains will perform the movement of railcars. There will be no dedicated locomotive on site to move the railcars around.

Mitigation through the design of the Project

138. To minimize adverse environmental effects, CN has integrated various mitigation measures into the design of the Project. Key environmental design features include:

(a) use of collected rainwater for washing on-site equipment, landscaping and for on-site sewage requirements;

(b) use of equipment (such as generators, building heaters/furnaces, muffler systems) that have been shown to effectively minimize air and noise effects;

(c) use of solar energy technology within the building design, including heating, ventilation, air conditioning (HVAC) (cooling and control), solar domestic water heating, window design;

(d) use of vegetated berms as required to minimize effects on the community;

(e) site lighting designed to minimize light pollution;

(f) use of energy-efficient light emitting diode (LED) lighting;

(g) to reduce atmospheric emissions, using where feasible non-road mobile and stationary equipment with low emissions and high fuel combustion efficiency engines;

(h) minimizing where possible the Project footprint and site Project facilities to reduce the size and number of natural drainages that may be affected and minimize disturbance to surrounding areas and natural features, such as wetlands, watercourses and important habitat types;

(i) incorporating oil grit separators and shut off valves in the design of the SWM system to reduce the risk to the downstream environment associated with spills and improve water quality;

(j) realigning and enhancing a section of Indian Creek to minimize long-term maintenance (along the outer meander) and emulate local stable reaches of the watercourse, including enhancements to aquatic habitat and riparian vegetation;

(k) progressive compensation through the establishment of additional wetland area by removing an existing on-line agricultural pond along Tributary A;

(l) the placement of the terminal working area in the centre of the property to establish a buffer between the working area and surrounding communities;

(m) the construction of long service and pad tracks to minimize train movements on site and in turn minimize the noise disturbance from the project

(n) a design with a balance of excavation requirements and fill requirements, minimizing the need to transport material off-site; and

(o) electrical plug in stations to facilitate the use of electric vehicles.

139. Since filing the Project Description report, CN has modified the Project design in several ways to avoid or reduce potential effects. The EIS contains a full list of modifications to the Project design that were made before the EA commenced.[79]

PART VI – HEARING TOPICS – NEED, PURPOSE, AND BENEFITS

A. Evidence of CN

140. CN's evidence on this topic is identified below.

EIS GUIDELINES
Section 2 (Part 2) Project Justification and Alternatives Considered
EIS SECTIONS
December 7, 2015 - section 2.1 Project Purpose (CEAR #57)
December 7, 2015 - section 8.0 Benefits Of The Project (CEAR #57)
TDR
December 7, 2015 – Planning Justification Report (Appendix E.11) (CEA #57)
December 7, 2015 – Site Selection Study (EIS Appendix F) (CEAR# 57)
IR RESPONSES
January 23, 2018 - CN Response to the Review Panel's Information Request 2 (CEAR #592)
June 15, 2018 - CN Response to the Review Panel's Information Request 4 (Group 1) (CEAR# 656)
OTHER MATERIALS
July 3, 2019 - CN's response to Undertaking 8: Summary of the Martin Report on Demand Forecast (CEAR #921)

B. Overview and Conclusions

141. The purpose of the Milton Logistics Hub is to serve the increasing need for intermodal rail capacity in the GTHA. The GTHA is Canada's biggest population centre and it has been experiencing rapid growth. An estimated $3.5 billion worth of goods move by truck and rail every day through Southern Ontario and the GTHA, and that number will continue to rise. The

[79] EIS (CEAR #57), s. 4.2, p. 71.

Project positions CN to serve that growing demand for logistics support in the GTHA and western Ontario markets.

142. CN provides intermodal services to the GTHA region through BIT, which connects the GTHA with its network of 16 domestic terminals and seven CN-served container ports across North America. BIT is Canada's largest inland intermodal terminal.

143. BIT cannot accommodate all of the expected growth in container volumes on CN's network destined to or originating from southern Ontario. The Milton Logistics Hub will serve the need for additional inland intermodal capacity in the GTHA while also delivering economic development opportunities and environmental benefits at the local, provincial, and national level.

144. Without sufficient inland intermodal capacity, Canadian and international businesses will not have a reliable supply chain network to move imports and exports. Shippers will be forced to resort to long-haul trucks[80] or divert their traffic to or through the United States. These alternatives mean longer service, higher costs, increased traffic, and more GHG and other emissions. As the President and CEO of the Halifax Port Authority explained, "[i]mplementing inland rail solutions is vital for the Canadian supply chain. It provides importers and exporters with consistent and reliable access to diverse international markets."[81] See Part VI, Section D, below, for further discussion regarding the need for the Project.

145. CN evaluated the need for and purpose of the Project consistent with the Operational Policy Statement: Addressing "Purpose of" and "Alternative Means" under the CEAA 2012 (March 2015).

C. General Themes

146. In CN's submissions and other presentations to the Panel during the hearing, several important themes emerged:

(a) ***There is insufficient intermodal rail capacity in the GTHA region***. Port authorities, shipping companies, and industry groups all explained that greater

[80] A long-haul truck movement consists of transporting goods greater than 200 km.

[81] Ms. Oldenfield, Transcript, Volume 3, June 21, 2019 (#867), p. 560.

intermodal rail capacity is necessary to accommodate increasing volumes of containers (which reflects population growth and consumer demands). In fact, even those opposed to the Project agree there is a need for more inland intermodal capacity. While BIT has been able to handle traffic into the GTHA to date, industry participants observed that BIT is facing capacity constraints and congestion. It was also observed that CP's intermodal facility in Vaughan is facing the same issues. As populations continue to rise and demand for goods grows, the need for intermodal capacity will become even more acute.

(b) ***Without sufficient capacity, goods arrive later at a higher cost and businesses suffer***. Canadian businesses rely on rail supply chain infrastructure to efficiently ship goods in and out of and across the country. If there is insufficient rail capacity, containers may be delayed, or businesses may choose to move goods by truck at additional cost (which would be passed on to the end user). Businesses also suffer competitively if they cannot move their goods in a timely manner to storefronts or international markets.

(c) ***Predictable and efficient service at intermodal terminals is essential***. Industry participants underscored the importance of efficient terminal processing times. Presenters explained how delays at BIT and other terminals increase costs and undermine predictability. For example, one participant cited perishable goods waiting on railcars for four days at a terminal – these delays are unacceptable to intermodal customers.

(d) ***Environmental and economic benefits arising from the Milton terminal***. Industry groups and other presenters explained the environmental and economic benefits of increasing intermodal rail capacity. Rail is the most efficient way to move freight over land and leads to reduced road congestion and GHG and other emissions. Intermodal terminals also spur economic development, both locally and nationally. A new intermodal facility in Milton can be expected to attract new business development in the region and create new jobs. A very conservative estimate is that the Milton Logistics Hub would create more than 1,000 jobs, and potentially up to 2,500.

D. Need for the Project

i. Need for goods movement infrastructure and intermodal rail capacity

147. Efficient goods movement is essential to a healthy economy. Canada and Ontario are major goods producers, traders, and consumers. These goods must move from manufacturing or agricultural centres to destinations across the country. Imports from Canada's trading partners must also move into Canada through ports to cities across the country with speed and accuracy. Without an efficient goods movement supply chain, these goods, which Canadian businesses and consumers need, will not be able to reach their destinations.

148. Goods movement efficiencies are especially important in Canada's most populated region, the GTHA. Between now and 2041, the population of the GTHA is projected to grow from 7.6 million to 10.3 million. Employment is also projected to grow from 3.2 million to 4.4 million. Deficient goods movement infrastructure will present increasing challenges to the GTHA as populations swell.

149. Governments and transportation planners have therefore recognized the importance of prioritizing goods movement infrastructure. For example, Canada has created a $2 billion National Trade Corridor Fund to improve the flow of goods in Canada and support Canada's supply chain infrastructure. The Metrolinx 2041 Regional Transportation Plan also recognizes that "[t]he efficient movement of goods and services in the GTHA is essential to the Region's economic prosperity and quality of life – a fact sometimes not recognized by the general public."[82]

150. Indeed, Halton Region has recognized the importance of goods movement within the Region. The Halton Region Transportation Master Plan to 2031 has a standalone section on goods movement, which states that "Goods movement will need to increase in efficiency, as well

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[82] *2041 Regional Transportation Plan For the Greater Toronto and Hamilton Area* (Metrolinx 2017), p. 82; *Growth Plan for the Greater Golden Horseshoe*, s. 3.2.4 (Ontario Ministry of Municipal Affairs and Housing 2017), p. 34.

as in the volume transported, in order to support the population and employment growth planned for the Greater Golden Horseshoe through to 2031."[83]

151. Rail plays an integral role in the goods movement supply chain, and intermodal transportation is the fastest growing mode of transportation in North America. The Halton Region Transportation Master Plan explains that "[i]mproved access to inter-modal facilities … serve to improve the environmental performance of goods movement within Halton Region, facilitating efficient transfer of goods from road to rail."[84] Every year between now and 2041, the population of the GTHA will grow by approximately 120,000 people per year (the current population of Milton). Milton has been enthusiastically embracing and promoting its own strong growth. Increased intermodal capacity is necessary to meet the corresponding increases in demand for goods for businesses and consumers.

152. These factors all informed CN's decision to move forward with plans to develop an intermodal terminal in the western portion of the GTHA, where CN's customer base is increasingly choosing to locate. In addition, CN considered the following reports in assessing the need for the Project:

(a) The 2013 Strategic Projections Inc. (SPI) report "The Need for an Intermodal Facility on CN's Lands in Milton" (summarized in the response to IR 4.6), which examines trends in Canadian trade, production and transportation. Based on the trends identified in the report, SPI concluded the demand for goods and therefore the movement of goods will increase in the GTA.

(b) The 2014 Cushman & Wakefield report "Economic and Financial Impact of an Intermodal Terminal in Milton" (summarized in the response to IR 4.7), where the authors evaluated the economic and financial impact of locating an intermodal terminal in the Town of Milton. To determine Milton's capacity to absorb intermodal-oriented development ("IOD"), Cushman & Wakefield examined Milton's industrial real estate market, including its industrial inventory, new

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[83] *The Road to Change: Halton Region Transportation Master Plan* (Halton Region 2011), p. 2.

[84] *The Road to Change: Halton Region Transportation Master Plan* (Halton Region 2011), p. 3.

> supply, vacancy rate, rental rates, and industrial land and building sales and compared these figures to competitive markets. They also examined the impact of other existing intermodal terminals on IOD within their respective industrial markets. The impact of an intermodal terminal, in terms of employment, property tax revenues, and development charges, was examined. Cushman & Wakefield concluded Milton/Halton Hills had emerged as one of the most active industrial markets in the GTA in the decade between 2004 and 2014, and is a prime location for warehousing and logistics facilities to serve the eastern Canadian market.

153. These reports and factors reflect a central theme in the evidence and presentations at the public hearing: there is a pressing need for intermodal rail capacity in the GTHA. This need was reinforced by port authorities, shipping companies, and industry and retail groups. Indeed, no party has contested the importance of intermodal transportation in Southern Ontario – even Milton Says No recognizes this.[85]

ii. Port Authorities

154. Several port authorities presented at the hearing, explaining the growth of rail-based container movement and the increased need for intermodal rail terminal capacity. In response to increasing demand, major Canadian ports are expanding to accommodate increased container traffic, as described in further detail below.

155. ***Port of Vancouver***. As Canada's largest port, the Port of Vancouver handles $200 billion worth of goods. Mr. Corsie, a Vice-President at the Vancouver Fraser Port Authority, explained that the GTHA is "by far the largest destination for containers moving through Canada's west coast ports" and that container volumes are expected to "grow significantly".[86] In response to this anticipated growth, the Port has expanded or will expand two of its container terminals.[87]

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[85] Ms. Newman, Transcript, Volume 2, June 20, 2019 (CEAR#862), p. 373.

[86] Mr. Corsie, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 514.

[87] Mr. McDonald, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 607.

156. Mr. Corsie observed that a new facility in the GTHA is necessary to handle the growing container volumes moving through the region. In his view, "[c]apacity at CN's existing intermodal terminal in the GTHA has become constrained … and is unable to efficiently accommodate increasing demand for containers."[88] And because the components of the supply chain are connected, deficient inland intermodal rail capacity has also affected operational efficiency in Vancouver's ports. The Port of Vancouver thus supports building the critical infrastructure necessary to develop a reliable and consistent Canadian supply chain.

157. ***Port of Montreal***. The Port of Montreal is expanding its intermodal capacity in response to growing demand. The Port is spending $55 million to increase its rail capacity to meet increased demand, has expanded its Viau terminal by 33 percent, and is building another terminal in Contrecoeur, which will double the port's volume. Ms. Iacono, Director of Growth and Development at the Montreal Port Authority, also noted that Asian imports into Ontario and Ontario exports to Asia have tripled in the last five years.[89]

158. ***Port of Prince Rupert***. The Port of Prince Rupert has also experienced significant growth in traffic volume destined for the Toronto area. Mr. Friesen, a Vice-President at the Prince Rupert Port Authority, explained that Prince Rupert is expanding its terminal capacity by 33 percent by 2022. Because there is no local market for containers in Prince Rupert, it must move its containers to more populated areas. The Port relies on inland intermodal rail facilities, and as additional containers are added, Mr. Friesen stated that "we need to ensure that there is corresponding inland terminal capacity."[90] Without sufficient inland terminal capacity, containers sit at the terminal for longer and service times decline. Indeed, because of insufficient inland terminal capacity, Mr. Friesen observed that Toronto-bound containers are dwelling in the terminal for longer than containers destined for other locations.[91]

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[88] Mr. Corsie, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 516.

[89] Ms. Iacono, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 483.

[90] Mr. Friesen, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 540.

[91] Mr. Friesen, Transcript, Volume 3, June 21, 2019 (CEAR #867), pp. 550-551.

159. ***Port of Halifax***. The Port of Halifax is Canada's fourth-largest port by container volume and it too has seen an increase in containers destined for the GTHA. Ms. Oldfield, President and CEO of Halifax Port Authority, stated that the compound annual growth rate of containers bound for Brampton was 13.5% from 2014 to 2018, translating into 63,000 containers in 2018. Halifax is currently expanding its terminal to two berths, so it can accommodate more vessels, which will increase its container capacity. As port capacity expands, Ms. Oldfield explained that "[r]eciprocal inland capacity is needed to ensure continued efficiency in the supply chain."[92] She continued, stating that "projects such as the Milton Logistics Hub provide that needed capacity and facilitate the Port of Halifax's ability to continue competing on the global stage."[93]

iii. Shipping

160. Several shipping companies and shipping industry groups appeared at the hearing, also expressing the need for increased intermodal inland rail terminal capacity in the GTHA.

161. The Canadian International Freight Forwarders Association ("CIFFA"), which is comprised of freight forwarding companies across the country (such as DHL, FedEx, and smaller companies), support the development of the Milton Logistics Hub. Mr. Rodgers, Executive Director of CIFFA, stated that currently "railways do not have enough equipment, capacity, or infrastructure to service spikes in demand."[94] As a result, delays are affecting the service CIFFA's members can provide. Further, Mr. Rodgers noted that while improvements at BIT have provided short-term relief to service disruptions, new capacity is necessary to accommodate increasing container demand.

162. ZIM Integrated Shipping Services (Canada) Co. Ltd ("ZIM"), an international shipping line, expressed similar concerns about capacity and delays at BIT. Mr. Kluge, President of ZIM, gave an example of a container filled with perishable goods sitting in a rail car for four days because BIT was not accessible due to congestion. He also spoke to the need for quick truck

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[92] Ms. Oldenfield, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 559.

[93] Ms. Oldenfield, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 559.

[94] Mr. Rodgers, Transcript, Volume 2, June 20, 2019 (CEAR#862), p. 327.

turnaround times. The longer a container takes in transit, the higher the costs for all participants in the supply chain. Even the containers themselves have value; a container in transit cannot be used to service another shipment.

163. JB Hunt Transport, Inc., one of North America's largest transportation logistics companies, explained why increased intermodal capacity is necessary from a trucking perspective. Mr. Field, Executive Vice-President of Intermodal at the company, stated that intermodal is the most economically and environmentally-friendly way to move goods for many of its customers. But delays and congestion at BIT have affected its drivers' productivity and contributed to service challenges. Without additional capacity, these issues will make intermodal shipping more expensive and less reliable. As a result, JB Hunt's customers may turn more frequently to long-haul trucking. Hapag-Lloyd (Canada) Ltd. expressed this same concern.[95] By increasing and strengthening the GTHA's intermodal rail capacity, the Project will mean "fewer trucks for fewer miles on the highway."[96]

164. The Shipping Federation of Canada ("SFC"), which represents owners, operators, and agents of ocean ships that carry Canadian exports and imports, provided the viewpoint of naval shipping companies. Mr. McDonald, who is a former director of SFC, the CEO of Canada's largest shipping agency, and a resident of Milton, explained that increasing ship sizes has led, in part, to the shift from bulk goods to container movement.[97] Given growing demand in the GTHA for intermodal service, and the environmental and economic benefits of moving containers by rail instead of truck,[98] SFC believes the Project is necessary and will increase the efficiency of Canada's supply chain overall.[99] Mr. McDonald stated that the proposed terminal would be situated in a location that is "about as good as it gets"[100] to accomplish these objectives:

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[95] Mr. Allen, Transcript, Volume 12, July 12, 2019 (CEAR #966), 3424.

[96] Mr. Field, Transcript, Volume 12, July 12 (CEAR #966), p. 3400.

[97] Mr. McDonald, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 613.

[98] Mr. McDonald, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 611.

[99] Mr. McDonald, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 605.

[100] Mr. McDonald, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 614.

> The Milton Hub is extremely well-positioned … as it will supplement the capacity that currently exists at the Brampton Intermodal Terminal thereby ensuring the region's readiness to handle the increase in containerized trade that we expect to see over the coming years. Moreover, the facility's location adjacent to CN's main line and close to major highway routes means the intermodal connections and the ability to transfer containers from one mode to another will be quick, efficient and seamless.[101]

165. Other shipping companies, including Schneider National, Inc. (the third-largest intermodal provider in North America), COSCO Shipping Lines (Canada) Inc. (an international and domestic marine container transportation company headquartered in Shanghai), Mediterranean Shipping Company (the largest steamship line for imports to and exports out of the GTHA),[102] and Hapag-Lloyd (Canada) Ltd. (a worldwide cargo service enterprise) also provided evidence in support of the terminal.

iv. Industry and Businesses

166. In addition to the ports and shippers, industry groups explained the negative effects of limited intermodal rail capacity on consumer service and local businesses.

167. The Retail Council of Canada ("RCC"), a non-profit industry association representing 45,000 storefronts, provided evidence about the need for the Project. Mr. Prins, the Ontario Government Relations Director for the RCC, explained the importance of sufficient intermodal rail capacity to the RCC's members. For example, half of the containers that Canadian Tire ships run through BIT. But Mr Prins noted that BIT's capacity is constrained, and that new intermodal rail capacity is necessary. Without it, shipments to retail storefronts are delayed and costs rise for businesses and consumers.

168. Mr. Prins also presented survey data indicating that Canadian businesses are concerned about freight costs, particularly fuel costs and congestion. Moving freight by rail is more cost efficient and environmentally favourable than shipping by truck. Moreover, when the Milton Logistics Hub is running at full capacity, it will reduce the number of long-haul trucks on the

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[101] Mr. McDonald, Transcript, Volume 3, June 21, 2019 (CEAR #867), pp. 608-609.

[102] Mr. Fournier, Transcript, Volume 12, July 12 (CEAR #966), pp. 3317-3318.

road by over 480,000.[103] This reduction in traffic will benefit Milton residents, who, on average, commute longer distances than other Ontario residents.

169. Food and Consumer Products Canada ("FCPC"), as association of major food and consumer goods manufacturers, echoed RCC's concerns. Mr. Graydon, the CEO of FCPC, explained that additional intermodal capacity is necessary to provide Canadian consumers "better access to food and consumables in a lower cost reliable fashion."[104] He also mentioned the Canadian government's goal to grow Canada's agri-food exports to over $75 billion annually by 2025. Rail capacity is in the GTHA, where the largest number of Canada's food and consumer good product manufacturers are located, is necessary to ensure that Canada's industry can meet export targets and compete in the global market.

170. Beyond the environmental benefits of rail, Mr. Graydon stated that FCPC's retail partners rely on adequate rail transit to meet the service levels that customers expect. Many Canadians worry about food prices, and increasing intermodal capacity is part of the solution to keeping Canadian consumer pricing competitive. Through refrigerated containers, intermodal also provides manufacturers with new ways to keep foods fresher for longer.

171. Canadian Manufacturers and Exporters ("CME"), which represents 90,000 manufacturers and exporters, provided the perspective of manufacturing companies. Mr. Wilson, a Vice-President of CME, stressed the importance of building new transportation infrastructure to meet future growth. In the manufacturing industry, "everything is about efficiency and time."[105] Thus, "[b]uilding trade infrastructure increases business productivity and competitiveness by reducing the time and cost of transporting goods to markets."[106] Mr. Wilson also explained that building a terminal in Milton would help local businesses grow and link to the international supply chain.[107]

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[103] Mr. Prins, Transcript, Volume 2, June 20, 2019 (CEAR #862), p. 341.

[104] Mr. Graydon, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 586.

[105] Mr. Wilson, Transcript, Volume 2, June 20 (CEAR #862), p. 234.

[106] Mr. Wilson, Transcript, Volume 2, June 20 (CEAR #862), p. 230.

[107] Mr. Wilson, Transcript, Volume 2, June 20 (CEAR #862), p. 232.

172. Boards of trade and commerce, including those located in the Halton Region, have all expressed support for the Milton Logistics Hub.

173. The Canadian Chamber of Commerce, Canada's largest business association representing over 200,000 members across the country, described the regional and national necessity of the project to accommodate economic demands that will come with population growth in the GTHA. Mr. Greer, who spoke on behalf of the Chamber, explained that if only the existing infrastructure is maintained until 2040, "the entire region would be facing significant supply chain bottlenecks on most major roadways and rail lines," causing significant economic and quality-of-life impacts.[108] Increasing the region's intermodal capacity will improve transportation fluidity, strengthen the international competitiveness of Canadian businesses, and support thousands of regional and businesses that depend on the larger regional supply chain. .

174. The Ontario Chamber of Commerce, which represents 135 chambers and boards of trade across the province, emphasized the need for the Project for the Ontario and Canadian economy. Mr. Rossi, the President and CEO of the Chamber, captured the reasons for this need as follows:

> Congestion, population growth, aging assets, unique regional needs, and an historic underinvestment in infrastructure have led to a significant gap between the actual and needed infrastructure in Ontario.[109]

175. A new intermodal terminal in Milton would address some of this need. He also noted that the rise of e-commerce has increased the number of truck trips and overall truck traffic in GTHA, and a shift to intermodal rail would help offset the number of added trucks.

176. The Chambers of Commerce in Halton Region (Milton, Burlington, Halton Hills, and Oakville) also expressed their support for the Project. These Chambers represent over 3,300 business and individuals in the Region, including over 700 member companies in Milton. Mr. McCammon, the President and CEO of the Milton Chamber, noted that Milton has become a supply chain hub given its location in the GTHA and proximity to transportation infrastructure.

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[108] Mr. Greer, Transcript, Volume 12, July 12 (CEAR #966), p. 3296.

[109] Mr. Rossi, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 634.

He stated that "More intermodal capacity is very much needed and it's needed now."[110] He explained that the new terminal would not only provide new jobs to the community, but it would also support local businesses by sourcing local suppliers and providing greater access to markets. The heads of both the Milton and Oakville Chambers also recognized CN's engagement with the local community and local businesses about the Project.[111]

177. The Toronto Region Board of Trade identifies the proposed facility as "the top project to address our region's disabling congestion." Ms. De Silva, the Board of Trade's President and CEO, explained that current inefficiency in goods movement costs the Innovation Corridor (the GTHA and Waterloo Region) an estimated $15 billion in lost productivity annually.[112] Moreover, these inefficiencies have made the Innovation Corridor a high-cost manufacturing jurisdiction, leading to lost jobs in the recent decade. The Project will help address today's goods movement "pain points" and ensure the region's ongoing prosperity.[113]

178. The Brampton Board of Trade, the Mississauga Board of Trade, and the Vaughan Chamber of Commerce also presented at the hearing to reiterate the need for intermodal capacity and to express their support for the Project, echoing many of the comments made by others.

E. Benefits

179. Benefits from this Project are apparent at a national scale, across the GTHA, as well as at the regional and local levels. These benefits are multi-faceted. The Project will create economic development opportunities, environmental and sustainability improvements, and other advantages in the social and community spheres of Milton.

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[110] Mr. McCammon, Transcript, Volume 12, July 12 (CEAR #966), pp. 3329.

[111] Mr. McCammon, Transcript, Volume 12, July 12 (CEAR #966), pp. 3326-3331; Mr. Redden, Transcript, Volume 12, July 12 (CEAR #966), p. 3333

[112] Ms. De Silva, Transcript, Volume 12, July 12 (CEAR #966), pp. 3370.

[113] Ms. De Silva, Transcript, Volume 12, July 12 (CEAR #966), pp. 3374.

ii. Economic Development Benefits

180. ***National Benefits.*** Between 1988 and 2012, goods distribution grew faster than any other component of the Canadian economy, more than doubling over that period. This growth represents several economic trends, including the importance of international trade and the emergence of logistics infrastructure, such as intermodal transport, as an important pillar of the economy.[114] Intermodal is the fastest growing mode of freight transportation. As explained above, intermodal offers environmental benefits and savings and solutions to shippers.[115]

181. The Project will allow CN to continue to efficiently access over 75% of the North American population. This will benefit customers and the economy by improving central Canada's access to key domestic and trans-border markets, as well as the Pacific, Atlantic, and Gulf coast trade gateways. This intermodal terminal will also generate new supply chain efficiencies provincially and nationally and increase the fluidity of the logistics system across North America.

182. ***Regional and Local Benefits***. Because consumer goods are typically transported in intermodal containers, terminals are generally built in regions where this type of growth exists. CN decided to locate the intermodal terminal in the west GTHA based on – among other reasons – growth opportunities in the consumer market and population. The population of the GTHA is projected to grow by 49% between 2013 and 2041, with employment growing by 39%. This population and employment growth will double demand for goods and intermodal activities. [116]

183. The Project will thus benefit the GTHA by addressing short-term capacity issues and preparing for medium and long-term growth. The Project will also reduce congestion on regional highways and support the provincial plan for improving transportation infrastructure. These improvements will help offset the lost productivity in the region due to traffic congestion, which the Toronto Region Board of Trade warned could cost up to $15 billion by 2031.

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[114] IR 4.6 (CEAR #656).

[115] IR 4.6 (CEAR #656).

[116] IR 4.6 (CEAR #656).

184. Because of the Project, it is also estimated that Milton can attract between 3 to 5 million square feet of intermodal oriented development ("IOD"). Mr. McCormack explained in his presentation on behalf of CN that, over the next 30 years, Halton Region and the Town of Milton could generate up to $213 million in taxes because of the Project and associated IOD.[117] These local governments could also generate up to $73.6 million in development charges. Of the development charges generated from this development, Milton could expect to retain about 25 percent, School Boards about 10 percent, and Halton Region the remainder.

185. The Project will also create more than 1,000 employment opportunities (including 130 direct jobs) locally during its operation, and potentially up to 2,500 jobs. Construction of the facility will also create around 150 to 200 jobs. The Retail Council of Canada agreed with these job projection figures,[118] and Mr. Acthen noted that the facility will create short-haul truck driver opportunities in the community.[119] In short, the CN Project will be an employment driver in an area planned by the Region for employment.

186. In addition, the Project will also allow Halton Region to benefit from the recently signed Canada-European Union trade agreement and the strengthening U.S. economy. The western GTHA is becoming known as a key logistics hub as the gross domestic product increases in the GTHA. As Mr. McCormack explained, logistics jobs in Milton increased by 50 percent between 2001 and 2016.[120] The Milton Logistics Hub would be an engine to propel logistics jobs growth in the Town of Milton.

187. At the hearing on July 12, the Brampton Board of Trade also provided a perspective on the benefits of having an intermodal terminal (BIT) in Brampton's local economy. The Brampton Board of Trade represents companies that are responsible for one-third of all jobs in Brampton. Mr. Letts, the Board of Trade's CEO, stated that BIT has been "the impetus behind strong

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[117] Mr. McCormack, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1172.

[118] Mr. Prins, Transcript, Volume 2, June 20, 2019 (CEAR #862), pp. 344-345.

[119] Mr. Acthen, Transcript, Volume 2, June 20, 2019 (CEAR #862), p. 314.

[120] Mr. McCormack, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1178.

business development in Brampton."[121] A healthy commercial neighbourhood has emerged around BIT, with few vacancies and high industrial real estate values. BIT has helped local companies compete and has enhanced Brampton's reputation as a welcoming, attractive city for business investment.[122]

iii. Environmental and Sustainability Benefits

188. ***National Benefits.*** Intermodal trains reduce the need to move goods by long-haul trucks, and the environmental benefits of this modal shift from truck to rail is substantial. One intermodal train removes as many as 280 heavy long-distance trucks from highways. As compared to heavy trucks, rail is four times more fuel efficient and produces 75% less GHG emissions. At the national level, therefore, the Project will facilitate more sustainable and efficient movement of consumer and manufacturing goods to market.

189. CN has also invested in reducing its environmental footprint. CN has improved the fuel efficiency of its locomotives by approximately 40 percent over the last 25 years.[123] We continue to invest in more energy-efficient locomotives, such as the new General Electric tier-four locomotives that CN has recently ordered. Through its CNTL trucking service, CN is also piloting an electric truck project in the GTHA and elsewhere.

190. ***Regional and Local Benefits***. The Project has also been designed to produce regional and local environmental benefits. In particular, the Project will contribute environmental enhancements and restoration along Indian Creek and Tributary A and will result in improvements to the local and regional airshed associated with removal of long-haul trucks from highways.

191. Historic agricultural activities and alteration to the local streams have contributed to the existing poor water quality, limited riparian habitat, and sediment loading within the Bronte

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[121] Mr. Letts, Transcript, Volume 12, July 12 (CEAR #966), p. 3352.

[122] Mr. Letts, Transcript, Volume 12, July 12 (CEAR #966), p. 3352-3354

[123] Mr. Lerner, Transcript, Volume 1, June 19, 2019 (CEAR #860), p. 28.

Creek watershed.[124] The Bronte Creek Watershed Study, prepared by Conservation Halton (2002), indicates that much of Indian Creek and its tributaries suffer from a lack of shade cover to the watercourse, loss of channel grade control features like riffle, pool, run sequences and excess nutrient loading.[125] The portion of Indian Creek to be realigned has been designed to incorporate natural channel design principles and habitat features to enhance fish and riparian habitat. It also provides foundation support for naturally existing slumping slopes/erosion areas to increase channel stability. As part of the Project, the existing on-line agricultural pond will be removed to improve drainage and fish passage in Tributary A. This will also reduce the risk of failure during flood events.[126] Further improvements will be made by constructing riparian wetlands within the former on-line agricultural pond bed to provide wetland and fish spawning habitat as well as seasonal foraging and resting habitat.

192. The Project's SWM system and changes in land use will reduce existing contaminant loading into Indian Creek and Tributary A. The SWM ponds will be designed to remove 70% and 80% of the phosphorus and sediment, respectively, for all the runoff from the 100 ha SWM pond drainage area. Further reductions will also be achieved from the change in land use from agricultural row crops to pavement, buildings and railway tracks within the PDA, which will reduce soil erosion and subsequently sediment and phosphorus attached to soil particle loads. The changes in contaminant loads to local receiving watercourses will result in estimated reductions in current annual sediment and phosphorus loads of 44% and 40.5%, respectively.[127] Loadings of other contaminants, such as metals, that adsorb to sediment particles will also be reduced indirectly by sediment treatment within the SWM ponds.

193. The planting of vegetation along areas of the Indian Creek and Tributary A realignments will also increase vegetation diversity, shade to the watercourses and provide bank stability

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[124] Summarized in IR 3.19, 24 January 2018 (CEAR #613).

[125] IR 3.19, 24 January 2018 (CEAR #613).

[126] EIS Appendix E.2 (CEAR #57), s. 6.1.5.1, p. 28.

[127] EIS Appendix E.15 (CEAR #57), s. 6.4.2.2.

through the growth of dense roots in the near bank areas.[128] Because of increased oxygen concentrations and decreased water temperatures due to shading provided by bank and riparian vegetation plantings, there will be improvements to water quality and fish habitat in Indian Creek and Tributary A, particularly for coolwater species.[129]

194. The Project will also enable modal shift of goods movement from long-haul trucks to rail, which will contribute to reducing the air pollution burden across the region. These airshed benefits will be experienced in Milton and Halton as well and are discussed further in Part XVII – "AIR QUALITY AND HUMAN HEALTH."

iv. Social and Community Benefits

195. Locating an intermodal hub in Milton will increase the speeds at which goods get to market and decrease transportation costs that are passed onto the customer. Schneider National, Inc., the third-largest intermodal provider in North America, explained that the new terminal in Milton is closer to its customer base than Brampton and, for that and other reasons, its delivery service will improve.[130]

196. Beyond benefits from the decreased cost of goods, the Project will improve the lands and surrounding area in ways that will benefit the community. For example, the grade separation at Lower Base Line will reduce congestion, allowing for the uninterrupted flow of traffic. The design of the grade separation also includes separate cyclist and pedestrian lanes, which will further enhance safety in this area. There are also currently no flood controls on-site for Indian Creek. Floodplain design will increase flood control on Tremaine Road.

197. CN is also dedicated to establishing local partnerships that contribute to achieving development goals identified by the community. CN is partnering with Wilfrid Laurier University to provide education hands-on training opportunities in Supply Chain Management, an in-demand skill in Halton Region's fast-growing economy. CN has also partnered with the

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[128] EIS Appendix E.2 (CEAR #57), s. 6.1.6, p. 30.

[129] EIS (CEAR #57), s. 8.2.2, p. 323.

[130] Mr. Schneider, Transcript, Volume 2, June 20, 2019 (CEAR #862), p. 313.

Milton Chamber of Commerce and Wilfrid Laurier to hold the inaugural Milton Supply Chain and Logistics Job Fair on May 29, 2019. These types of community contributions contribute to CN's reputation as a "good neighbor."[131] In fact, CN's presence in and commitment to the Vaughan community led the Vaughan Chamber of Commerce to describe CN as part of the "cultural fabric of Vaughan."[132]

PART VII – HEARING TOPICS – CAPACITY, REQUIREMENTS FOR RAILWAY OPERATIONS AND SERVICES, AND PROJECT DESIGN

A. Evidence of CN

198. CN's evidence on this topic is identified below.

EIS GUIDELINES

Section 1 (Part 2) Introduction and Overview

Section 3 (Part 2) Project Description

EIS SECTIONS

December 7, 2015 - section 2.1 Project Purpose (CEAR #57)

December 7, 2015 - section 8.0 Benefits of The Project (CEAR #57)

TDR

December 7, 2015 – Planning Justification Report (Appendix E.11) (CEAR #57)

IR RESPONSES

January 23, 2018 - CN Response to the Review Panel's Information Request 2 (IR2.1-2.3, IR2.26) (CEAR #592)

June 12, 2018 - CN Response to the Review Panel's Information Request 5.1 Mitigation (CEAR #655)

June 15, 2018 - CN Response to the Review Panel's Information Request 4.1 (CEAR #656)

OTHER MATERIALS

May 29, 2019 – CN Milton Logistics Hub Capacity Analysis and Estimate (CEAR# 799)

UNDERTAKINGS

July 3, 2019 - CN Response to Undertaking 8 (CEAR #921)

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[131] Mr. Shifman, Transcript, Volume 12, July 12 (CEAR #966), pp. 3386.

[132] Mr. Shifman, Transcript, Volume 12, July 12 (CEAR #966), pp. 3385, 3390-3391.

July 3, 2019 – CN Response to Undertaking 13B (CEAR #886)

B. Overview and Conclusions

199. Industry participants have clearly expressed the need for increased inland rail intermodal capacity in the GTHA. CN, through its own evaluation, quantified that need to be in the range between 1.6 and 1.8 million containers across CN's network in all of southern Ontario by 2040. The need cannot be served by Brampton alone.

200. CN's market forecast comprised both a "bottom-up" and "top-down" approach, as described by Mr. Lerner during the hearing on June 25, 2019. The bottom-up element of CN's market forecast was informed in part by CN's engagement with its customers to understand their specific needs for capacity and service requirements in the future. CN also considered proposed port expansions and forecast port container volumes, its own data on market share of domestic and international container volumes in southern Ontario, and its own analysis of its competitors' strengths and weaknesses to inform its estimates. To supplement the bottom-up forecast, CN also used a top-down approach, which considered broader economic projections, such as real GDP, commodity prices and trends, fuel prices, and population growth. Taken together, the "bottom-up" and "top-down" elements resulted in a robust forecast of container volumes likely to be handled by CN on its network in southern Ontario over the forecast period.

201. As a result of questions raised by Halton Municipalities, CN retained Martin Associates ("Martin") to develop an independent forecast of the volume of intermodal containers that are likely to be handled on CN's network in southern Ontario. Using publicly available and vetted population growth forecasts for the GTHA and international container volumes projected for the four Canadian ports, which Martin determined were strongly correlated with CN's domestic and international container volumes, respectively, in southern Ontario, and drawing from CN's historical, detailed origin/destination and volume data, Martin projected that the volume of container traffic on CN's network in southern Ontario will be about 1.7 million containers by 2040. This is consistent with CN's own market forecast. Martin described that forecast to the

Panel on June 25th, as reflected in the slide deck filed June 17th[133]. His work is further summarized in the response to undertaking #8.[134]

202. Recognizing that its existing facilities in the GTHA would not be able to accommodate all of the anticipated growth on its network in southern Ontario, CN determined that a new intermodal terminal would be required in this region to provide additional capacity to handle up to 450,000 containers annually. With that additional 450,000 container capacity, CN will be able to serve its share of the southern Ontario container market to at least 2040, which is as far out as it is reasonable to project. This required capacity of 450,000 containers drove the design of the Project.

203. CN considered potential locations for a new terminal that would be technically and economically feasible and would satisfy the requirements for railway operations and services, including operational integration with CN's network and anticipated customer requirements, such as accessibility, while also minimizing potential adverse effects on the natural and human environment. Relevant factors considered in the evaluation and selection of the site were discussed during the hearing in CN's overview presentation on June 19th and also in the technical session on June 25th, as well as in CN's written filings.

204. The proposed location for the Project was determined to be feasible and suitable for railway purposes. Key factors contributing to this determination are discussed in more detail in Part VIII –"ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT," below.

205. Having determined that the proposed location was feasible and suitable, CN developed a design for the Project on the site that would provide the necessary throughput capacity of 450,000 containers annually, taking physical constraints and terminal and network operability into account, while also minimizing potential environmental effects. In designing the Project at this location, CN considered a range of alternative means for key Project components, including the location of entrances, the type of equipment, stormwater management, and management of

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[133] CN Presentation for Project Description, alternative means and railway operations and services, June 17, 2019 (CEAR# 843).

[134] CN Response to Undertaking 8, July 3, 2019 (CEAR# 921).

slope stability and erosion issues; these are also discussed in more detail in Part VIII – "ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT."

206. The design of the Project included consideration not only of physical components, but also critical customer service requirements, such as delivery, pick-up, and drop-off preferences, train arrival and departure times, cut-off times, truck turn-times, temporal variation in container flows, and other factors outlined by Mr. Lerner in his presentation on June 25th. The proposed design therefore reflects a terminal layout, equipment, and operational approach that would move the expected volume of containers at the service level CN's customers demand.

207. In response to concerns raised by Halton, CN also retained Mott McDonald ("MM") to carry out an independent evaluation of the design capacity of the proposed Milton Logistics Hub. MM conducted a detailed simulation of the terminal using Arena®, a widely recognized and peer-reviewed leading discrete event simulation modeling software. This model considered hundreds of inter-related inputs, including CN's commercially sensitive operational data, and the natural fluctuation in network and customer requirements. The model also considered variability of inputs over time and took into account real-world variability, such as delays that could be caused by weather. MM determined the design capacity of the Project as proposed would be 426,949 ± 1,282 containers annually. MM concluded that operating at or below this design capacity would allow the new terminal to meet customer service and network requirements.[135] It also concluded that operating above that capacity would compromise those requirements. These findings are consistent with CN's internal design determinations.

208. The Halton Municipalities' expert also confirmed that the capacity of the Project as proposed would be in a similar range, as discussed further below.

209. The result is a proposed Project that would fulfil the intended purpose of accommodating the demand for inland intermodal capacity in the western GTHA, taking into account the requirements of railway operations and services, including network and customer requirements, and addressing potential effects on the natural and human environment through design and proposed mitigation measures and management plans. The design mitigation features are

[135] Mott McDonald Capacity Analysis and Estimate Report, May 29, 2019 (CEAR #799), p. 33.

described above in Part V – "DETAILED PROJECT DESCRIPTION." The proposed mitigation measures and management plans are discussed further in relation to specific topics throughout the remainder of this Closing Submission.

C. Principal Issues Raised

i. Increased throughput capacity

210. As noted previously, CN determined, through in-depth evaluation, that the need for additional capacity on its network in the GTHA would be up to 450,000 containers annually, and designed the Project to provide that additional capacity in a manner that will maintain customer service levels and integrate with network operations.

211. In their written submissions and during the hearing, the Halton Municipalities have alleged that CN could alter the Milton Logistics Hub to run at a much higher capacity than 450,000 containers a year and have suggested the Panel should therefore assess the potential environmental effects of the Project as if it were constructed and operated at that much higher capacity.

212. To advance this argument, the Halton Municipalities rely on their expert, Mr. John Vickerman. Mr. Vickerman used a very basic planning tool he developed, which he calls "PRISM", to estimate the capacity of the Milton Logistics Hub. First, Mr. Vickerman concluded that the capacity of the terminal as proposed by CN is approximately 461,618 containers; this is generally consistent with the design capacity of 450,000 proposed by CN and independently determined by MM. However, Mr. Vickerman goes on to assert that, with a few design modifications, the terminal could be operated at a capacity of nearly 1 million containers. And a more substantial re-design, in Mr. Vickerman's opinion, "could increase the annual sustainable capacity to considerably more than 1 million containers."[136] Halton Municipalities suggest that it is likely that CN, "as a for-profit entity, would "optimize the throughput of their investment."[137]

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[136] Halton Comments on CN IRs, April 9, 2019 (CEAR #740), pp. 9-10.

[137] Halton Submission Package 3, May 29, 2019 (CEAR #800), p. 7.

213. The Halton Municipalities go on to suggest this inflated container throughput would result in significant adverse environmental effects on numerous components of the natural and human environment that have not been assessed.

214. Halton Municipalities' and their expert's speculations are unfounded for several reasons. First, the expected demand does not justify increasing the proposed design capacity of the Milton Logistics Hub. Even assuming that the Project could be operated at a higher annual capacity, which CN categorically rejects, there is simply no demand to support additional flow on CN's network in southern Ontario. The Halton Municipalities have provided no evidence that there is such demand. In contrast, CN has developed a robust forecast of future demand, which has been independently validated, and the Milton Logistics Hub as proposed, in combination with CN's existing facilities, will have sufficient capacity to accommodate the expected container volumes on CN's network in southern Ontario for the foreseeable future.

215. Second, Mr. Vickerman's analysis is premised on several flawed or incorrect assumptions. For example, Mr. Vickerman assumed that the footprint of BIT is "50% smaller in area than the footprint of the Milton Logistics Hub"[138] (when it is in fact 75% larger) and he further assumed that the operating area footprint of the Project is 400 acres, or more than 250% larger than it is in fact proposed to be. It is on the basis of these and other flawed assumptions that Mr. Vickerman based his suggestion that the Milton Logistics Hub could handle at least 55% more containers than proposed by CN. Mr. Vickerman was clearly taken aback when Mr. Reynolds clarified during the hearing on June 25th, the operating area of BIT is about 75% larger than the proposed operating area of the Milton Logistics Hub; CN provided further clarification of this point in response to undertaking #13. Mr. Vickerman also assumed an incorrect railcar length, which resulted in an overestimation of the number of containers on each train. Other assumptions used in Mr. Vickerman's model were discussed in section 3.4 of MM's Capacity Analysis and Estimate report submitted by CN on May 29th.[139] These inaccuracies underlying Mr. Vickerman's model cast further doubt on his inflated throughput capacity estimates.

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[138] Halton Comments on CN IRs, April 9, 2019 (CEAR #740), p. 1.

[139] Mott McDonald Capacity Analysis and Estimate Report, May 29, 2019 (CEAR #799), s. 3.4, p. 25.

216. Third, Mr. Vickerman used his own PRISM model, which he described as "a planning model, and an approximate model", to estimate the capacity of the Milton Logistics Hub.[140] PRISM does not appear to account for the interrelationships between individual project components and processes or for changes in key operational factors over time (such as daily or seasonal peaks or slow periods in the terminal), and it does not appear to account for real-world variability (such as weather delays). In contrast, MM used the Arena® discrete event simulation model, which captures the relationship between inputs and accounts for temporal and real-world variability. Further, Mr. Vickerman did not have access to or use the commercially sensitive network-specific operations data and information from CN. These data enable a more realistic assessment of capacity at the proposed terminal. Instead, Mr. Vickerman relied on generic industry rules-of-thumb, which are no substitute for actual CN operational information. Thus, while Mr. Vickerman's model can roughly approximate the capacity of the terminal as designed, it cannot accurately account for the effects of design changes on projected annual capacity or for performance on critical metrics, as explained below.

217. Fourth, and perhaps most importantly, Mr. Vickerman's model and Halton Municipalities' assumptions about "throughput optimization" ignore the *raison d'être* for the facility, which is to serve an increasingly demanding, time-sensitive customer base. The Milton Logistics Hub must consistently operate in a manner that provides a high level of customer service – if it does not, the customers will have no choice but to use other shipping options. Through its simulation modeling, MM determined that operating the new terminal beyond the design capacity will have a negative impact on critical customer service metrics, which would undermine the terminal's very purpose.

218. Maintaining high levels of customer service is a fundamental requirement of Project design. The goal of an inland intermodal rail terminal is to move containers in and out as quickly as possible. Grocery retailers and similar customers, for example, require fast turnaround times to get goods to market. CN customers also have other requirements, such as preferred pick-up and drop-off times, which further increase the need for efficiency of operations.

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[140] Mr. Vickerman, Transcript, Volume 4, June 21, 2019 (CEAR #873), p. 756.

219. Milton was designed to address these service needs. As Mr. Lerner explained, CN is not building a warehouse, but a terminal that can process containers with speed and efficiency:

> The objective of the terminal is to get the containers in and out, is to get the truckers to move as quickly as possible and to support our entire supply chain. If we try to "maximize" the containers at the terminal, we end up sub-optimizing the entire supply chain. That's not the goal of the terminal. We're not building a warehouse.
>
> If you take, you know, a simple example, right now in Ontario, it's strawberry season. They're coming off the field. They – Loblaws needs them to get them on the shelves, obviously. Every day counts for them. So when we get -- they're -- you don't see the farmer stacking them in these major warehouses and these aisles and then eventually getting to them. It's the same thing in the terminal. We're not going to put them in piles. We have to get them in and out of the facility, we have to get them to the grocery store, and that's how we keep our business. So that's how it's designed.[141]

220. In summary, the hypothetical inflated container throughput estimates generated by Mr. Vickerman are not supported by the forecast demand, are neither accurate nor realistic, and could not be achieved without fundamentally undermining the purpose of the terminal.

221. CN is investing hundreds of millions of dollars to advance the Milton Logistics Hub. It has not done so lightly. CN has undertaken in-depth market forecasting and design work to ensure the proposed Project will meet CN's anticipated customer, network, and operational requirements for many years to come.

222. On balance, the evidence does not support any reason to accept the fundamentally flawed premise that the Milton Logistics Hub will operate at the inflated throughput capacity suggested by the Halton Municipalities in their submissions. That is, contrary to what Halton Municipalities has stated in Volume 3 of their May 29 submission to the Panel, CN emphasizes that it is ***not*** reasonable to assume that the throughput of the Project could or would exceed the parameters provided by CN.

223. There is therefore no justification for assessing the potential environmental effects of a completely hypothetical Project scenario based on those inflated throughput estimates.

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[141] Mr. Lerner, Transcript, Volume 4, June 21, 2019 (CEAR #873), pp. 689-90.

ii. Increased truck volumes

224. In their written submissions on May 29th, 2019, the Halton Municipalities took their hypothetical throughput capacity estimates a step further, suggesting that the Project would generate many more trucks, up to 1,700 per day, compared to the 800 trucks per day that CN has proposed and assessed. As a result, the Halton Municipalities claim that there would be significant increases in delays, queuing, and congestion on Britannia Road and that the additional trucks will exacerbate the adverse environmental effects of Project-associated truck traffic.

225. These assertions by Halton Municipalities are not supported by the evidence, as outlined above. As there is no reasonable basis for assuming the throughput capacity of the Project could or would be increased, there is also no reasonable basis for assuming the number of trucks entering the terminal to pick up or drop off containers would be increased.

226. CN determined the number of trucks that would serve the Milton Logistics Hub based on specific factors, including the design capacity of the terminal, the total number of containers expected to be destined to or originating from the local market, and the expected carter ratio (the metric of efficiency of container moves by truck, as outlined in CN's response to IR 2.30(b)).[142] CN also considered seasonality and daily and weekly variability. In his second report, included in Volume 3 of Halton Municipalities' May 29 submission, Mr. Vickerman determined that the number of trucks associated with his estimated throughput capacity of the Milton Logistics Hub as proposed by CN would be 812; that is slightly higher than, but generally consistent with CN's own calculation of truck numbers expected to be generated by the terminal, and reflects Mr. Vickerman's use of alternative data inputs, in the absence of CN's actual operational data.

227. Thus, there is no substantive dispute that the Project as proposed would generate the number of trucks already considered by CN in its assessment. There is therefore no justification for assessing the potential environmental effects of completely hypothetical inflated truck numbers that are based on inflated throughput estimates, which, as described above, are themselves not reasonable, realistic, or likely.

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[142] IR 2.30 (CEAR #592).

iii. Terminal equipment and storage

228. Mr. Vickerman has also suggested that CN could utilize different equipment at the new terminal to increase throughput capacity. In particular, Mr. Vickerman stated that use of rail-mounted gantry (RMG) or wide-span cranes at the facility could "effectively double" storage and capacity at the terminal.[143]

229. However, such cranes are ill-suited for the Milton facility. As mentioned above, this is not a facility designed for high volumes of storage like one might see at a coastal port, but for throughput and the efficient movement of goods through the terminal. RMG cranes are often used in coastal port facilities, where the operational priority is to unload and generate large stacks of containers as quickly as possible. This process of stacking containers high and deep is known as densification. But in inland rail-to-truck terminals, where truck turn times are critical, densifying stacks is counter-productive. Higher and deeper stacks mean that trucks wait longer on the pads for their containers to be retrieved, contributing to delays throughout the terminal. The RMG operation often leads to long dwell times at the port, in the order of three to four days and this is considered acceptable by the industry. For an inland terminal, on average, acceptable dwell times are measured in hours, not days. For these reasons, CN does not use RMG cranes at any of its intermodal facilities. In contrast, reach stackers are more operationally flexible and efficient, and allow CN to achieve quick turnaround times.

230. Mr. Vickerman also suggested that throughput capacity could be increased by chassis stacking. While this is a common practice in port terminals, where truck turn-times are not a priority, this practice is not operationally feasible in an inland intermodal terminal. To improve truck turn-times in the facility, CN offers wheeled staging. Wheeled staging means that containers are placed directly onto a chassis and the loaded chassis is parked in an accessible area of the terminal, ready for pick-up by a bobtail truck or a truck that has just delivered a container. This allows drivers to quickly pick up and depart the terminal, decreasing truck wait

[143] Halton Presentation on Project Design, Capacity, Operations, and Alternative Means of Undertaking the Project, July 25, 2019 (CEAR #837), slide 13.

times and minimizing the number of lifts required by terminal reach stacker cranes. This would not be possible if chassis were stacked.

iv. Future expansion beyond 2040

231. Following the presentations by the ports regarding the volumes of international containers predicted to move through ports in the future, the Panel enquired about how CN would accommodate demand for capacity beyond the market forecast horizon of 2040 and whether that would require expansion of the Milton Logistics Hub.[144]

232. As noted previously, the Milton Logistics Hub, in combination with CN's existing facilities, will have sufficient capacity to accommodate the expected container volumes on CN's network in southern Ontario for the foreseeable future. Attempting to forecast container volumes beyond the forecast horizon of 2040 would be highly speculative. As Mr. Lerner stated during his remarks on June 26th,[145] CN cannot at this time predict whether or where potential growth may occur, what our customers might require, or what innovations or new technology might have changed the supply chain. There is a very good chance that additional capacity would be required elsewhere on CN's network. The potential need to expand the Milton Logistics Hub is far from inevitable. In any event, CN would of course follow the appropriate environmental assessment or review processes that are in place at that time, should new or expanded facilities be determined to be required.

233. With respect to facility expansion, the Halton Municipalities have suggested that CN could expand the capacity of the Milton Logistics Hub in the future by implementing the same kind of improvements that CN has implemented at BIT to increase that terminal's throughput capacity.

234. This suggestion is simply wrong – it misunderstands CN's history serving intermodal customers. BIT was one of CN's first intermodal terminals. It was built in 1980 when CN was just beginning to develop intermodal capacity. The design and operational changes that have

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[144] Chair Griffiths, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 622-623.

[145] Mr. Lerner, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1133.

been implemented over the years have enabled BIT to handle additional capacity. However, the Milton Logistics Hub has been designed based on lessons learned from BIT and other intermodal terminals on CN's network – it is optimized from the outset to be a fully modern, state-of-the-art intermodal terminal. It therefore cannot undergo the same upgrades, as those features/improvements are already built into its initial design. As Mr. Lerner said more than once, CN is not building a new BIT – CN has learned a lot from that experience.

PART VIII – HEARING TOPICS – ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT

A. Evidence of CN

235. CN's evidence on this topic is identified below.

EIS GUIDELINES
Section 2 Project Justification and Alternatives Considered
EIS SECTIONS
December 7, 2015 - section 1.3 Project Location (CEAR #57)
December 7, 2015 - section 2.0 Project Justification and Alternatives (CEAR #57)
December 7, 2015 - section 4.4 Summary of Stakeholder Comments (CEAR #57)
TDR
December 7, 2015 – Site Selection Study (Appendix F) (CEAR #57)
IR RESPONSES
May 18, 2016 - CN Response to the CEAA's Information Request 1 (IR6) (CEAR #72)
September 30, 2016 - CN Response to the CEAA's Information Request 2 (IR6) (CEAR #375)
September 30, 2016 - CN Response to the CEAA's Information Request 2 – Appendix A-Technical Memo: Technical and Economic Feasibility (2017) (CEAR #375)
January 23, 2018 - CN Response to the Review Panel's Information Request 2 (IR2.8-IR2.25) (CEAR #592)
January 24, 2018 - CN Response to the Review Panel's Information Request 3 (CEAR #613)
August 20, 2018 - CN Response to the Review Panel's Information Request 7 (CEAR #680)

B. Overview and Conclusions

236. The EIS Guidelines and the Panel Terms of Reference, in accordance with CEAA 2012, both require consideration in the environmental assessment of the Project of "alternative means

of carrying out the project" and the environmental effects of any such alternative means. In particular, the consideration of alternative means is focused on alternative means that are technically and economically feasible.

237. The analysis of alternative means was carried out in accordance with section 2.2 of the EIS Guidelines, which provides, in part:

> The EIS will identify and consider the effects of alternative means of carrying out the project that are technically and economically feasible. The proponent will complete the following procedural steps for addressing alternative means:
>
> - Identify the alternative means to carry out the project.
> - Identify the effects of each technically and economically feasible alternative means.
> - Select the approach for the analysis of alternative means (i.e., identify a preferred means or bring forward alternative means).
> - Assess the environmental effects of the alternative means.[146]

238. The assessment of alternative means is presented in section 2.2 of the EIS, which describes the alternatives for the following Project components:

(a) the location of the intermodal facility (alternate sites);

(b) transportation corridors (truck routes);

(c) truck entrance location;

(d) gate location;

(e) Lower Base Line crossing;

(f) water supply;

(g) wastewater management;

(h) SWM;

[146] EIS Guidelines, July 20, 2015 (CEAR #12), s. 2.2.

(i) utilities; and

(j) Indian Creek realignment.[147]

239. Additional information regarding alternative means, including consideration of alternatives for lift operations and alternative layouts, was also provided in CN's responses to CEAA and Panel information requests.[148]

240. Based on the evaluation of technically and economically feasible alternatives, and the relative consideration of the environmental effects of the alternatives, CN identified preferred means of carrying out the Project, consistent with the guidance provided in the CEA Agency's Operational Policy Statement, *Addressing "Purpose of" and "Alternative Means" under the Canadian Environmental Assessment Act*, dated March 2015 (OPS), and those became the focus of the environmental assessment.

C. Principal Issues Raised

241. During the hearing, the discussion regarding alternative means focused on alternative site and truck entrance locations; these principal issues are discussed below. Alternative equipment for lift operations is discussed in Part VII – "CAPACITY, REQUIREMENTS FOR RAILWAY OPERATIONS AND SERVICES, AND PROJECT DESIGN," above. Alternatives for channel realignment are discussed further in Part XV – "FISH AND FISH HABITAT."

ii. Site Location

242. Throughout the environmental assessment, issues have been raised with respect to the proposed location of the Project. Some parties have suggested that the proposed location is itself not suitable or compatible with neighbouring uses. Issues regarding land use compatibility are addressed in Part X – "LAND USE PLANNING" of this Closing Submission. The suitability of the proposed location with respect to neighbouring land uses is most appropriately considered in the context of the assessment of potential environmental effects of the Project and the extent to

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[147] EIS (CEAR #57), s. 2.2, p. 24.

[148] In particular, see CN responses to CEAA IR1 (IR6-IR8) (CEAR #72); CEAA IR2.6 (CEAR #375); and Panel IRs IR2.8-2.25 and IR2 Appendix A (CEAR #563), IR 7.11 (CEAR #680).

which those effects may extend off site; those issues are addressed in the other Parts of this Closing Submission focused on various components of the natural and human environment. Finally, some parties have suggested that the consideration of alternative locations was not adequate or should have been undertaken by some other method. These issues are discussed in detail below.

243. The evaluation of alternative locations for the Project builds on CN's prior consideration of options for ensuring its network has the capacity to continue to fulfil service obligations and customer requirements. As outlined in section 2.1 of the EIS, in the late 1990s, recognizing the population and goods movement growth trends emerging in southern Ontario even at that time, CN identified a need to plan for expansion of its network. Following an evaluation of land availability and site suitability along its mainline network in the GTHA, CN acquired lands as early as 1999 in south Milton for an intermodal terminal.

244. When CN decided to advance the Project, further work to evaluate alternative sites was undertaken. This evaluation sought first to identify potential sites that would be technically and economically feasible and that would enable CN to fulfil the purpose of the Project. In this regard, as outlined in IR 2.8 (CEAR #563), CN determined that the additional intermodal capacity would be required in the western portion of the GTHA. CN further determined, as described by Mr. Reynolds on June 19th, that, to minimize train congestion on and potential conflict between CN's network, CP's network and Metrolinx's services, a new terminal would need to be located between Doncaster Junction in the east and Bayview Junction in the west.[149]

245. CN then retained Cushman & Wakefield (C&W) to examine land availability along its network between those two points. Referencing a suite of technical, environmental, and socio-economic criteria, C&W examined every segment of CN's mainline between Doncaster and Bayview junctions and determined that only three sectors would be available and potentially suitable for an intermodal terminal. These three sectors encompass the lands on which the Project is proposed to be located. C&W's analysis was summarized in the response to IR 2.7.[150]

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[149] Mr. Reynolds, Transcript, Volume 1, June 19, 2019 (CEAR #860), pp. 62-63.

[150] IR 2.7 (CEAR #592).

246. CN also retained Stantec to evaluate specific site alternatives that had been identified by CN and based on feedback from the community and other stakeholders. This analysis is documented in EIS Appendix F,[151] with supplemental information contained with CN's responses to CEA Agency information requests.[152]. Twelve alternative sites were considered in Stantec's analysis. Of those, six were determined to be beyond Doncaster and/or Bayview junctions and therefore could not enable CN to fulfil the purpose of the Project.[153] An additional four sites were initially determined to be not technically or economically feasible.[154] Those excluded sites did not provide sufficient land parallel to the mainline upon which to build a terminal. Four sites were carried forward for more detailed analysis. As subsequently explained in CN's response to the CEA Agency's additional information requirement IR1,[155] and further in CN's response to the Panel's IR 2.10(c), the application of the technical feasibility criterion for acceptable access track grades led to the elimination of the Halton Hills and North Milton sites as being technically unfeasible.[156] Stantec then carried out a comparative analysis of the remaining sites – North Brampton and South Milton – and determined that the South Milton site was feasible, suitable, and preferred. This conclusion and the rationale for the selection of the South Milton site is documented in EIS section 2,[157] EIS Appendix F,[158] CN's response to CEA

[151] EIS Appendix F (CEAR #57),

[152] See CEAA IR1 (IR6-IR8) (CEARR #37), IR2.6 (CEAR #375), and Panel IRs IR2.10, IR2.11, IR2.25, IR2 Appendix A (all contained within CEAR #563).

[153] EIS Appendix F (CEAR #57), p. 7.

[154] EIS Appendix F (CEAR #57), p. 7.

[155] CEAA IR 1.6, May 18, 2015 (CEAR #72).

[156] IR 2.10, August 22, 2017(CEAR #590).

[157] EIS (CEAR #57), s. 2, p. 23.

[158] EIS Appendix F (CEAR #57).

Agency IR1 and IR2,[159] CN's response to Panel IR2,[160] and CN's response to Panel IR7.[161] Consistent with the guidance provided in the OPS, the South Milton option became the focus of the environmental assessment.

247. Clearly, CN's evaluation of site alternatives has been robust and comprehensive. There are real physical constraints to where a rail facility of this type can be located; the locational flexibility that may be available to other types of projects is simply not available in this case. The new terminal ***must*** be along CN's mainline and it ***must*** be on lands of sufficient size, grade, and configuration to enable safe and efficient movement of container trains into and out of the terminal. It also must be close to the demand it will be serving and have suitable access. The South Milton site meets these requirements. It also meets other important objectives of minimizing potential effects on protected areas, environmentally sensitive land uses, species at risk, archaeological and cultural heritage resources, land use, and infrastructure.

248. On June 25th, Mr. Paquette, a member of Milton Says No, requested information about the model CN used for the purpose of site selection and expressed concern about the transparency of the evaluation and its results.[162] The EIS Guidelines do not specify the need to use a particular model or indeed any model for the purposes of considering alternative means. Rather, the EIS Guidelines outline general steps for this purpose, and the evaluation of alternatives sites, as outlined above, was consistent with that guidance. As Mr. Reynolds indicated on June 25th, the process and results of the evaluation were transparently documented in EIS sections 2.2 and CN's response to IRs 2.8-2.15.[163]

249. Some parties have suggested that the Project is located in south Milton merely because CN owns land there and is not willing to consider purchasing land elsewhere.[164] To be clear, the

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[159] CEAA IR 1, May 18, 2015 (CEAR #72); CEAA IR 2, September 30, 2016 (CEAR #375).

[160] IR 2, May 5, 2017 (CEAR #563).

[161] IR 7, August 20, 2018 (CEAR #680).

[162] Mr. Paquette, Transcript, Volume 4, June 25, 2019 (CEAR #873), pp. 744-748, 855.

[163] EIS (CEAR #57), ss. 6.1-6.2, pp. 107-129; IR 2.8-2.15, August 31, 2017 (CEAR #592).

[164] See community comments at CEAR #401, #411, #544.

Project is located on the lands in south Milton not because CN owns the lands; rather, CN owns the lands there because those lands were determined to be suitable for this kind of railway facility.

250. Halton Municipalities, Milton Says No, and Milton Residents Affected by Intermodal Lines have all opposed the Project's location and have suggested that the North Milton site would be preferable. As explained by Mr. Reynolds on June 19th, construction of a terminal at that location would require the excavation of about 30 million tonnes of material, which would, at typical prices, cost at least $1.5 billion, and would require extensive ground disturbance that would interfere with numerous road and utility crossings, as well as cause more extensive environmental effects.[165] That site would also require significant intrusion into the Greenbelt. For those reasons, the North Milton site was determined to be not feasible.

iii. Alternative truck entrance

251. In their presentation to the Panel on June 25th, the Halton Municipalities expressed concern about the location of the truck entrance and the consideration of alternative means of road access. They suggested that the evaluation of alternative truck entrance locations did not consider constraints associated with the Natural Heritage System ("NHS"), the need for access to a regional road, the effect of the road access on road safety, function, and efficiency, and operational criteria, including maintaining or enhancing multi-modal uses of regional rights-of-way. Each of these issues is addressed in turn below.

252. As explained by Mr. Reynolds on June 25th, CN examined five alternative locations for the truck entrance, including two on Tremaine Road, one on First Line, one on Regional Road 25, and the proposed location on Britannia Road. That analysis is described in response to IR 2.19.[166]

253. With respect to Halton Municipalities' first issue, Mr. Reynolds confirmed that the assessment of alternative truck entrances did in fact consider environmental constraints;

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[165] Mr. Reynolds, Transcript, Volume 1, June 19, 2019 (CEAR #860), p. 68.

[166] IR 2.19, August 31, 2017 (CEAR #592).

specifically, Table 2.1 in Attachment IR 2.19-1 indicates that the assessment considered whether each option could "avoid natural features (i.e., potential to avoid or minimize encroachment on wetlands, woodlands, watercourses, or other natural features)."[167] Halton Municipalities stated on June 25th that the First Line road access option would avoid the natural heritage constraint;[168] that is not correct. CN's assessment determined that all five alternative truck entrances would require at least one crossing of a watercourse (and, by extension, the NHS area associated with it). No identified access option could avoid these features, including the First Line option now raised by Halton Municipalities.

254. With respect to Halton Municipalities' second issue, on June 25th, Halton Municipalities stated that CN "endorsed the feasibility of First Line" in the EIS.[169] They went on to suggest that this means there is no necessity for access to a regional road. This is incorrect. At no time did CN "endorse the feasibility of First Line" for providing road access to the proposed terminal. In fact, CN clearly stated in Attachment IR 2.19-1 that, with respect to First Line, "truck access is not feasible to this gate entrance location." On June 25th, Mr. Reynolds explained that the assessment of truck entrance alternatives considered whether the truck entrance would access a road on which truck traffic is or would be permitted at the start of facility operation. Mr. Reynolds confirmed CN's understanding that trucks are not allowed on First Line. As noted in Attachment IR 2.19-1, the municipality has not planned any upgrades to First Line that would allow trucks.[170]

255. With respect to Halton Municipalities' third and fourth issues regarding the assessment of the effect of the proposed truck entrance on road safety, function, and efficiency, and on operational criteria, such as sight distances, in relation to multi-modal users (such as pedestrians and cyclists), CN notes that these effects were fully considered in the traffic and safety

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[167] IR 2.19, August 31, 2017 (CEAR #592), attachment IR2.19-1.

[168] Ms. De Angelis, Transcript, Volume 4, June 25, 2019 (CEAR #873), p. 768.

[169] Ms. De Angelis, Transcript, Volume 4, June 25, 2019 (CEAR #873), p. 768.

[170] IR 2.19-1 (CEAR #592).

assessments provided as Attachments IR 2.33-1 and 2.33-2.[171] Specifically, CN retained BA Group to carry out an assessment of the potential effects of the proposed truck entrance on the function and efficiency of the road network, and CN retained True North Safety (TNS) to carry out an assessment of the potential effects of the proposed truck entrance on road safety. Both of these assessments considered vehicular, pedestrian, and cyclist movements.

256. Halton Municipalities stated on June 25th that "CN decided on access without considering or applying the 2015 access guideline."[172] That is incorrect. In Attachment IR 2.33-1, BA Group provided a proposed design of the proposed truck entrance based on the 1999 Transportation Association of Canada Geometric Design Guide for Canadian Roads and the Ontario Ministry of Transport's Ontario Traffic Manuals.[173] The Region's 2015 access management guidelines also based its intersection design elements on these manuals. CN's consideration of the Region's access management guidelines was also described in the response to IR 6.[174]

257. Halton Municipalities also stated "CN has not provided a comprehensive study of the implications of truck movements at the proposed access"[175] and, further, that they "have not had the opportunity to assess adequately information from CN" regarding the potential effects of the proposed truck entrance on traffic and road safety;[176] we submit that these assertions are incorrect. The traffic and road safety assessments, including the proposed truck entrance intersection design, which comprehensively address potential effects on road safety, function, efficiency, and operational criteria, have been available to the Halton Municipalities since

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[171] IR 2.33-1, 2.33-2 (CEAR #592).

[172] Ms. De Angelis, Transcript, Volume 4, June 25, 2019 (CEAR #873), p. 766.

[173] IR 2.33-1 (CEAR #592).

[174] IR6.1 (CEAR #714).

[175] Ms. De Angelis, Transcript, Volume 4, June 25, 2019 (CEAR #873), p. 769.

[176] Ms. De Angelis, Transcript, Volume 4, June 25, 2019 (CEAR #873), p. 782.

August 2017.[177] These studies show that the proposed truck entrance, which is aligned with a planned intersection on Britannia Road, can be operated safely and efficiently, without significant adverse effect on the function on the road network in this area.

258. CN has also committed to pay for the necessary intersection upgrades and to continue to engage the municipality, as it has done successfully in relation to many other infrastructure projects in the Region, to address the road authority's issues in the design of the intersection.

PART IX – HEARING TOPICS – ACCIDENTS AND MALFUNCTIONS AND RISK MANAGEMENT

A. Evidence of CN

259. CN's evidence on this topic is identified below.

EIS GUIDELINES
Section 6 (Part 2) Effects Assessment
EIS SECTIONS
December 7, 2015 - section 6.6.2 Effects of Potential Accidents and Malfunctions (CEAR #57)
IR RESPONSES
May 18, 2016 - CN Response to the CEAA's Information Request 1 (IR3) (CEAR #72)
January 23, 2018 - CN Response to the Review Panel's Information Request 2 (CEAR #592)
March 21, 2018 - CN Response to the Review Panel's Information Request 2 (CEAR #592)
May 18, 2018 - CN Response to the Review Panel's Information Request 5 (IR5.19-5.24)(CEAR #647)
June 12, 2018 - CN Response to the Review Panel's Information Request 4.2 (Group 2) (CEAR #654)
UNDERTAKINGS
June 26, 2019 - CN Response to Undertaking 4 (CEAR #877)
June 28, 2019 - CN Response to Undertaking 11 (CEAR #890)
July 9, 2019 - CN Response to Undertaking 26 (CEAR #932)

[177] Additional clarification was provided in IR 4.62, June 12, 2018 (CEAR #654) and IR 8.4, March 1, 2019 (CEAR #722).

B. Overview and Conclusions

260. As CN outlined on June 25th, CN's focus on continuous risk reduction is evident in CN's robust risk management framework and in the site-specific design, preventative measures, response plans, and mitigation measures proposed to be implemented for the Project.

261. During the hearing, Mr. Beekman described CN's network-wide safety management system. As he noted, CN's systems-based approach to safety is similar to other leading safety organizations, as was highlighted in the 2018 *Railway Safety Act* review.

262. Mr. Beekman described CN's vision to be the safest railroad in North America by establishing an uncompromising safety culture that leads to sustained leadership in safety. CN invests significantly in training, coaching, recognition and employee engagement initiatives in order to strengthen our safety culture.

263. Mr. Beekman also described CN's risk management processes and investments in risk assessment practices and technology, including types and frequency of track inspections, that go above and beyond regulatory requirements. For example, CN has the most dense network of wayside inspection systems of any Class I railroad. And CN is implementing innovative technology that further improves on these existing risk reduction measures.

264. Mr. Beekman also outlined CN's significant investments in track and equipment maintenance. As he emphasized, "a well maintained operation is a safe operation."[178] CN has planned to invest $320 million in Ontario in 2019 for track, track infrastructure, bridges and culverts, signal systems, and crossing improvements.

265. Mr. Beekman also described how CN works with shippers to help define safe container loading practices, trains shippers on those practices, and then helps to ensure those practices are being followed. This strategy helps to further reduce the risk of intermodal incidents.

266. CN has a team of highly trained, highly skilled emergency response specialists that are available 24/7. These specialists are active in ensuring site emergency plans are well developed, practiced, and effective. However, CN also collaborates and partners with literally thousands of

[178] Mr. Beekman, Transcript, Volume 4, June 25, 2019 (CEAR #873), p. 831.

other response specialists across the network that include private contractors, industry specialists, and very importantly, our community partners. Since 2016, CN has trained over 10,000 municipal responders, including between 2014 and 2018, 247 first responders within the Halton Region. CN's response plans include both an overarching network plan and facility-specific plans that are compliant with applicable federal regulations.

267. During the presentation on June 25th, Ms. Patterson described how CN's network-wide risk and safety management systems have been and will be brought to bear on the design, construction, and operation of the Project. She described the design features, equipment, personnel training, and prevention and response planning that will be implemented to minimize the risk of incidents and the consequences if an incident were to occur.

268. CN's assessment included consideration of the potential environmental effects of plausible accidents or malfunctions that could occur during the construction and operation of an intermodal terminal. The scenarios that were considered included hazardous materials spills, spills from an intermodal container, traffic accidents at the truck entrance (where the volume of Project-associated truck traffic and the risk of a Project-induced accident would be highest), train derailment inside the terminal, and fire.

269. For each of these potential accidents, CN considered a reasonable worst-case scenario that could occur. The assessments considered operational characteristics of the terminal, such as low speeds of train and vehicular traffic and the very low volumes of dangerous goods that would be handled, as these aspects serve to reduce the likelihood of accidents, as well as their severity, if an incident were to occur. The assessment also considered design features, such as the long, straight tracks that minimize train movements, the stormwater management system, which incorporates containment mechanisms, and separation from watercourses, wildlife habitats, and residential areas, all of which contribute to reducing risk.

270. Taking these operational and design factors as well as mitigation measures into account, including proposed prevention and response measures, CN determined that the effects of accidents would be minor and limited in extent, duration, and frequency. No significant residual adverse effects were predicted to occur as a result of any accident. The probability of an accident occurring is low, and the probability of a severe accident occurring is even lower.

C. Principal Issues Raised

i. Risk and rate of incidence

271. In his written report (which formed part of the Halton Municipalities' written submission on May 29) and in his presentation on June 25th on behalf of the Halton Municipalities, Dr. Bercha estimated the number and frequency of accidental events that, in his view, would likely occur over 40 years of operation of the Project. Dr. Bercha stated that there would be "multiple irregular events" at the site, including ten derailments, 87 dangerous goods accidents, including three potentially fatal dangerous goods accidents, and 57 on-site and 17 off-site fires.[179]

272. As explained by Mr. Beekman on June 25th, Dr. Bercha's analysis was based on a number of flawed assumptions and errors, and consequently significantly overstates both the likelihood and the severity of accidents and malfunctions.[180]

273. For example, Dr. Bercha based his estimates on statistics for the entire rail industry, not just intermodal terminals; given the very different operational characteristics of intermodal terminals compared to, say, mainline train traffic, this approach is inappropriate.

274. Dr. Bercha also appears to make the assumption that all accidents are serious, and includes in his analysis incidents that by the Transportation Safety Board's (TSB) definitions, result in minimal consequences, such as no damage, no fires, no releases, and no injuries.

275. Dr. Bercha also bases his estimates on the number of dangerous goods accidents, but this significantly over-represents the number of accidents that actually result in a dangerous goods release. A dangerous goods accident does not mean there is a release. Since the year 2000, across all of CN's intermodal terminals, CN has had ***zero*** train collisions or derailments that resulted in a dangerous goods release under TSB's definition. Dr. Bercha also used the number of incidents reported under an old TSB definition to calculate an incident rate that he then applies to predict the frequency and number of more serious incidents under TSB's new, narrower

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[179] Halton Presentation on Accidents, Malfunctions, and Emergency Preparedness, June 25, 2019 (CEAR #839), slide 17; Transcript, Volume 4, June 25, 2019 (CEAR #873), p. 957.

[180] Mr. Beekman, Transcript, Volume 4, June 25, 2018 (CEAR #873), pp. 846-849.

definition. Dr. Bercha's report also assumes that 20 percent of all dangerous goods accidents start fires, then adds another fire per year, each year, due to other reasons, and concludes that one would expect 1.4 fires per year at the Project as a result of an accident or other cause. There is no technical basis for these assumptions and his estimates do not match CN's actual operational data; CN has had ***zero*** fires as a result of a train accident across all our intermodal terminals.

276. In fact, the risk of a serious accident in an intermodal terminal is very low, and the risk of an accident that has off-site consequences is even lower. This point is reinforced by the very low volumes of dangerous goods to be handled at the site and the separation between the operating area of the terminal and surrounding residential areas, both discussed further below.

ii. Dangerous goods types and volumes

277. In their written submissions and presentation, the Halton Municipalities have highlighted the types and volumes of dangerous goods that may be handled at the Milton Logistics Hub. They suggested that more than 3% of the containers handled at the Milton Logistics Hub may contain dangerous goods.[181] In Volume 2 of their Brief filed May 2019, they refer to the presence of "many tanktainers", include information regarding ethanol contained in tanker trucks and tank cars, and, in their presentation, use a tanker truck to illustrate the types of dangerous goods that may be handled on site.[182] This information is inaccurate and misleading.

278. The Milton Logistics Hub will not handle bulk dangerous goods in rail cars or tanker trucks. The number of containers to be handled at the site that are ISO containers (or "tank-tainers") is very low, about **0.7**%, and the proportion of those that contain dangerous goods is even lower, about **0.3**% of total container volume. Most ISO containers carry non-dangerous goods, such as juice and milk. As discussed on June 25, CN has prohibited from its intermodal

[181] Halton Presentation on Accidents, Malfunctions, Risk Management and Preparedness, June 25, 2016 (CEAR #839), slide 7.

[182] Halton Brief on the SAEES, Volume 2, May 29, 2019 (CEAR #800), p. 359.

service certain dangerous goods that are more hazardous, which further reduces the risk profile of an intermodal terminal.[183]

279. CN has been clear that the proportion of containers handled on its network that contain dangerous goods is 2.7%; CN has also clarified that dangerous goods are often only a small portion of the contents of those containers, and that the dangerous goods carried are most often common household products in small packages.

iii. Derailments

280. In their written submission, Halton Municipalities state that "the Halton Municipalities and CN agree that Project activities could result in derailments both inside and outside the terminal."[184] This is not accurate.

281. At no time has CN stated that the Project could result in derailment outside the terminal. In fact, CN stated that the risk of derailment on the mainline would be reduced with the implementation of a grade separation at the Lower Base Line crossing of the mainline.[185] CN also clearly stated that potential derailments within the terminal are expected to be minor in nature with limited consequences, because locomotives would be travelling at low speeds (i.e., maximum 15 mph or less, usually at speeds of 5-8 mph). Transport Canada concurred with this assessment, acknowledging that derailments in a yard are at slow speeds (under 15 miles per hour) and the consequences are relatively minor.[186]

iv. Compliance

282. In their written submissions and presentation, the Halton Municipalities repeatedly state that CN and/or the Project is not compliant with various legislation, regulations, and codes pertaining to safety and the transportation of dangerous goods. On the basis of these assertions,

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[183] Mr. Lerner, Transcript, Volume 4, June 25, 2019 (CEAR #873), p. 937; see also IR 2.37-1, August 31, 2017 (CEAR #592).

[184] Halton Brief on the SAEES, Volume 2, May 29, 2019 (CEAR #800), pp. 270, 274.

[185]EIS (CEAR #57), s. 6.6.2, p. 299.

[186] Mr. Jeans, Transcript, Volume 4, June 25, 2018 (CEAR #873), p. 936.

in part, Halton Municipalities conclude the Project will have significant adverse environmental effects on safety. These statements are inaccurate and misleading.

283. Many of the referenced laws, regulations, codes, and other standards are not yet applicable, given the stage of the Project, and some may never be (for example, Dr. Bercha referenced US regulations in his presentation that would never apply to the Milton Logistics Hub). As Mr. Beekman unequivocally stated on June 25th, the Project will fully comply with regulatory requirements during construction and operation.[187]

284. It is normal practice to develop site-specific emergency response plans only once final design is completed and prior to facility commissioning. Only at that time, and during operation, would it be appropriate to assess compliance.

285. There are robust mechanisms in place to ensure compliance. Transport Canada concluded that the "project as proposed… can be undertaken in a manner that is consistent with our regulatory framework."[188] Transport Canada also stated that the mitigation measures within the EIS and CN's response to the Panel's IR5 (in particular 5.21(c)) are consistent with the requirements of the *Transportation of Dangerous Goods Act* regarding emergency response. [189]

286. Dr. Bercha acknowledged during his oral testimony that CN "may well be compliant by the time they finish the design and go on with specification before the project is actually activated."[190]

287. There is no reason to believe that CN would not comply with regulatory requirements. As Mr. Beekman stressed, "what we at CN want in running our railroad is to keep our employees, our customers' goods, and the communities in which we operate, safe."[191] He went

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[187] Mr. Beekman, Transcript, Volume 4, June 25, 2018 (CEAR #873), p.849.

[188] Mr. Jeans, Transcript, Volume 4, June 25, 2018 (CEAR #873), pp. 905-906; see also Transport Canada Submission, May 29, 2019 (CEAR #793), p. 8.

[189] See IR 5.21(c) (CEAR #655)Transport Canada Presentation, June 25, 2019 (CEAR #829), slide 7; Mr. Jeans, Transcript, Volume 4, June 25, 2018 (CEAR #873), p. 902.

[190] Dr. Bercha, Transcript, Volume 4, June 25, 2018 (CEAR #873), p. 979.

[191] Mr. Beekman, Transcript, Volume 4, June 25, 2018 (CEAR #873), pp. 825-826.

on to say "CN aspires to be the safest railroad in North America and we make significant investments every year to run a safe and fluid operation, which includes investments in our people, and technology, and in infrastructure."[192]

v. Separation distances

288. In their presentation on June 25th, the Halton Municipalities/Dr. Bercha showed a number of maps that illustrate zones of 300 metres and 1,000 metres around the PDA and used these figures to suggest that there was inadequate separation between the Project and neighbouring land uses. Mr. Benson from the Halton Municipalities, referred to the 1,000 metre zone when he suggested that 30,000 people would be affected by the Project.[193] There are a number of problems with these assertions.

289. First, as acknowledged by Mr. Benson, the 1,000 metre zone is simply an area or zone of potential influence, within which "provincial guidance suggests that's the area by which we want to examine more closely the specific nature of the impacts of the facility on sensitive receptors."[194] CN in fact took a more sophisticated VC-specific approach to determining study area and assessment boundaries. As described in section 6.2.4 of the EIS, CN established spatial boundaries for each VC which encompassed the geographic range over which the Project's potential environmental effects, including cumulative effects, may occur, recognizing that some environmental effects will extend beyond the PDA.[195] In some cases, such as for air quality, the study area boundaries extended well beyond 1,000 metres.[196] The assessment then clearly described where changes in the physical environment and effects to VCs would occur, whether these are within or outside of the PDA. We therefore submit that the extent of the Project's

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[192] Mr. Beekman, Transcript, Volume 4, June 25, 2018 (CEAR #873), p. 826.

[193] Mr. Benson, Transcript, Volume 5, June 26, 2018 (CEAR #879), pp. 1306-1307.

[194] Mr. Benson, Transcript, Volume 5, June 26, 2018 (CEAR #879), pp. 1306-1307.

[195] EIS (CEAR #57), s. 6.2.4, p. 120.

[196] In the case of air quality, 20km by 20km grid surrounding the PDA was used as the study area boundary.

effects, taking mitigation into account, is well understood and documented and is (based on the data) far more limited in extent than suggested by the Halton Municipalities' figures.

290. Second, the separation zones have been inappropriately interpreted and applied. The drawings provided by the Halton Municipalities do not consider the different types of activity that will be occurring in the terminal compared to within the existing right-of-way or on regional roads. Halton Municipalities describe the zones as being pertinent to a heavy industrial facility. However, the operating rail yard area of the intermodal terminal itself, where container transfers will occur, is located only in the area between Britannia Road and Lower Base Line. Yet the Halton Municipalities show a 300 metre heavy industrial facility separation zone all along the existing mainline as far north as Derry Road. Container transfers will not occur on the tracks north of Britannia Road; the train movements that will occur on the tracks north of Britannia are very similar to train movements that already occur on the existing mainline in that area today. Given that the municipalities approved residential land use in these areas within 300 metres of the existing mainline tracks, which have been there for more than 100 years, and on which a greater variety and higher volume of dangerous goods already move every day, any suggestion from them that a 300 metre separation distance between the rail tracks and the subdivision is now required is completely unjustified. In fact, the municipalities' approval of residential development much closer to the mainline than 300 metres signals their understanding of the effectiveness of standard setback mitigation measures, such as noise barriers, and the acceptably low risk profile associated with rail traffic and this kind of rail facility. Importantly, the evidence is also clear that the operational footprint of the facility (as shown in Undertaking 13) will be more than 300 metres from the nearest or existing residential community.[197]

291. Ms. Iacono from the Port of Montreal shared examples of how intermodal facilities at that port co-exist with residential development, including proposed new condominium developments adjacent to the tracks. Moreover, CN's March 15, 2017 letter to the Panel points to

[197] CN Response to Undertaking 13, July 3, 2019 (CEAR #922).

several intermodal facilities (including those in Vancouver and Edmonton) that have operated near residential developments for years.[198]

292. Dr. Bercha showed a similar drawing of 300 metre and 1,000 metre zones around CN's Calgary Logistics Park to illustrate the absence of residential areas within the 300 metre zone around that facility. As indicated above, if the same 300 metre zone were to be drawn around the Milton Logistics Hub using the same terminal operating area, it would have shown that no residences will be located in that zone when the Project is in operation.

293. Dr. Bercha also referred to an 800 metre exclusion zone. This is not a required setback distance for a facility; rather it is a precautionary worst-case scenario perimeter that would temporarily be set by the first responder in the event of a release. Exclusion zones are established, if necessary, based on the Material Safety Data Sheet (MSDS) for the substance released. An 800 metre zone would be appropriate for a large fire involving ethanol; however, that is not an incident that is likely to occur in an intermodal terminal. As noted by Mr. Beekman, ISO containers of ethanol, which would represent the largest single volume of a container, represents less than 1/100th of 1 percent of all intermodal containers. Moreover, site-specific emergency response plans would address the release of a flammable liquid such as ethanol. CN has never needed an 800 metre exclusion zone around an intermodal terminal because CN has never had a collision or derailment that has led to dangerous goods release in an intermodal facility (as far back as digital data are available) and there has never a been a fire as a result of a dangerous goods release across all CN intermodal terminals. That experience is consistent with the relevant TSB data, when properly interpreted.

PART X – HEARING TOPICS – SOCIO-ECONOMIC CONDITIONS: LAND USE PLANNING

A. Evidence of CN

294. CN's evidence on this topic is identified below.

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[198] CN Letter to the Panel, March 15, 2017 (CEAR # 547).

EIS GUIDELINES

Section 6 (Part 2) Effects Assessment

EIS SECTIONS

December 7, 2015 - section 2.2.4 Summary of Alternatives Assessment (CEAR #57)

December 7, 2015 - section 6.3.9 Socio-economic Conditions (CEAR #57)

December 7, 2015 - section 6.5.5 Socio-economic Conditions (CEAR #57)

December 7, 2015 - section 6.6.1.5 Assessment of Cumulative Environmental Effects on Socio-economic Conditions (CEAR #57)

December 7, 2015 - Table 7.1: Summary of Environmental Effects Assessment (CEAR #57)

December 7, 2015 - section 8.0 Benefits of The Project (CEAR #57)

December 7, 2015 - sections 9.4.9 to 9.4.11 Follow-up (CEAR #57)

TDR

December 7, 2015 – Planning Justification Report (Appendix E.11) (CEAR #57)

December 7, 2015 - Technical Data Report Human Socio-economic Baseline (Appendix E.12) (CEAR #57)

December 7, 2015 – Site Selection Study (EIS Appendix F) (CEAR# 57)

IR RESPONSES

May 18, 2016 - CN Response to the CEAA's Information Request 1 (CEAR #72)

September 30, 2016 - CN Response to the CEAA's Information Request 2 (CEAR #375)

March 21, 2018 - CN Response to the Review Panel's Information Request 2 (CEAR #592)

June 15, 2018 – CN Response to the Review Panel's Information Request 4 (Group 3) (CEAR #656)

May 18, 2018 - CN Response to the Review Panel's Information Request 5 (CEAR #647)

August 20, 2018 - CN Response to the Review Panel's Information Request 7 (CEAR #680)

December 19, 2018 – CN Response to Review Panel's Information Request 8 (IR8.19) (CEAR #705)

March 1, 2019 – CN Response to the Review Panel's Information Request 8 (IR8.4) (CEAR #722)

March 22, 2019 – CN Response to the Review Panel's Information Request 8 (IR8.4, 8.5) (CEAR #732)

OTHER MATERIALS

June 27, 2019 - CN Response to Undertaking 14 (CEAR #886)

B. Overview and Conclusions

295. Section 6.3.5 of the EIS Guidelines require the EA to consider the potential effects of the Project on the identified Valued Component, Socio-Economic Conditions, which encompassed a range of topics, including human health, human safety, recreational activities, existing municipal and regional land use planning, including present and approved land uses, and archaeological and cultural heritage resources. This section addresses the assessment of potential effects on the specific sub-components of land use and land use planning, including agriculture and recreation. The potential environmental effects on other sub-components of the Socio-Economic Conditions VC (health and safety, community services and infrastructure, and archaeological and cultural heritage resources) are discussed in Parts IX, XI, XII, and XVII.

296. Section 6.5.5 of the EIS presents an assessment of the potential effects of the Project on socio-economic conditions, including the change in community services and infrastructure and change in availability and types of land and resource use activities in the PDA.[199] Additional information regarding the potential effects of the Project on land use and land use planning, including agriculture and recreation, was provided in CN's response to IRs 4.11-4.13, 4.19-4.22, and 7.12.[200]

297. In evaluating the potential effects of the Project on land use and land use planning, including their significance, CN considered, among other things, whether the proposed use of land for the Project would be compatible with adjacent existing and planned land uses and whether the effects of the proposed use of the land would restrict or degrade present land uses.

298. While agriculture is currently the predominant land use in the PDA, the majority of the PDA has been planned as employment lands and/or future strategic employment lands by the Town of Milton and the Halton Region through ROPA 38. Halton Region also operates the Halton Region Waste Management Facility within 350 metres of the PDA and within 650 metres of the planned Boyne residential community. The land on which the Project is proposed to be located is currently owned by CN and leased to farmers through mutually exclusive agreements.

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[199] EIS (CEAR #57), s. 6.5.6, p. 231.

[200] CN's response to IR 4 (Group 3), June 15, 2018 (CEAR #656) and IR 7, August 20, 2018 (CEAR #680).

While agricultural land use continues currently, the lease holders are aware of the temporary nature of such agreements. The Project will result in the cessation of agricultural activity on the lands developed for the Project, but agricultural activity will continue on the adjacent lands until such time as the Town and Region facilitate urban uses. Furthermore, the construction and operation of the Project will have no direct or indirect impact to surrounding agricultural land uses. Adjacent agricultural activities are not anticipated to be adversely affected by changes in light, noise, air quality, groundwater, or surface water from the Project.[201]

299. Recreational uses within the Local Assessment Area include cycling, trails and pathways, parks and campgrounds, golf courses and the Niagara Escarpment. However, with the exception of road cycling that occurs on Britannia Road and Lower Base Line, none of these activities occur within the PDA. None of the roads surrounding the Project are part of the existing regional cycling network and no dedicated bike lanes exist on these roads. However, the Active Transportation Master Plan (2015) identifies Lower Base Line as part of the future regional cycling network where it crosses through the PDA.[202] Cycling on roadways that surround the PDA will continue and the proposed grade separation at Lower Base Line, which would include separated pedestrian and cyclist lanes at the request of the Town of Milton, will improve the fluidity and safety of cyclist use in this area. Further, the design of CN's truck entrance that is aligned with the Region's planned intersection on Britannia Road will accommodate cycling and the bike lanes proposed by the Region through the planned upgrades to Britannia Road from 2 to 6 lanes.

300. CN has proposed a suite of mitigation measures that would mitigate potential adverse effects on agricultural and recreational land uses. Taking these measures into account, the Project is not expected to have a significant residual adverse environmental effect on land use or land use planning.

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[201] CN's response to IR4.21 (CEAR #656)

[202] CN's response to IR7.12 (CEAR #680)

C. Principal Issues Raised

i. Land use planning

301. Section 6.3.5 of the EIS Guidelines require the EA to consider effects to existing municipal and regional land use planning, including present and approved land uses.[203] To address this requirement, CN retained Bousfields to review provincial and municipal policies and plans pertaining to land use, including those of Halton Region and the Town of Milton. Bousfields examined how those policies and plans address goods movement and intermodal infrastructure and facilities generally, as well as how the plans address the specific lands on which the Project is proposed to be located. As described by Mr. Bissett on June 26th, as well as in CN's written submissions, the Project is well-aligned with provincial and municipal policies that support, encourage, and prioritize goods movement and recognize the need for and importance of maintaining and accommodating transportation corridors and intermodal infrastructure within the urban structure. Mr. Bissett also concluded that the Project as proposed would be consistent with the existing and planned uses of the lands on which it is located, as well as adjacent lands.[204] Mr. Johnston, a highly qualified professional planner who independently reviewed Mr. Bissett's work, concurred with these findings in his peer review.

302. In contrast, the Halton Municipalities have asserted that the Project is entirely inconsistent with planned land uses in the area and would have a significant adverse environmental effect on land use planning. These assertions are not supported by the evidence.

303. Rail infrastructure is supported and encouraged by relevant provincial, regional, and municipal policy and planning documents, as highlighted in CN's land use presentation on June 26th.[205] These documents recognize the importance of rail facilities, including intermodal facilities, for efficient goods movement and expressly prioritize these uses in planning. These documents explicitly direct municipalities to provide for intermodal linkages for the purpose of

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[203] EIS Guidelines (CEAR #12). s. 6.3.5.

[204] Mr. Bissett, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1255.

[205] CN Presentation on Land Use Planning and Economic Issues, 26 June, 2019 (CEAR #845). Slides 17-19.

goods movement. Accordingly, both the Region's and the Town's Official Plans explicitly encourage rail service for the purpose of goods movement. Given that facilities for goods movement by rail must be located where the rail is, it is difficult to see how the Region or the Town can argue that the Project is inconsistent with the express support articulated in their Official Plans.

304. The Town of Milton's planning objections also appear to be inconsistent with the Town's own emphasis on intermodal-dependent logistics and warehousing as a key economic driver now and in the future. The Town of Milton's own employment lands needs assessment study, which was described by Ms. Koopmans on June 26th,[206] concluded "Milton has experienced strong growth in the distribution and logistics sector and going forward this will likely continue given the supply of large parcels with excellent vehicular accessibility." And further "A large share of future industrial employment growth is expected to be driven by the goods movement sector, which includes transportation activities as well as warehousing, storage and logistics companies and transportation support activities." These findings would suggest that the Town of Milton not only is aware of the growth of intermodal-dependent economic activity in the Town, but has encouraged and is planning for it.

305. As noted previously, CN's ownership of these lands and its intention to develop them for rail-based infrastructure, including an intermodal terminal and/or rail-served industrial park, has been clear for nearly 20 years. While the specific plan for the lands has evolved over that time, the general intent to develop rail-based infrastructure has not changed, and the Halton Municipalities cannot say they were not aware either of CN's ownership or planned use of these lands. Halton Region has acknowledged that they accepted and used CN's input regarding a rail-served industrial park on these lands when they amended the Regional Official Plan (ROP) in 2009.[207] Further, the Halton Region relied on CN's plans as a rationale for extending the urban boundary to partially encompass the PDA in 2009.[208] Clearly, the Halton Municipalities took the

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[206] Ms. Koopmans, Transcript, Volume 5, June 26, 2018 (CEAR #879), p. 1295.

[207] Mr. Johnson, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1160.

[208] Mr. Benson, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1261.

intended use of these lands for rail-based infrastructure into consideration in their planning, including the most recent Regional Official Plan Amendment (ROPA) 38.

306. The Panel has sufficient air, noise, and light impact studies to assess land use compatibility. In the opinion of Mr. Johnston, these studies confirm the compatibility of the Project with surrounding residential and sensitive uses.

307. Despite being aware of CN's proposed use of the lands for rail-based infrastructure, and the direction provided by the provincial, regional, and municipal policy and planning documents described above to protect and encourage rail facilities and transportation corridors for goods movement, the Town appears to now be contemplating "knowledge-based and technology-oriented research and development employment uses" for CN-owned lands adjacent to CN's existing mainline.[209] To be clear, however, the Town has carried out no secondary planning for these lands, and such land uses are not specified in any official plan.

308. The Halton Municipalities also appear to be inconsistent in their planning assertions about the use of the CN-owned lands. On the one hand, the Halton Municipalities argue they have assumed a certain number of jobs and a certain amount of development charges (DCs) that will accrue from these lands, yet on the other hand, they argue they have taken no traffic from these lands into consideration in their transportation planning. It is not credible to suggest that development could generate 1,500 jobs and tens of millions of dollars in DCs, and yet generate no traffic.

309. In fact, in 2008, three years before Halton Region prepared its Transportation Master Plan in 2011, which acknowledged CN's plans to operate an intermodal terminal at this location, the Halton Municipalities had been provided with and were aware of CN's traffic projections that could be expected from the first phase of development of rail-served industrial park, and were also aware of the planned build-out of that facility.

310. Indeed, in the 2009 Urban Strategies working paper for Halton, which again identifies CN's plans for an intermodal terminal at this location, the authors wrote that "200 gross hectares

[209] Halton Submissions Package 1, May 29, 2019 (CEAR #800),

of employment land are located around the rail line along Tremaine Road in south Milton, to take advantage of opportunities for rail-oriented goods movement."[210]

311. Finally, as many parties have noted, the planning process contemplates change;[211] that is why the municipal Official Plans are required to be updated regularly, every five years, to reflect changing circumstances and to maintain conformity with higher order provincial and regional planning documents. In fact, the Panel has heard that the municipalities will have to update their Official Plans by 2022 regardless of the status of the Project. The Panel has also heard that other types of municipal plans, such as financing and road plans, are updated even more frequently. Mr. Benson suggested that the Project would require Halton Region to "revisit" their plan, and asserted that this alone would constitute a significant adverse environmental effect.[212] Given that the Halton Municipalities have been aware of proposed rail-based infrastructure on these lands for nearly 20 years, and have already taken aspects of those proposals – such as job creation and development charges – into consideration in previous planning, taking those proposed rail-based uses into consideration in the planning updates can hardly be supposed to be a significant adverse environmental effect. The Halton Municipalities have provided no evidence that suggests that incremental adjustments to its planning would result in an adverse environmental effect within the meaning of s. 5 of CEAA 2012. In fact, arguably, Halton Municipalities ought to have already considered CN's planned intermodal terminal at this location in all relevant plans, especially where such plans specifically identify and recognize CN's future use of this site (i.e., Transportation Master Plan 2011, Land Needs Study 2009, Bronte Creek Watershed Study 2002).

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[210] *Concepts for Addressing Halton Region's Land Needs to 2031*, Urban Strategies (Prepared for Halton Region, April 13, 2009).

[211]See, e.g., Mr. Bissett, Transcript, Volume 5, June 26, 2019 (CEAR #879), p.1214; Ms. Jacob, Transcript, Volume 5, June 26, 2019 (CEAR #879), p.1166; Mr. Lyons, Transcript, Volume 5, June 26, 2019 (CEAR #879), p.1243; Ms. Koopmans, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1301.

[212] Mr. Benson, Transcript, Volume 5, June 26, 2019 (CEAR #879), pp. 1263-1264.

ii. Compatibility with neighbouring land uses

312. The Halton Municipalities have asserted that the Project is and will be incompatible with existing and planned land uses in the area, including agricultural and residential uses. This assertion also is not consistent with the Halton Municipalities' own planning decisions.

313. CN has owned and operated its mainline track through this area for more than 100 years. The type of train movements that are proposed to occur in the right-of-way between Derry Road and Britannia Road and south of Lower Base Line already occur in these areas. Trains move through, they slow down and speed up, they stop, they idle, all in the normal course of accommodating two-way train movement on this subdivision. The Halton Municipalities were aware of these train movements when they decided to approve residential land uses in the Sherwood, Bristol, and Boyne neighbourhoods. Moreover, the Halton Municipalities have been aware, for nearly 20 years, of CN's ownership and intended use of the lands between Britannia Road and Lower Base Line for rail-based infrastructure; all but one (Bristol) of the neighbourhoods adjacent to CN's mainline were approved more recently than that. It is therefore inconsistent for Halton Municipalities to suggest that the rail-based infrastructure and activity is somehow incompatible with those residential uses. Rather, it is reasonable to conclude that the municipalities' past approval of residential development in the area indicates an understanding and acceptance of the fundamental compatibility of these land uses.

314. The lands on which the Project is proposed to be located have been designated by the Halton Municipalities as employment lands and/or future strategic employment lands. Moreover, the lands are, in their entirety, designated as a Provincially Significant Employment Zone. The planned use of these lands for employment uses at some time in the future is not in dispute. The local planning framework allows for a wide variety of uses on employment lands. The proposed intermodal terminal is an employment use and would not in any way preclude any other kind of employment use, including "knowledge-based and technology-oriented research and development employment uses," from locating on adjacent employment lands. In fact, the Panel has heard how the Project is likely to attract high-value employment uses to the area, which is aligned with the Town's own growth plans.

315. As noted previously, the Panel has seen examples of how intermodal facilities can co-exist with residential development, including proposed new high-value condominium

developments that are being located directly adjacent to the tracks, as shown by Ms. Iacono from the Port of Montreal.[213]

316. As discussed in depth in CN's written filings and oral evidence, the potential environmental effects of the Project on neighbouring land uses have been comprehensively assessed and mitigated. No fundamental incompatibility with existing or planned land uses has been identified. The issue of setbacks is discussed further in Part IX of this Closing Submission.

iii. Effects on land uses - employment lands and densities

317. The Halton Municipalities argue that the Project will develop at an employment density well below what is needed to contribute to the planned employment density for the area (slide 15). Halton Municipalities further argues that the 1,000-2,500 jobs likely to be generated by the Project would not represent net new jobs to Halton.

318. The employment density issue has been raised by Halton Municipalities since early in the EA process.[214] However, under the new 2019 Ontario Growth Plan, employment areas for the designated greenfield areas do not count towards the density targets. That is, the employment density targets referred to by the Halton Municipalities will no longer apply to the PDA as of 2022. As Mr. Lyons explained, the municipal plans must be updated by 2022 to reflect this policy change.[215] The Province made this change recognizing that employment areas often have low densities.[216]

319. The only part of the PDA outside of the greenfield area is also the part outside of the urban area. These lands therefore also do not form part of the density target lands, because they are outside of the urban area (and would be after 2021). Thus, no part of the Project lands would, in future, be included in density target calculation.

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[213] Ms. Iacono, Transcript, Volume 3, June 21, 2019 (CEAR #867), p. 480.

[214] Halton Brief, December 13, 2016 (CEAR #405).

[215] Mr. Lyons, Transcript, Volume 5, June 26, 2019 (CEAR #879), p.1243.

[216] CN Presentation on Land Use Planning and Economic Issues, June 26, 2019 (CEAR #845), slide 22.

320. Even under the old Growth Plan, the density target included both residents and jobs, not just jobs. Moreover, the density target is intended to be an average over the entire designated greenfield area, not a minimum threshold applied to any one parcel. This is because it is understood that the designated greenfield area would accommodate a broad range of uses, including lower density uses such as warehouses (such as the Lowes facility north of the 401 in Milton). As described in Mr. Bissett's June 26 presentation, the PDA makes up just 1.7% of the designated greenfield area and would not in any case have compromised the municipalities' ability to meet its density target across the rest of the designated greenfield area.[217]

321. The Best Planning Estimates referred to by the Halton Municipalities in their presentation are, simply, projections, not policy. There has been no secondary planning for the CN-owned lands on which job numbers could be reliably based.[218]

322. CN has provided evidence that shows that intermodal facilities are likely to attract intermodal-oriented development (IOD) that can generate significant jobs and revenue to host municipalities.[219] Other parties, such as the Milton Chamber of Commerce,[220] the Vaughan Chamber of Commerce,[221] and the Halton Hills Chamber of Commerce,[222] have also expressed how intermodal facilities support businesses, some of which are already located in the Town of Milton and Halton Region, in maintaining competitiveness. In contrast, other than stating a competing vision for the CN-owned lands, the Halton Municipalities have provided no evidence to indicate how such employment generation would likely occur in the absence of the rail-based facility.

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[217] CN Presentation on Land Use Planning and Economic Issues, June 26, 2019 (CEAR #845), slide 20.

[218] Mr. Bissett, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1149.

[219] CN's response to IR 4.7, June 15, 2018 (CEAR #656).

[220] Milton Chamber of Commerce Submission, December 15, 2018 (CEAR #703).

[221] Vaughan Chamber of Commerce Presentation, July 12, 2019 (CEAR #909).

[222] Halton Hills Chamber of Commerce Submission, December 12, 2018 (CEAR #702).

iv. Effects on land uses - agriculture

323. As part of its assessment, CN considered the potential effects of the Project on agriculture. CN quantified the amount of agricultural land that would be removed by the Project and proposed measures for working with its tenants that are currently using the lands for agricultural purposes. The amount of prime agricultural area land, 30 ha, that will be removed by the Project is very small, just 0.1% of the total amount of prime agricultural land in the region and 2.6% of the prime agricultural land in the LAA. CN confirmed that agricultural use of its remaining lands in the area are anticipated to continue, and that no off-site residual adverse effects on agricultural practices were predicted to result from the Project.[223]

324. In contrast, the Halton Municipalities allege that the Project will result in significant adverse environmental effects related to a loss of prime agricultural land and increased disturbance to agricultural practices in the area. These assertions are not consistent with the municipalities' own planning.

325. As noted previously, the lands on which the Project is proposed to be located have been designated by the Halton Municipalities as employment land and/or future strategic employment land. Specifically, the designation of these lands as employment lands and future strategic employment lands in the ROP was guided by the Region's own Sustainable Halton: Agricultural Countryside Vision (2007), which addressed how the Region would balance growth in the Region along with the protection of agricultural lands. The Region's designation of CN-owned lands as employment lands or future strategic employment lands suggests the Region anticipates achieving its sustainability goals, including the protection of agricultural lands, even with the conversion of these lands to employment uses in the future.[224] All of the lands have also been designated by the Province as a Provincially Significant Employment Zone. The planned use of these lands for employment uses at some time in the future is not in dispute. Dr. Caldwell, the Halton Municipalities' retained expert on agriculture and rural issues, acknowledged that "one would anticipate long term conversion [of the 30 hectares] to an urban use of some nature

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[223] CN's response to IR 4.19-4.22 June 15., 2018 (CEAR #656); IR 5.6, May 18, 2018 (CEAR #647).

[224] CN's response to IR4.21 (CEAR #67)

there."[225] In this proceeding, the Halton Municipalities have also clearly expressed their expectation to generate considerable jobs and DCs from these lands. Given the municipalities' explicit plan to convert these lands in the future to non-agricultural employment uses, it is reasonable to conclude that they consider that conversion to be acceptable.

326. Mr. Turvey, on behalf of OMAFRA, acknowledged that the mitigation measures proposed by CN "will help to alleviate some of the potential impacts from the project on agriculture".[226] In their written submission, OMAFRA also recommended CN work with the farming community to ensure appropriate mitigation will be implemented; this is consistent with CN's commitment to continue to work with their agricultural tenants on adjacent lands to mitigate the loss of agricultural land as a result of Terminal activities.[227]

327. In their written submission, OMAFRA noted that the Province's Agricultural System policies seek to support the economic success of the agri-food sector by recognizing connections to critical infrastructure such as transportation hubs. That policy position is certainly consistent with what the Panel has heard from other parties in this proceeding regarding the importance of intermodal to business competitiveness and market access, which is no less relevant to agricultural producers in the Project area.

v. Effects on land uses - recreation

328. In its assessment, CN considered the potential effects of the Project on recreational land uses, including cycling, walking, and navigation on local watercourses. Existing recreational uses within the PDA were shown to be very limited, including limited boating (canoe) on Indian Creek) and cyclist use of adjacent roadways. CN has proposed a suite of mitigation measures that would mitigate potential adverse effects on recreational uses, including installing berms to mitigate noise and provide a visual barrier, and integrating features for the safe movement of pedestrians and cyclists through the truck entrance intersection on Britannia Road.

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[225] Dr. Caldwell, Transcript, Volume 4, June 25, 2019 (CEAR #873), p. 1105-1106;

[226] Mr. Turvey, Transcript, Volume 4, June 25, 2019 (CEAR #873), p. 883; Ontario Ministry of Agriculture, Food, and Rural Affairs Submission, May 29, 2019 (CEAR #792).

[227] CN Updated Commitments Table, May 29, 2019 (CEAR #799), p. 35.

329. Issues raised by parties in this proceeding with respect to the potential effects of the Project on recreation are centered on concerns regarding pedestrian and cyclist safety. Those issues are addressed in Part XI of this Closing Submission.

PART XI – HEARING TOPICS – SOCIO-ECONOMIC CONDITIONS: TRAFFIC & ROAD SAFETY

A. Evidence of CN

330. CN's evidence on this topic is identified below.

EIS GUIDELINES

Section 3 (Part 2) Scope of the Environmental Assessment

EIS SECTIONS

December 7, 2015 - section 2.2.2 Transportation Corridors (CEAR #57)

December 7, 2015 - section 6.3.9 Socio-economic Conditions (CEAR #57)

December 7, 2015 - section 6.5.5 Socio-economic Conditions (CEAR #57)

TDR

December 7, 2015 – Planning Justification Report (Appendix E.11) (CEAR #57)

December 7, 2015 – Review of Terminal-Generated Truck Traffic (Appendix E.17) (CEAR #57)

IR RESPONSES

March 21, 2018 - CN Response to the Review Panel's Information Request 2 (CEAR #592)

June 12, 2018 - CN Response to the Review Panel's Information Request 4.2 (CEAR #654)

August 20, 2018 - CN Response to the Review Panel's Information Request 4.1 (CEAR #656)

March 1, 2019 – CN Response to the Review Panel's Information Request 8.4 (CEAR #722)

March 22, 2019 – CN Response to the Review Panel's Information Request 8 (IR8.4, 8.5) (CEAR #732)

OTHER MATERIALS

June 28, 2019 - CN Response to Undertaking 15 (CEAR #891)

July 10, 2019 - Exhibit 10 (CEAR #940)

B. Overview and Conclusions

331. As part of its assessment of the potential environmental effects on the identified Valued Component Socio-Economic Conditions, the EIS included an assessment of potential effects of traffic at the gate intersections and awaiting entry into the terminal. In response to community

concerns about traffic, CN retained BA Group and True North Safety (TNS) to also assess the potential effects of Project-associated traffic and road safety on the regional arterial road network beyond the entrance gates to the 400-series highways. Those assessments were provided with the response to IR 2.33.[228]

332. Truck trips to and from the terminal will be distributed throughout the day. BA Group has shown that the number of trucks arriving and departing the terminal at the AM and PM peak hours would be no more than 90 trucks trips per hour (1.5 trucks per minute). The busiest time for trucks entering and exiting the terminal is offset from traffic peaks on the regional road network. BA Group has also explained how those trucks are likely to disperse on numerous available routes on the regional arterial road network. This is important to understand when considering the potential effects of the Project on the road network. At no time will all 800 trucks be present on the road network in the Town of Milton or Halton Region at the same time, on the same route, or at the same location. The potential effect of Project-associated truck traffic on the road network must, therefore, be considered in light of the distribution of traffic across the road network over time and space. The potential effect of Project-associated truck traffic at any given location at any given time will arise from only a small fraction of the total number of trucks serving the terminal over the course of a full day.

333. It is also important to consider the potential effects of Project-associated traffic in the proper context. That is, recognizing that these lands have been planned for employment uses in the future, the germane question is how the traffic that will be generated by the Project would compare to the traffic that would be generated by other alternative employment land uses that could be developed in this area. As described by Mr. McBride, the Milton Logistics Hub is a low-density traffic generator compared to other employment land uses. [229] For example, BA Group analyzed potential traffic that would be generated by the rail-served industrial park contemplated by CN in 2008.[230] As outlined in the memorandum summarizing that report

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[228] IR 2.33, August 31, 2017 (CEAR #592).

[229] CN Presentation on Traffic and Road Safety, June 26, 2017 (CEAR #846), slide 11-12.

[230] See CN Response to Undertaking 15, June 28, 2019 (CEAR #891); Summary of 2008 Traffic Report for CN South Milton Industrial Precinct, Exhibit 10 (CEAR #937).

(Exhibit #10), BA Group determined that just the initial phase of the rail-served industrial park, occupying 136 acres, would generate 980 passenger car equivalent (PCU) trips in the PM peak hour, compared to 380 PCU PM peak hour trips expected to be generated by the Project.[231] Extrapolating that level of traffic generation to the remaining 517 acres of the rail-served industrial park area would result in over 3,700 additional PCU trips in the PM peak hour. As noted in Exhibit 10, trucks were assumed to comprise 15% to 55% of trips. Comparing heavy truck trips in particular, Exhibit 10 shows that the initial phase of the rail-served industrial park was expected to generate 129 heavy trucks in the PM peak hour, compared to the 89 heavy trucks in the PM peak hour that would have been generated by the Project. Again, extrapolating that level of truck traffic generation to the rest of the rail-served industrial park would result in over 490 heavy trucks in the PM peak hour. The potential effects of Project-associated truck traffic will be a fraction of the potential effects of traffic, including truck traffic, that might be generated by this other type of employment land use.

334. The planned road improvements in the region are also relevant to the consideration of potential traffic and road safety effects. Halton Region has planned improvements to the regional arterial road network in the near term, including widening Britannia Road and Martin Street to six lanes, and extending the existing 6-lane portion of Tremaine Road northward to cross over and interchange with Highway 401. In the longer term, Halton Region plans to widen Tremaine Road (south of Britannia Road) to four lanes and widen sections of Tremaine Road (north of Derry Road), Regional Road 25, James Snow Parkway, Trafalgar Road, and Steeles Avenue to six lanes, as outlined in the Halton Region Transportation Master Plan (TMP).[232]

335. The traffic assessments carried out by BA Group on behalf of CN determined that Project-associated traffic will utilize a very small proportion of the future capacity at signalized intersections on regional arterial roads – 2% or less, with the exception of the proposed intersection at the terminal access road on Britannia Road. This was further highlighted by the

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[231] Summary of 2008 Traffic Report for CN South Milton Industrial Precinct, Exhibit 10 (CEAR #937)

[232] *The Road to Change: Halton Region Transportation Master Plan* (Halton Region 2011).

MTO when they characterized the volume of traffic generated by the terminal as "relatively minimal."[233]

336. TNS determined that Project-associated traffic would result in a nominal collision increase across the nineteen potential truck routes network of 2.72 collision per year, the majority of which, 2.19 (83.6%), would be property damage only (PDO) collisions. A fatal collision is a relatively rare event (0.04% of all collisions), and the Project-associated traffic would result in a 0.013 increase in fatal collisions per year across the potential truck routes (or 1 fatal collision over 77 years across all intersections and road sections). The worst-case collision increase attributable to the Project would be located at the proposed truck entrance intersection, where the volume of trucks would be highest; at that location, the predicted collision increase was limited to 1.05 collision per year, with 0.12 collision per year occurring on the truck access road approach (one collision every 8 years). These estimated values are well below the yearly fluctuations in collision frequency experienced at a single major intersection. By far the majority of collision risk increase (96%) on the regional road network by 2021 and 2031 is attributable to increases in background traffic from other planned developments related to growth in the Town and Region.

337. CN has proposed a limited set of conventional improvements to the already planned intersection on Britannia Road and the new intersection on Tremaine Road to safely and efficiently accommodate both the type and volume of traffic accessing the site and the type of turning movements that would be required. CN has also committed to pay for those improvements and to work with the municipal road authority to address their interests in detailed design.

338. CN has also proposed to build a grade separation on Lower Base Line, to facilitate traffic flow and improve safety at that crossing. CN has included separated pedestrian and cyclist lanes into the proposed underpass design based on feedback from the Town of Milton. CN has committed to pay for the grade separation and to work with the municipal road authority to address its interests during detailed design.

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[233] Mr. Casey, Transcript, Volume 12, July 12, 2019 (CEAR #966), p. 3447.

339. Taking the proposed mitigation measures into account, as well as the planned road improvements, CN's assessment concluded that the Project and Project-associated truck traffic can be accommodated by and would have no significant adverse residual effects on the road network or road safety.

340. Looking over a broader geographical area, the Project is expected to result in less congestion on highways as a result of enabling more long-distance goods movement to be handled by train instead of by long-haul truck.

C. Principal Issues Raised

i. Planning for truck traffic

341. The Halton Municipalities have asserted that they did not plan for the (truck) traffic that will be generated by the Project when they planned the regional road network. Halton Municipalities argued that a "decade of planning decisions did not anticipate proposed intermodal use."[234] With respect to planned road improvements, Halton Municipalities said these "were not defined to accommodate intermodal traffic."[235] As a result, Halton Municipalities has asserted that Project-associated truck traffic will significantly impact the municipal transportation network. These assertions are not consistent with other arguments that the Halton Municipalities have put forward, nor with existing municipal planning documents.

342. Halton Municipalities' position on the planned road network is fundamentally inconsistent with its position on how it planned for the future. Halton Municipalities has said it took CN's plan for a rail-served industrial park into account in its planning in 2008, incorporating it into ROPA 38, and extending the urban boundary.[236] Halton Municipalities has also said that these lands were planned for an expected 1,500 jobs under the Best Planning Estimates.[237] Halton Municipalities has also indicated they assumed a certain amount of

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[234] Halton Presentation on Traffic and Road Safety, June 26, 2019 (CEAR #838), slide 6.

[235] Halton Presentation on Traffic and Road Safety, June 26, 2019 (CEAR #838), slide 13.

[236] Halton Presentation on Land Use Planning and Economic Issues, 26 June, 2019 (CEAR #836), slide 10.

[237] Mr. Benson, Transcript, Volume 2, June 20, 2019 (CEAR #862), p. 253.

development charges (DCs) will accrue from the CN-owned lands.[238] Either of these development plans – a rail-served industrial park or other development generating 1,500 jobs – would necessarily generate traffic.

343. The *Transportation Considerations* report that was prepared for CN by BA Group in 2008 estimated the traffic, including truck traffic, that would be generated the initial phase of a rail-served industrial park. That report has been posted to the registry and is summarized in the response to Undertaking #15.[239] As noted previously, BA Group determined that the 136-acre initial phase of the rail-served industrial park was forecast to generate higher volumes of peak hour heavy-truck traffic, as well as higher volumes of total peak hour PCU volumes, than the Project. In addition, the 2008 study noted that subsequent phases of rail-served industrial uses were also planned on the remaining 517 acres of CN-owned lands (more than three times the size of the initial phase), which would logically have generated higher volumes of additional traffic (including heavy-truck traffic) than the initial phase. This information has been before the Halton Municipalities since 2008, when it was provided by CN to the Halton Municipalities in the context of ROPA 38. This belies the Halton Municipalities' suggestion, made during their presentation, that they had no input from CN for transportation planning purposes.[240]

344. If one considers the Best Planning Estimate projection that Halton Municipalities has relied on, even more traffic would be expected. For example, if there were 1,500 jobs in the PDA in 2031, that would generate approximately 600 PM peak hour PCU trips. This is greater than the 380 PM peak hour PCU trips that the Project will generate.[241]

345. It appears that the Halton Region at least considered the intended use of the CN-owned lands when they prepared their TMP in 2011. The TMP acknowledges that "CN owns land in

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[238] Mr. Mathew, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1270.

[239] CN Response to Undertaking 15, June 28, 2019 (CEAR #891); Summary of 2008 Traffic Report for CN South Milton Industrial Precinct, Exhibit 10 (CEAR #937).

[240] Halton Presentation on Traffic and Road Safety, June 26, 2019 (CEAR #838), slide 8.

[241] Mr. McBride, Transcript, Volume 5, June 26, 2019 (CEAR #879), pp. 1360-1362.

Milton for which it has a long range plan for an inter-modal facility."[242] That Plan also states that "[i]mproved access to inter-modal facilities such as these would also serve to improve the environmental performance of goods movement within Halton Region, facilitating efficient transfer of goods from road to rail."

346. Having acknowledged the future use of the CN-owned lands for rail-based infrastructure in their TMP, and having assumed that the lands would generate jobs and DCs, it stands to reason that the Halton Municipalities should have anticipated those lands would generate traffic, including truck traffic. Even if they did not yet have the Project-specific information regarding the number of trucks that would be generated by the Project, any employment use on the CN-owned lands would generate traffic, including truck traffic, likely at higher volumes than the Project.

347. The proposed upgrades to the regional road network are consistent with projected employment growth in this area, as discussed further below.

ii. Volume of traffic and overall road capacity

348. Halton Municipalities has said that the Project-associated truck traffic will result in significant congestion on regional roads and that the level of service at some intersections would be unacceptable. These conclusions are not consistent with the comprehensive traffic impact assessment undertaken by BA Group on behalf of CN.

349. As Mr. McBride explained during his presentation, the terminal is a low-density traffic generator compared to other employment land uses. For example, it would generate similar pm peak hour PCU driveway volumes as would a Canadian Tire store. In terms of truck traffic, a Costco distribution centre would be expected to generate more peak hour truck trips.[243] As noted previously, the Project would generate much lower volumes of traffic, including truck

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[242] *The Road to Change: Halton Region Transportation Master Plan* Appendix F4 (Halton Region 2011), s. 2.2, p. 3.

[243] Mr. McBride, Transcript, Volume 5, June 26, 2019 (CEAR #879), pp. 1348-1349.

traffic, than a rail-served industrial park, which is the potential alternative land use of which Halton Region was aware when it produced the 2011 TMP.

350. The function of the regional arterial road network is clearly stated in the 2011 TMP: "There is a relatively good distribution of arterial roads in Halton, which provide connections for goods movement throughout the area, including connections to the more rural parts of the Region. All regional roads are classified and designed to accommodate trucks." [244] To be clear, the Project can and will be directly served by the high design standard, structurally robust, and operationally flexible regional arterial road network that is intended, designed, and built to carry trucks.

351. Therefore, the traffic analyses carried out by BA Group reasonably assumed that trucks would disperse on to regional arterial roads that are designed for that purpose. BA Group identified 19 potential routes between the Project and 400-series highways and estimated the potential dispersal of trucks on those routes. The volume of Project-associated trucks on any one road would therefore be only a fraction of the total number of trucks serving the terminal. BA Group also reasonably took into consideration the variability of truck traffic volumes over the day and considered how a range of factors would support truck dispersal on the available road network. Further, BA Group took into account the operational characteristics of the road network, such as signal timing, that would influence truck movements and traffic fluidity. All of these assumptions and inputs were described in BA Group's submitted reports.[245]

352. Based on that analysis, BA Group determined that, taking existing and future background traffic growth from other sources into account, the regional road network would have sufficient capacity to accommodate Project-associated truck traffic.[246] That analysis was based on the schedule of planned road improvements made publicly available by Halton Municipalities at that time.

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[244] *The Road to Change: Halton Region Transportation Master Plan* Appendix F4 (Halton Region 2011), s. 2.1, p. 2.

[245] EIS Appendix E.17 (CEAR #57), s. 4; IR 4.50 (CEAR #654).

[246] CN Presentation on Traffic and Road Safety, June 26, 2017 (CEAR #846), slides 15, 17-18; IR 2.33-1, 2.44-3 (CEAR #592).

353. In contrast, the traffic analysis carried out by Halton Municipalities (purportedly to assess the feasibility of haul routes serving the Project) assessed an "all or nothing" scenario in which all Project-associated trucks would use a single route to move between the Project and 400-series highways. Not surprisingly, this evaluation concluded there would be a higher impact on road and intersection capacity; however, this scenario is entirely unrealistic. There is no reason to expect all trucks to follow a single route, particularly as trucks would be coming from and going to different origins and destinations in the region, including local distribution centres, warehouses, and logistics facilities. As noted earlier, the 2011 TMP expressly contemplates a network of regional arterial roads that "provide connections for goods movement throughout the area," which is contrary to the idea that all trucks would follow a single route.

354. The notion of a haul route is sometimes useful but not in this case. A haul route is a very specific type of access route for facilities such as mines or quarries, in locations where there are no other roads capable of physically accommodating trucks. In such circumstances, it would be necessary to identify and designate a route between the facility and a suitable high order roadway (for example, a regional arterial road), and then to upgrade the designated route in whatever way is necessary to ensure that it suits the purpose. In the context of the Project, however, a situation requiring designation of a haul route does not exist. The Project will be directly served by a high-design standard, structurally robust, and operationally flexible regional arterial road network that is intended, designed, and built to carry all forms of traffic, including truck traffic.

355. On July 12th, Mr. Casey of MTO discussed the availability of multiple routes between the 400-series highway network and the terminal. He stated that, in MTO's assessment, BA Group's determination that Project trucks would use a number of routes to access the highways in the vicinity of the terminal was a reasonable one.[247]

356. Although both Halton Municipalities and BA Group used the same traffic analysis software (Synchro), Halton Municipalities has not provided the modeling assumptions and inputs which it used to support its analysis. For example, it is not documented what traffic volumes were used for each movement or what signal timing and phasing plans were used.

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[247] Mr. Casey, Transcript, Volume 12, July 12, 2019 (CEAR#966), p. 3445.

357. It also appears that, based on observations of truck movements at BIT, Halton Municipalities assumed that no Project-associated trucks would use the toll-route 407; however, CN has clearly committed to providing route guidance to CNTL truck operators to use the route along Britannia Road to the interchange at 407 (where feasible and appropriate). This direction would come at some cost to CN in terms of road tolls and would apply to about 20% of the trucks serving the terminal, resulting in a somewhat lower volume of Project-associated truck traffic on north / south regional arterial roads. The Panel heard from Mr. Acthen of Schneider, who explained that his company "see[s] the efficiency outweighing the cost of those tolls."[248] The Panel also heard from Mr. Field of JB Hunt, who stated that there are situations where toll routes are clearly the more efficient option, and truck operators would, and do, use them;[249] he further stated that the existing portion of JB Hunt's intermodal drivers that use toll routes is "meaningful and significant"[250]. The Panel also heard from Mr. Casey of the MTO, who noted that, based on MTO's experience with commercial vehicle surveys and other interviews through the years, trucks do use toll routes, and moreover there are companies whose business structure makes using toll routes the more efficient option.[251]

358. Without access to Halton Municipalities' technical worksheets, as described by Mr. McBride, it is not possible to properly test or weigh Halton Municipalities' traffic analyses conclusions against those of BA Group. [252]

359. On the other hand, CN has provided comprehensive, transparent, and fully documented analyses to support the conclusion that the road network, as proposed, will have adequate capacity to accommodate the Project-associated truck traffic.

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[248] Mr. Achten, Transcript, Volume 2, June 20, 2019 (CEAR#860), p. 319.

[249] Mr. Field, Transcript, Volume 12, July 12, 2019 (CEAR#966), p. 3413.

[250] Mr. Field, Transcript, Volume 12, July 12, 2019 (CEAR#966), p. 3415.

[251] Mr. Casey, Transcript, Volume 12, July 12, 2019 (CEAR#966), pp.3470-3471.

[252] Mr. McBride, Transcript, Volume 5, June 26, 2019 (CEAR #879), pp. 1484-1485.

iii. Timing of road upgrades

360. During the hearing, Halton Municipalities provided new information regarding the anticipated timing of improvements to the regional road network.[253] They and other parties raised concerns with respect to the timing of when road upgrades would be completed and when the Project would commence operation.

361. The timing of regional road improvements adopted in the BA Group analyses was taken from the most recent Capital Budget Plan prepared by Halton Region at the time that the analyses were undertaken (in 2015-2017), and is reflected in BA Group's projections of road and intersection capacity. At the time the traffic analyses were undertaken, both Project construction and the planned Britannia Road widening were expected to be completed by 2021. Therefore, for the purpose of traffic analyses, it was assumed that these road upgrades would be complete at the time of Project opening. However, recognizing the uncertainty of the timing of the Tremaine Road-Highway 401 interchange, a sensitivity analysis was undertaken for the scenario where the Tremaine Road-Highway 401 interchange was assumed to be not complete by the 2021 horizon. In both scenarios, the assessment determined that the road network as planned would be sufficient to handle the Project-associated truck traffic.

362. As recently as April 9, 2019, Halton Region published information that phases 1 to 3 of the Britannia Road widening would be complete by 2022. [254] Based on the current status of the EA process, if a decision is made to allow the Project to proceed, Project construction is expected to be complete also in 2022. Thus, if there is any delay between the commencement of operation of the terminal and the completion of the Britannia Road upgrades, it would likely be short, in the order of months.

363. During the construction of Britannia Road, the traffic volume actually using the road at that time would be lower than the total volume of future traffic that the new six-lane road was ultimately designed to accommodate, as the Boyne Survey residential development and other employment lands in the area would not yet be fully built out by 2022.

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[253] Mr. Almuina, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1394; Exhibit 6 (CEAR #881).

[254] Ms. De Angelis, Transcript, Volume 5, June 26, 2019 (CEAR #879), pp. 1463-1464.

364. The need for improvements to Britannia Road are not driven by the Project – these long-planned improvements are required to accommodate the increased traffic that will be generated by the anticipated population and employment growth in Milton and are currently being tendered. CN therefore anticipates that the road upgrades will proceed as planned.[255]

365. The planned road improvements will benefit the Project, but are not required for the Project to proceed. Trucks can use the existing regional arterial road network, which ranges from two- to six-lane roads. The Project does not require the construction of the Tremaine Road-Highway 401 interchange to proceed, given the availability of numerous other regional arterial roads that are designed to provide connections for goods movement throughout the area. As well, as Mr. Casey stated during the MTO presentation, the MTO has concluded that there are multiple highway interchanges in the vicinity of the Project, which provides sufficient redundancy for Project traffic.[256]

366. It is understood that the upgrades to Britannia Road will be undertaken in phases and that Britannia Road will remain open to traffic, including truck traffic, during construction. As outlined by Halton Municipalities, it is their intention that, as part of a plan for traffic management during construction, one half of the new roadway, comprising new lanes in one direction, would be constructed while the existing road (or a road diversion) remains open to local traffic, and then for bi-directional traffic to be shifted to the new lanes while the other half of the roadway (the new lanes in the other direction) are constructed. There is no evidence to support the proposition that temporary road construction work would justify the delay of commencement of operation of adjacent developments that the road improvements are intended to support.

367. As outlined in the EIS, CN is committed to continuing to work with the Region and the Town to identify and mitigate the effects of the change in truck traffic on the regional road network, including during road construction.

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[255] Mr. Reynolds, Transcript, Volume 5, June 26, 2019 (CEAR #879), pp. 1466-67.

[256] Mr. Casey, Transcript, Volume 12, July 12, 2019 (CEAR#966), pp. 3450-3451

iv. HOV lanes / Priority Bus Corridor

368. Halton Municipalities noted that the proposed design configuration of Britannia Road will include high occupancy vehicle (HOV) / transit lanes in the future. Halton Municipalities asserted that the presence of HOV / transit lanes was not considered in BA Group's traffic modeling and that the modeling therefore over-estimated the capacity of the road to accommodate (truck) traffic.

369. BA Group has, in fact, accounted for the presence of HOV lanes on Britannia Road in the operations analysis of Britannia Road in the 2031 horizon. Specifically, in Attachment IR2.33-1 that undertook a detailed operations analysis of the Britannia Road terminal access road intersection in the 2031 horizon,[257] the traffic analysis assumed there would be only 4 'general purpose lanes' available for use by heavy-truck traffic.[258] Thus, the assessment of the potential effects of Project-associated traffic on the capacity of the road network appropriately considered the potential future presence of HOV / transit lanes on Britannia Road.

370. Typically, an HOV / transit lane would be implemented only when the Town or Region has a bus service and enough passengers to justify using the lane. Implementing an HOV / transit lane is intended to increase the carrying capacity of the road overall (by increasing passengers and decreasing drivers) rather than reduce it.

v. Trucks through sensitive land uses

371. The Halton Municipalities have suggested that the Project will "send heavy trucks through sensitive land uses."[259]

372. It is reasonable to assume that both the Region and the Town considered the volume and type of existing and future traffic on these roads when the neighbouring land uses and the road network itself were planned. Trucks of all sizes use these same roads today and will continue to

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[257] IR 2.33-1 (CEAR #592).

[258] As indicated in *The Road to Change: Halton Region Transportation Master Plan* (Halton Region 2011), s. 7.1.1.2.

[259] Halton Presentation on Traffic and Road Safety, June 26, 2019 (CEAR #838), slide 6.

use these roads in the future as they are upgraded by the Region and as employment lands in the area continue to be developed.

373. As noted previously, the 2011 TMP clearly states the function of the regional arterial road network is to "provide connections for goods movement throughout the area" and that "[a]ll regional roads are classified and designed to accommodate trucks."[260]

374. In its traffic assessment, BA Group reasonably assumed that Project-associated truck traffic would use regional arterial roads, consistent with their planned function and design, and because these are the only roads that connect to the 400 series highway network. Based on BA Group's traffic projections, CN then considered the potential effects of Project-associated trips on truck traffic operations, air quality, noise, the road network, and road safety, as outlined in CN's responses to IRs 2.33, 3.16, 4.29, and 8.9, among others. The traffic assessment undertaken by BA Group determined that Project-associated truck traffic would utilize a very small proportion of future capacity at signalized intersections on regional arterial roads – 2% or less, with the exception of the intersection of the terminal access road on Britannia Road.

375. In particular, the road safety assessment conducted by TNS examined the location of sensitive land uses, such as schools and emergency response facilities, relative to the regional arterial roads that would be used by Project-associated truck traffic, and determined these sensitive uses have little direct interaction with the regional roads, and will not be impacted by the amount of additional Project-associated truck traffic.[261]

376. We therefore submit that the potential effects on neighbouring land uses of traffic, including truck traffic, on the regional arterial road network has been well considered, both by the Halton Municipalities in their planning, and by CN in the Project-specific assessment, and no significant adverse environmental effects are expected.

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[260] *The Road to Change: Halton Region Transportation Master Plan* Appendix F4 (Halton Region 2011), s. 2.1 p. 2.

[261] Mr. Brownlee, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1376.

vi. Need for regional road access

377. The Halton Municipalities have asserted that CN has not demonstrated the necessity for access to a regional road and therefore suggest that the proposed truck entrance on Britannia Road is not appropriate and that alternate road access via First Line should be considered instead.

378. It is a fundamental requirement of the Project that it be accessible to heavy trucks. All parties to this proceeding agree that heavy trucks are permitted on regional arterial roads but not all local roads. CN confirmed its understanding that First Line is a local road on which heavy trucks are not currently permitted; this is reflected in CN's consideration of alternative truck entrance locations, documented in EIS section 2.2.3.1 and CN's response to IR 2.19,[262] which concluded that, for this reason, road access to the terminal via First Line would not be feasible. CN also confirmed its understanding that construction to upgrade Tremaine Road between Britannia Road and Lower Base Line is not planned to start until 2025 and described how the Halton Municipalities, in a meeting in January 2015, expressed to CN their concern about locating the truck entrance on Tremaine Road in advance of planned road upgrades. In response to that concern, CN changed the location of the proposed truck entrance to Britannia Road. The proposed intersection is located opposite an already planned intersection between Britannia Road and a collector road serving the Boyne Survey area on the north side. The proposed location would add a fourth leg to the planned intersection, which is a normal and conventional approach. CN then, with BA Group, developed a proposed preliminary design for that intersection based on the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (1999 version and 2017 version), Ontario Traffic Manual Books 12 (Traffic Signals), 15 (Pedestrian Crossing Treatments), and 18 (Cycling Facilities), which featured all the required mitigation measures, including turn lanes and suitable traffic signal control.

379. BA Group's assessment of the truck entrance intersection demonstrated that the design as proposed, taking into consideration the volume and expected distribution of traffic, including truck traffic, throughout the day, would maintain traffic fluidity and safe operation through this intersection. That assessment considered important operational and design factors, such as sight

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[262] EIS (CEAR #57), s. 2.2.3.1; IR 2.19 (CEAR #574).

lines, stopping distances, turning requirements, queuing, and signal timing, as well as the configuration of the intersection with the road access into the residential development north of Britannia. This assessment also accounted for the 30 metre section of 5% grade on Britannia Road approximately 120 metres west of the intersection resulting from the proposed overpass over the existing mainline to the west. This grade is comparable to other grades on Halton Region arterial roads with similar intersection spacing and that serve trucks.

380. TNS's assessment of the truck entrance intersection demonstrated that the design as proposed would also accommodate safe movement of trucks, passenger vehicles, pedestrians, and cyclists at the volumes and distribution patterns expected at this intersection.

381. Both BA Group and TNS recommended design and other traffic flow and safety mitigation measures, which CN has committed to implement. CN has also committed to pay for the necessary intersection upgrades and to work with the municipal road authority to ensure their interests are addressed during detailed design.

382. CN submits that it has demonstrated that the proposed truck entrance intersection is both needed and can be designed and operated to accommodate background and Project-associated traffic, including truck traffic, safely and efficiently.

vii. Tremaine Road crossing

383. In its written submission, Transport Canada noted that trains slowing down to enter the terminal could cause blockage of the existing at-grade crossing of Tremaine Road south of the Project of approximately 10 minutes.[263] Transport Canada based this estimate on an assumed length of train of 14,000 feet. In their written submission to the Panel, the Halton Municipalities also provide an estimate of the potential duration of blockage of Tremaine Road by a 14,000-foot train four times a day at a speed of 10 mph to 20 mph.[264]

384. There we be no incremental trains moving over Tremaine road crossing relative to today. Only two of the four trains serving the terminal would move through the Tremaine at-grade

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[263] Transport Canada Submission, May 29, 2019 (CEAR #793).

[264] Halton Brief on SAEEs, Volume 2, May 29, 2019 (CEAR #800), pp. 283-284.

crossing, and both of these are existing trains that already move through that location. As the terminal is proposed to be operated, trains entering the terminal from the south would move into a service track and fully into the terminal before stopping and doubling over. Today, due to the location of transition from double track to single track just north of Tremaine Road, northbound trains are often required to stop short of Tremaine Road to allow for a passing southbound train. Thus, under today's conditions, several trains are moving through the Tremaine Road crossing at slower speeds. As such, there is not anticipated to be a change relative to existing conditions. In fact, the extension of the double track north to Derry Road will eliminate the need for trains to stop short of Tremaine Road, improving the overall fluidity at this crossing as explained by Mr Reynolds.[265]

viii. Roundabouts

385. During the EA, various parties have expressed concern regarding the safety of roundabouts, particularly for vulnerable road users, such as pedestrians and cyclists, with the addition of Project-associated truck traffic.[266]

386. In response to these concerns, CN requested both BA Group and TNS to examine the projected volumes of Project-associated truck traffic through the existing and proposed roundabouts on regional arterial roads that could be used by trucks and evaluate the flow of traffic and the potential effect on safety at those locations.

387. The roundabouts on Tremaine Road were installed by the Region in part to improve the safety and fluidity of the road network. It is reasonable to assume, therefore, that the technical experts at the Region must have confidence in the efficiency and safety of roundabouts on regional arterial roads that are designed to accommodate trucks, as well as other road users.

388. As explained by Mr. Brownlee during his presentation, roundabouts provide a significantly reduced fatal and injury collision risk when compared to signalized intersections. This has been supported through data from the Region of Waterloo, which shows the positive

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[265] Mr. Reynolds, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 2940.

[266] See, e.g., Ms. Mott, Transcript, Volume 2, June 20, 2019 (CEAR #862), pp. 441-443.

safety effects of roundabouts in relation to truck interactions.[267] Roundabouts typically have positive effects on pedestrian safety, as they provide for safe pedestrian crossings on otherwise busy arterial routes. Cyclists at the Tremaine Road roundabouts are provided with an in-boulevard bypass facility, which reduces the likelihood of vehicle-bicycle conflicts. Vehicle speeds through roundabouts are low, which also contributes to reduced collision risk. The road safety assessment determined that collisions involving trucks and vulnerable road users are expected to be less than 0.1% of the total number of collisions at roundabouts.

389. As noted previously, the 2011 TMP confirms that all regional arterial roads are classified and have been designed to accommodate trucks. The existing roundabouts on Tremaine Road are, therefore, expected to safely accommodate the movement of all road users.

390. Halton Municipalities suggested that trucks would avoid Tremaine Road due to the presence of roundabouts on that route.[268] However, there is no evidence that trucks avoid major roadways that have roundabouts.[269] The Panel also heard from Mr. Acthen of Schneider, who explained that in his area "we have multiple roundabouts and that does not change our truck traffic."[270]

ix. Pedestrians and cyclists

391. Halton asserts that Project-associated truck traffic will discourage people from cycling and walking along the regional arterial roads that will be used by trucks.[271]

392. CN's safety/collision analysis took into account the potential for collisions involving pedestrians and cyclists, and determined that the increased collision risk due to Project-associated traffic would be very low, just 0.5%.[272] This is lower than the increased collision risk

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[267] Mr. Brownlee, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1453.

[268] Halton Presentation on Traffic and Road Safety (CEAR #838), slide 12.

[269] Mr. McBride, Transcript, Volume 5, June 26, 2019 (CEAR #879), p, 1490.

[270] Mr. Achten, Transcript, Volume 2, June 20, 2019 (CEAR#860), p. 320.

[271] Halton Presentation on Traffic and Road Safety (CEAR #838), slide 9.

[272] Mr. Brownlee, Transcript, Volume 5, June 26, 2019 (CEAR #879), pp. 1469-1470.

that would be expected from the volume of traffic that would be generated by other alternative land uses, which would increase collision risk by 0.9-2.3%.[273] The safety assessment determined that the vast majority of the total collision risk on the road network (about 97%) would be attributable to other background traffic.

393. The proposed design of the planned upgrades to Britannia Road includes bicycle lanes and multi-user pathways. As noted previously, the recently improved Tremaine Road features measures to safely accommodate pedestrians and cyclists, at roundabouts for example. The proposed design of the truck entrance intersection also includes measures to facilitate the safe and efficient movement of pedestrians and cyclists.

394. Halton Municipalities itself has concluded that, taking mitigation into account, there would be no significant adverse effects on active transportation. The brief explains that "the incremental increase in traffic is not expected to materially impact in the incompatibility of users, increased delays at crossing, or the unpleasant environment."[274]

PART XII – HEARING TOPICS – SOCIO-ECONOMIC CONDITIONS: COMMUNITY SERVICES AND INFRASTRUCTURE (INCLUDING FINANCING)

A. Evidence of CN

395. CN's evidence on this topic is identified below.

EIS GUIDELINES
Section 3 (Part 2) Project Description
Section 6 (Part 2) Effects Assessment
Section 7 (Part 2) Summary of Environmental Effects Assessment
Section 8 (Part 2) Follow-up and Monitoring Programs

[273] CN Presentation on Traffic and Road Safety (CEAR #846), slides 26-29.

[274] Halton Municipalities Brief on SAEEs, Volume 2, May 29, 2019 (CEAR #800), p. 415.

EIS SECTIONS

December 7, 2015 - Environmental Impact Statement, Follow-up Monitoring Programs (CEAR #57)

December 7, 2015 - Environmental Impact Statement, section 6.3.9 Socio-Economic Conditions (CEAR #57)

December 7, 2015 - Environmental Impact Statement, Table 10.1 Project Interactions with VCs (CEAR #57)

December 7, 2015 - Environmental Impact Statement, Table 6.34 Environmental Effects Mitigation Measures for Change in Demand for Community Services and Infrastructure (CEAR #57)

TDR

December 7, 2015 - Technical Data Report Socio-Economic Baseline (Appendix E.12) (CEAR #57)

IR RESPONSES

January 23, 2018 - CN Response to the Review Panel's Information Request 3 (IR3.45) (CEAR #613)

August 31, 2017 - CN Response to the Review Panel's Information Request 2 (IR2.13, IR2.38, IR2.40, IR 2.41) (CEAR #592)

June 12, 2018 - CN Response to the Review Panel's Information Request 5 (IR5.1, IR5.24) (CEAR #655)

June 15, 2018 - CN Response to the Review Panel's Information Request 4 (Group 1) (IR4.7, IR4.13, IR4.16) (CEAR #656)

August 20, 2018 - CN Response to the Review Panel's Information Request 7 (IR7.11) (CEAR #680)

UNDERTAKINGS

July 12, 2019 - CN Response to Undertaking 34 (CEAR #966)

B. Overview and Conclusions

396. In the EIS, as part of its assessment of the potential environmental effects on the identified Valued Component Socio-Economic Conditions, CN considered the potential effects of the Project on community services and infrastructure. Because most Project activities will not draw municipal services, there will be few anticipated changes in demand.[275] The Project will not

[275] EIS (CEAR #57), s. 6.5.5, p. 129.

use municipal water, wastewater, or waste management services. CN also has its own police service and emergency response personnel.

397. With respect to road usage, trucks coming to and from the Project site will be using the regional arterial road network in exactly the manner the Region has anticipated. In this regard, CN has been guided by the 2011 Halton Region Transportation Master Plan (TMP),[276] which states "the purpose of a major arterial is to carry truck traffic" and accommodate goods movement.[277] The TMP also states that "[a]ll regional roads are classified and designed to accommodate trucks." The PDA is bounded by Britannia Road and Tremaine Road, both of which have been or will be upgraded by the Region to four or, ultimately, six lanes. In other words, the trucks will be traversing roads that were specifically designed to carry them.

398. CN has committed to cover the cost of changes that have been deemed to be required to accommodate the Project. Specifically, CN has committed to paying for the construction of upgrades at the gate intersections, including the turning lanes and traffic signal control modifications required at the proposed truck entrance to Britannia Road, and the southbound left-turn lane at the employee entrance driveway on Tremaine Road. With these improvements and the already planned regional roadway upgrades, no other changes to roadway infrastructure will be necessary to accommodate the Project.[278] CN has also committed to pay for the Lower Base Line grade separation.

399. The EIS also addressed the potential economic benefits of the Project for the Region and Town. Although CN, as a federally-regulated railway, does not pay development charges, the Project has the potential to generate up to $230 million in municipal revenues to Halton Region and the Town of Milton over the next 20 years through intermodal oriented development (IOD) (Cushman & Wakefield 2014).[279]

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[276] See also EIS (CEAR #57) s. 2.2.2, p. 27; IR 4.9 and 4.9-1, June 15, 2018 (CEAR #656).

[277] *The Road to Change: Halton Region Transportation Master Plan* (Halton Region 2011) , p. 3.

[278] CN Presentation on Socio-Economic Conditions (CEAR #842), slide 12.

[279] CN Presentation on Land Use Planning and Economic Issues (CEAR #845), slide 40; Ms. Jacob, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1172.

400. In addition to those expected municipal revenues, CN has contributed approximately $6.5 million in property tax revenues over the past 20 years. CN will continue to pay property taxes and once the terminal is operational, CN will contribute around $1 million annually in property taxes.[280] The Region and Town have benefited and will continue to benefit from these property tax payments. As Ms. Jacob explained on June 26th, "[w]ith CN using minimal municipal services, given that they do provide services on site for their operations, most of these property tax revenues provide a net surplus to each of the Town, Region and the School Boards."[281]

401. On the whole, the Project is not expected to result in any unmitigated burden on municipal services or infrastructure and is expected to result in substantial economic benefits to Halton Municipalities, including direct and indirect revenues and the inducement of development on employment lands in the area.

C. Principal Issues Raised

i. Development charge revenue

402. Development charges ("DCs") are a one-time payment that municipalities collect from some developments to cover growth-related capital expenditures. They are calculated, payable and collected as of the date of building permit issuance. Not all new projects are required to pay DCs under Halton and Milton by-laws.

403. Halton Municipalities assert they will be losing about $49 million in DC revenue that they expect to accrue from the CN lands, which they claim were planned for "prestige industrial" development.[282] This figure is misleading and exaggerated.

404. First, at both the Town and Regional level, DC revenues are not planned or projected on a site-by-site basis. Rather, the *Development Charges Act* requires municipalities to prepare

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[280] CN Presentation on Land Use Planning and Economic Issues (CEAR #845), slide 37.

[281] Ms. Jacob, Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1168.

[282] Halton Presentation on Community Services and Infrastructure (including Financing), July 10, 2019 (CEAR #908), slides 22, 29. The term "prestige industrial" is not a defined at the Regional level (Official Plan) nor at the Town level (Official Plan or Zoning Bylaw).

background DC studies with general forecasts and calculations. Indeed, the Halton OP confirms that specific developments are not required to absorb their share of the costs; it instead requires "the *development industry* to absorb its share of the cost of the provision of infrastructure and human services as permitted by the applicable legislation."[283]

405. Thus, neither the Region nor Town projected nor expected a specific amount of DCs from the CN site or lands. At the regional level, Halton's DC background study is a "generic calculation based on the forecasts."[284] It is not site-specific. As Ms. Jacob explained on July 10, the only time a municipality has certainty regarding the quantum of a DC is "at the time of building permit issuance."[285] At the town level, Milton has not updated its DC study to include new lands added through ROPA 38 (which includes the CN lands). Thus, "it is difficult to understand how the Town of Milton has planned for and lost the planned DC revenue when it is not even included in their DC background study."[286]

406. Second, the $49 million figure is grossly exaggerated. Halton Municipalities calculated this expected DC figure based on a 400-acre site being developed as "prestige industrial" employment use.[287] This figure is flawed for two key reasons.

407. The assumption that the lands would be used for "prestige industrial" employment use is not consistent either with CN's proposed use of its lands for a major rail facility or with Halton Municipalities' own statements that they planned for a rail-served industrial park at this location. Further, this assumption is based on a 400-acre site, but on CN's 400-acre parcel, there are not 400-acres of useable land. There are not even 400-acres of CN land within the urban boundary. Rather, as Ms. Jacob explained on July 10, with appropriate deductions for land features such as

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[283] Policy 77(15), Halton Official Plan.

[284] Ms. Jacob, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 2899.

[285] Ms. Jacob, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 2899.

[286] Ms. Jacob, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 2899.

[287] Halton Brief on SAEEs, Volume 2, May 29, 2019 (CEAR #800), p. 472, footnote 5.

the natural heritage area and the rail line running through the property,[288] the net developable area is around 150 acres. Applying the Region's assumptions for calculating DCs, Ms. Jacob explained that 150 acres would translate into around $19.1 million in DC revenue.[289]

408. Similarly, Halton Municipalities' DC figure is exaggerated when calculated based on its projected job targets. Using the Best Planning Estimates figures that Halton Municipalities has relied on throughout the hearing, Ms. Jacob calculated the DCs that would be generated from 1,500 jobs on the site by 2031. Applying the Halton Municipalities' assumptions to these job numbers, Ms. Jacob concluded that Halton Municipalities could expect $21 million in DC revenue.[290]

409. On either basis (acreage or jobs), Halton Municipalities could not reasonably have expected $49 million in DCs.

410. Further, Halton Municipalities alleged loss of DC revenue with the construction of an intermodal facility does not account for induced or indirect employment and revenue from IOD that would come along with it. The evidence before the Panel is that the Project is anticipated to generate between 1,000 to 2,500 jobs.[291] Applying Halton Municipalities' assumptions for calculating DCs based on job numbers, Ms. Jacob concluded that Halton Municipalities could expect between $14 million and $35 million in DC revenue from the IOD associated with the proposed intermodal facility.[292] Taking the midpoint of this amount, this DC revenue amount would be a similar range of DCs estimated from the CN lands by Ms. Jacob above.[293]

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[288] See also the Planning Justification Report, attached as appendix E.11 of the EIS (CEAR #57), which stated on page 17 that because the CN lands are bisected by the railway line, they would be unlikely to derive the same development charges as they would have otherwise.

[289] Ms. Jacob, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 2902.

[290] Ms. Jacob, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 2900.

[291] IR 4.7, June 15, 2018 (CEAR #656)

[292] Ms. Jacob, Transcript, Volume 10, July 10, 2019 (CEAR #944), pp. 2900-2901.

[293] Mr. Reynolds Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 2988.

411. Therefore, the Project will deliver around the same amount or more in DC revenue than Halton Municipalities could have expected in any event.

412. However, Halton Municipalities discounts revenues from IOD – they assert that IOD has already been induced by the Town or Region because "we've planned for all the development." They state that future DC revenues from IOD would be achieved through their own planning efforts.[294] But goods movement infrastructure, including rail intermodal facilities, is necessary for Halton Municipalities to achieve employment forecasts and associated DC revenue.[295] As many presenters explained throughout the hearing, CN's new terminal is essential for the region and province's future economic development and growth. Moreover, the Project will not only ensure that the Halton Municipalities can achieve their employment and revenue targets, it will also attract new development and new revenues to the Town and Region. IOD is more likely to occur if and where intermodal facilities are located. Further, IOD can include a wide range of employment use types and densities that can contribute to municipal revenues, including DCs and taxes.

ii. Tax revenues

413. Halton Municipalities asserted that CN will not pay property taxes and will cause Halton Municipalities to lose property tax revenue from other development on CN lands. They argue that this Project "[e]ntails a large reallocation of tax revenue to CN's benefit, without approval or authority."[296]

414. With respect to the first assertion, that CN would not pay property tax, this has been shown to be incorrect. Since it acquired the lands, CN has paid an estimated $6.5 million in property taxes to the municipalities; as there has been essentially no demand on municipal services or infrastructure, that represents a significant surplus to the municipalities. Further, CN

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[294] Mr. Scandlan, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 3018; Halton Presentation on Community Services and Infrastructure (including Financing), July 10, 2019 (CEAR #908), slide 393018.

[295] *The Road to Change: Halton Region Transportation Master Plan* Appendix F4 (Halton Region 2011), s. 2.2 p. 3.

[296] Halton Presentation on Community Services and Infrastructure (including Financing), July 10, 2019 (CEAR #908), slide 23.

has indicated it anticipates paying about $1 million annually in property taxes, should the Project proceed. Yet CN's demand for municipal services or infrastructure is expected to continue to be low (as discussed further below).

415. Like its alleged loss of DC revenue, Halton Municipalities' estimated property tax loss is also misleading and exaggerated. First, the estimated amount of tax loss is misleading because it does not accurately represent what the Region and Town could reasonably have expected through their municipal budgeting processes. Under the *Municipal Act*, the budgeting process includes preliminary estimates and forecasts, detailed budget preparation, council discussion of the budget, and council's approval of the budget. Ms. Jacob explained that "capital budgets associated with a municipal budget change over time" and that "municipalities review capital projects to ascertain timing or need" each year.[297] There is inherent flexibility in the budgeting process.

416. Neither the Town nor the Region have property tax budgets that specifically forecast property tax revenues from a project site. Milton's property tax budget has a two-year horizon. Its most recent budget forecast (2020 - 2021) has no forecasts of assessment growth from CN lands. And while the Halton Region property tax budget forecast has a ten-year horizon, it too does not forecast assessment growth from specific lands. Rather, its forecasts assume that the taxable assessment base will grow by 1.5% per year. Thus, the Region and Town have not planned for tax revenue from any specific development on these lands and will therefore will not face any budgeting deficit from the Project. Quite the opposite – the Region, Town, and School Boards will receive roughly $1 million annually in property taxes from the Project once operational.

417. Second, like with its DC calculation, Halton Municipalities computed expected property tax revenue based on a 400-acre site being developed as prestige industrial. But as Ms. Jacob explained, there is only around 150 acres of developable land in the PDA. Halton Municipalities' tax estimates are therefore overstated.

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[297] Ms. Jacob, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 2903.

418. The Halton Municipalities also failed to include additional tax revenue from IOD in its projected lost tax revenue. As discussed above, Halton Municipalities cannot claim that they have already accounted for these tax revenues through their job and employment projections. To meet these projections, the Town and Region must have the necessary infrastructure in place.

iii. Road maintenance and capital costs

419. The Halton Municipalities alleges that truck traffic from the Project will lead to more rapid deterioration of the roads and increase maintenance and capital costs. Halton Municipalities states that, "based on discussion with road engineers," the impact of truck traffic on the routes will shorten the useful life of roads by one to two years, increasing costs to the Region.[298] Halton Municipalities also asserts that CN does not propose to "cover its share" of costs associated with road infrastructure.

420. As explained in in the response to IR 4.13 and in Part XI, this concern is unfounded.[299]

421. As described at length in Part XI – "TRAFFIC AND ROAD SAFETY," and in the 2011 Halton Region TMP, the purpose of the regional road network is to carry truck traffic and accommodate goods movement, and the arterial roads were planned, designed, and constructed to carry all truck traffic. As described by Ms. Gillezeau, the Halton Region OP also describes the function of major arterial roads, including accommodating all truck traffic, carrying high volumes of traffic, and serving interregional, as well as regional travel demands.[300] Trucks coming to and from the planned intermodal facility will be using the regional road network for exactly the purpose and in the manner as it has been planned by Halton Municipalities. As the arterial roads have been and will be designed and constructed to accommodate trucks, including heavy trucks, the trucks associated with the Project will not have any different impact on the roads than any other trucks using the road under existing and future conditions.

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[298] Halton Brief on SAEEs, Volume 2, May 29, 2019 (CEAR #800), p. 477.

[299] IR 4.13, June 15, 2018 (CEAR #656).

[300] ROP, Table 3, Function of Major Transportation Facilities.

422. Further, contrary to the Region's assertions in its materials,[301] the Region has planned for the anticipated truck traffic from the CN lands. The Region has known about CN's intention to build a rail facility on the CN lands since 2001. As Ms. Gillezeau noted, the Region's *Sustainable Halton* planning process acknowledged in 2009 that the Region was locating employment lands "around the rail line along Tremaine Road in south Milton, to take advantage of opportunities for rail-oriented goods movement."[302] Halton Municipalities has also stated that it took CN's plan for a rail-served industrial park of comparable size into account in its planning in 2008, incorporating the plan into ROPA 38.[303]As Mr. McBride explained in the Traffic and Road Safety Session on June 26th, and as further explained in response to Undertaking 15 and Exhibit 10, a rail-served industrial park would generate more truck traffic than the intermodal facility.[304] Thus, the capital and operating road costs anticipated by the Region in 2011 in relation to a rail-served industrial park would be sufficient to accommodate the truck traffic expected to be generated by the Project.

423. Moreover, the proportion of trucks assumed by Halton Municipalities in relation to their assertion of increased road deterioration is not consistent with the traffic volumes projected to result from the Project. On July 10, Mr. Scandlan, on behalf of Halton Municipalities, explained that to calculate increased road costs, Halton Municipalities assumed that truck traffic on regional roads would rise from 5% of total traffic volume on regional roads to 10% as a result of the Project. This is not correct. The traffic assessments carried out by BA Group on behalf of CN determined that Project-associated traffic will account for a very small proportion of the total future traffic volume – within the range of 0.5% to 3.0% at regional arterial road intersections during the peak hours in the study area.[305] Further, as noted above, trucks generated by

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[301] See e.g. Halton Brief on SAEEs, Volume 2, May 29, 2019 (CEAR #800), p. 476.

[302] Urban Strategies Inc., Working Paper #2: Concepts for Addressing Halton Region's Land Needs to 2031, April 2009, p. 30

[303] Halton Presentation on Community Services and Infrastructure (including Financing), July 10, 2019 (CEAR #908), slide 10.

[304] See CN Response to Undertaking 15, June 27, 2019 (CEAR #882); Summary of 2008 Traffic Report for CN South Milton Industrial Precinct, Exhibit 10 (CEAR #937).

[305] EIS Appendix E.17, Tables 6 and 8.

development of a rail facility on CN lands were already considered by Halton Municipalities in their future traffic assumptions and planning. As Mr. McBride described on June 26, the regional road network is capable of handling the Project truck traffic.

424. In any event, the Halton Municipalities provided no basis for their assertions about the effects of the Project-associated trucks on roads in their written materials. While Halton Municipalities states that its assessment of the impact on road lifespan is based on discussion with road engineers,[306] Halton Municipalities has not provided any assumptions or inputs that it used to support its analysis. It is also unclear what calculations were undertaken by the road engineers to assess the lifespan of the roads or which routes Halton Municipalities assumed the Project truck traffic would use. With respect to the latter point, for example, Halton Municipalities' traffic assessment considered a scenario in which all Project-associated trucks followed a single route; reliance on this scenario would grossly over-state potential effects on any given route. In reality, the Project-associated trucks are expected to disperse on available regional arterial roads, much as existing truck traffic already does. Halton Municipalities has also not provided any justification for its assertion that additional or wider lanes or a different pavement structure would be needed; the traffic assessment carried out by BA Group did not identify the need for any such design alterations beyond those proposed for the gate intersections (discussed further below).

425. Thus, there will likely be no unexpected costs associated with road maintenance costs over and above what the Region would have reasonably expected in any event.

426. Through the traffic and road safety assessments, CN determined the need for intersection upgrades at the gate entrances to the terminal. CN has committed to pay for these intersection upgrades, so Halton Municipalities would incur no incremental capital costs associated with them. Further, CN has committed to pay for the Lower Base Line grade separation, from which Halton Municipalities will benefit. The design of the grade separation incorporates separate cyclist and pedestrian lanes at the request of the Town of Milton; costs for these additional requested features will not be borne by Halton Municipalities. During the hearing, CN also

[306] Halton Brief on SAEEs, Volume 2, May 29, 2019 (CEAR #800), p. 477.

described its previous investments in transportation infrastructure in Halton Region and the Town of Milton.[307] These commitments demonstrate that CN has paid and will continue to pay for transportation infrastructure associated with or necessitated by its railway operations.

iv. Municipal water and wastewater systems

427. Halton Municipalities assert that municipal water and wastewater services are available at the CN property line on Britannia Road, and they assert they have already sized and incurred costs for the utilities based on the assumed development of a rail-served industrial park on CN-owned lands.[308] Halton Municipalities further allege that CN's decision to connect or not to connect to municipal water and wastewater systems will lead to inefficient infrastructure planning and ineffective financing, and may require "revision of strategy." The basis for Halton Municipalities' position is their "allocation system", which Ms. DeAngelis explained is a system by which developers "prepay their share of levies or charges in order to finance critical infrastructure."[309] The Halton Municipalities also claim that the inadequate capacity of private on-site systems is likely to trigger a requirement for public municipal infrastructure to service the site.[310]

428. CN based its design for water and wastewater systems for the Project on its understanding of the availability of municipal utilities. Specifically, as noted by Mr. Reynolds on July 10th, based on information provided by Halton Municipalities during early engagement regarding the Project, CN understood that municipal utilities would not be available at the time the Project was scheduled to commence. CN therefore proposed to rely on private water and wastewater services to meet the needs of the Project. This proposed approach was clearly documented in the EIS, and therefore known to Halton Municipalities since 2015. As Ms. DeAngelis clarified on July 10, municipal water and wastewater systems will not be available at

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[307] Mr. Reynolds Transcript, Volume 5, June 26, 2019 (CEAR #879), p. 1207.

[308] Halton Presentation on Community Services and Infrastructure (including Financing), July 10, 2019 (CEAR #908), slide 10.

[309] Mr. Jacob, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 2950.

[310] Halton Brief on SAEEs, Volume 2, May 29, 2019 (CEAR #800), p. 441.

the Project location until after 2021.[311] She did not indicate when after 2021 they would be available. Further, systems will not be available via Tremaine Road until 2025 or 2026.[312] Mr. Hamel explained that the Tremaine Road utilities project has not been tendered or designed as of yet.[313]

429. Based on this information, Mr. Lerner stated that CN is "open to considering alternatives to connecting to the municipal network as we work through detailed design, if and when it becomes available."[314] Mr. Lerner further noted that CN would have to evaluate connection options. As of now, however, CN does not need to connect to the municipal water and wastewater systems to meet Project requirements, nor does it anticipate needing to in the future. Further, as discussed below in relation to fire protection, the proposed systems will be adequate to meet Project needs, and will be refined during detailed design.

430. Second, while Halton Municipalities expressed concern about the potential for oversized infrastructure, development that was assumed to occur on the lands around the Project, either as part of a rail-served industrial park or other forms of employment use, including intermodal-oriented development, is still expected to occur. Residential development on the north side of Britannia Road is also proceeding. The Region and Town have both planned for significant growth and employment uses in the areas immediately adjacent to the CN project. Thus, whether or not the Project proceeds, utilities planned by Halton Municipalities will be required in the area.

431. Third, with respect to the need to revise the utilities "strategy," incremental adjustment is a routine aspect of the planning process. Whether CN advanced a rail-served industrial park, as contemplated in 2008, or an intermodal terminal as proposed in 2015, there was and is no guarantee that either would proceed as planned. As described in Part X—"LAND USE PLANNING," the planning process provides for regular revisions to land use planning to reflect

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[311] Ms. DeAngelis, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 3015.

[312] Mr. Hamel, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 3010.

[313] Mr. Hamel, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 3010.

[314] Mr. Lerner, Transcript, Volume 12, July 12, 2019 (CEAR #966), p. 3270.

changing circumstances. According to the Best Planning Estimates used by Halton Municipalities, the Project lands would only begin to generate jobs in 2027. By that time, Halton Municipalities will have updated their Official Plan to comply with the provincial Growth Plan, which will bring a myriad of changes to planning, infrastructure and financing. These updates can reflect the evolving status of the CN site and surrounding areas, including actual forecast demands for municipal utilities, at that time.

432. In any event, Halton Municipalities could not have expected CN to prepay to help fund infrastructure planning under the allocation system. The allocation system applies only to residential developers. As Ms. DeAngelis stated, the allocation system requires "Greenfield Residential Developers" to prepay their share, the financing plans help determine the "quantum of Greenfield residential growth", and the "Greenfield Residential Development reserve allocation… triggers the planning approvals process for the new community." The allocation system is not applicable to CN or any other non-residential development.[315]

v. Water supply for fire protection

433. Halton alleges that there will be insufficient water supply for fire protection and that this will increase the risk of significant adverse environmental effects.[316]

434. These assertions are not consistent with the nature of the Project or the codes that have been considered in its design. As described on June 25th, the reach stacker equipment on site will be equipped with onboard fire suppression systems. The administration and maintenance building also will be protected by a fire suppression system designed to code. Given the layout of the terminal, the proposed approach to container staging and stacking height, and the type and scale of fires that could plausibly occur on site, the risk of fire spreading to other equipment, containers, or structures is minimal and there is good access for emergency response in the event of fire. The likelihood of fire in an intermodal terminal is also demonstrably low.[317]

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[315] Ms. De Angelis, Transcript, Volume 10, July 10, 2019 (CEAR #944), pp. 2951-2952.

[316] Halton Presentation on Community Services and Infrastructure (including Financing), July 10, 2019 (CEAR #908), slides 15, 18.

[317] Ms. Patterson, Transcript, Volume 4, June 25, 2019 (CEAR #873), pp. 844-845.

435. In designing the fire protection system on site, as explained in the responses to IRs 2.38 and 2.41, CN followed the fire protection flow rate recommended in the Ontario Building Code. The Project will include a 35,000 gallon (132,475 litres) storage tank.

436. During detailed design, CN will ensure that the size of the water storage tank is sufficient for the facility.[318] These measures are expected to provide for adequate fire suppression on site, in the unlikely event a fire were to occur.

vi. Emergency Services

437. Halton Municipalities have suggested that, if an emergency were to occur on site, it "will engage Town and Region services" and that the "Town and Region must spend funds to be prepared to respond to such an event."[319] Halton Municipalities further asserted that training would be required, and costs incurred, to address the types of chemicals or types of movements through the site.[320]

438. The types of goods that will move through the terminal are less hazardous than the types of goods already moving through the area on the existing mainline. Certainly no new types of goods are expected to be moved.

439. During the Panel orientation in March 2017, during the hearing on June 25th, and in the response to Undertaking #3, CN described the role of CN's Police Service in emergency response. CN also described the first response that CN personnel would undertake in the unlikely event of an accident or malfunction, the emergency response capabilities and systems in place throughout CN's network, and the site-specific emergency response equipment and procedures that will be implemented at the Milton Logistics Hub. [321] These measures are

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[318] Mr. Reynolds, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 2943.

[319] Halton Presentation on Community Services and Infrastructure (including Financing), July 10, 2019 (CEAR #908), slide 34.

[320] Mr. Scandlan, Transcript, Volume 12, July 12, 2019 (CEAR #966), p. 2981.

[321] IR 4.13 (CEAR #656), June 15, 2018.

expected to reduce both the likelihood and consequence of incidents that require emergency response.

440. Notwithstanding these measures, CN has acknowledged that municipal emergency response services may become involved in an incident during Project construction or operation.

441. During the hearing on June 25th and in the response to IR 4.13, CN described its extensive collaboration with municipalities towards ensuring safe railway operations.[322] As noted by Mr. Beekman, CN collaborates and partners with thousands of other response specialists across CN's network, including private contractors, industry specialists, and municipalities. He noted that, since 2016, CN has trained over 10,000 municipal responders, including, between 2014 and 2018, 247 first responders within the Halton Region. The response to IR 4.13 explained that this collaboration includes meeting with first responders in different municipalities and preparing for emergency events through response planning and training. CN earned a National Achievement Award from Transportation Community Awareness and Emergency Response (TRANSCAER®) in recognition of CN's ongoing work to help communities in this regard. This training is provided free of charge to the municipalities. CN expects to continue this collaboration with the municipalities, whether or not the Project proceeds.

442. With respect to Halton Municipalities' concerns regarding the potential cost burden if municipal emergency response were to be required, CN explained that these costs are routinely reimbursed by CN following an incident.[323]

443. Given the variety of goods currently moving through the area on the mainline, and considering the extensive training that has been and will continue to be provided, as well as the expected reimbursement of incurred costs for emergency response, the Project is not expected to burden Halton Municipalities.

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[322] IR 4.13 (CEAR #656), June 15, 2018.

[323] Mr. Reynolds, Transcript, Volume 10, July 10, 2019 (CEAR #944), pp. 2944-2945.

PART XIII – HEARING TOPICS – GEOLOGY AND SOILS

A. Evidence of CN

444. CN's evidence on this topic is below.

EIS GUIDELINES
Section 6 (Part 2) Effects Assessment
Section 7 (Part 2) Summary of Environmental Effects Assessment
Section 8 (Part 2) Follow-up and Monitoring Programs
EIS SECTIONS
December 7, 2015 - section 6.3.2 Geology and Geochemistry (CEAR #57)
December 7, 2015 - section 6.3.3 Topography and Soil (CEAR #57)
December 7, 2015 - section 6.6.3.4 Effects (CEAR #57)
December 7, 2015 - section 10.1.2 – Residual Accidental and Cumulative Environmental Effects (CEAR #57)
TDR
December 7, 2015 - Technical Data Report Channel Realignment (Appendix E.2) (CEAR #57)
December 7, 2015 - Technical Data Report Geotechnical (Appendix E.5) (CEAR #57)
December 7, 2015 - Technical Data Report Soil (Appendix E.13) (CEAR #57)
IR RESPONSES
January 23, 2018 - CN Response to the Review Panel's Information Request 3 (IR3.45) (CEAR #613)
June 12, 2018 - CN Response to the Review Panel's Information Request 5.1_Mitigation (CEAR #655)
OTHER MATERIALS
May 29, 2019 - CN Supporting Documents for the Milton Logistics Hub Commitments Table (CEAR #799)
UNDERTAKINGS
June 28, 2019 - CN Response to Undertaking 16 (CEAR #892)
July 5, 2019 CN Response to Undertaking 17 (CEAR #938)

B. Overview and Conclusions

445. CN conducted a geotechnical investigation of the PDA to document and confirm subsurface conditions on the property, to identify geotechnical issues, and to provide necessary geotechnical parameters and recommendations for the design and construction of the Project.[324]

446. The geotechnical investigation included a soil sampling and testing program, which provided vital support for project design and associated groundwater, surface water, and vibration assessments. It also provided soil quality data to inform the development of a Soils Management Plan.

447. Through these studies, CN was able to characterize the PDA in terms of topsoil, subsoil, and bedrock and confirm the suitability of the soils on site as a stable support for structures and other on-site infrastructure and for re-use.

448. In addition, as described by Mr. Howieson on June 27th, Stantec, on behalf of CN, further evaluated erosion hazards and slope stability along all watercourses and valley slopes within the PDA. That analysis (the detailed results of which were shared in response to Undertaking #17) identified limited erosion and slope stability issues at certain locations along Indian Creek within the PDA, including existing erosion at the toe of the mainline embankment and some slope instability on a meander bend near the proposed location of SWM Pond 2.[325] Those specific areas of concern have been addressed in Project design, including the design of the proposed channel realignment and riparian zone renewal in these areas; no ongoing concerns with respect to erosion or slope stability are expected to remain in the PDA following Project construction and re-establishment of stable conditions. CN has proposed to monitor the channel realignments and related works for a period of three years post-construction to ensure stable conditions are achieved.

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[324] EIS Appendix E.5 (CEAR #57).

[325] See CN Response to Undertaking 17, July 5, 2019 (CEAR #938).

C. Principal Issues Raised

i. Erosion hazards and slope stability analysis

449. The Halton Municipalities assert that the occurrence of erosion hazards on lands within the PDA would create conflicts but also acknowledge that such conflicts can be resolved. [326] In this regard, on June 20th, Conservation Halton acknowledged that they can address potential effects through non-regulatory dialogue with proponents.[327]

450. CN has clearly expressed its openness to engaging in such dialogue with Conservation Halton to ensure erosion hazards are addressed and slope stability is maintained or improved during detailed design. Indeed, CN has been requesting and looks forward to this dialogue.

ii. Landscape disturbance

451. The construction of the Project will necessarily disturb topsoil and require the removal of vegetation within the PDA. Grading will also be required to establish a flat area for the terminal, although the extent of grading will be much less than would have been required at any of the other alternative locations evaluated by CN.

452. In their written submission dated May 29, the Halton Municipalities assert that this ground disturbance will result in a significant adverse environmental effect on topography and soil, which they refer to as a VC.[328]

453. First, as noted previously, topography and soil were not identified as a VC in the EIS Guidelines. Rather, section 6.1.3 of the EIS Guidelines required the EIS to include a description of the existing conditions of topography and soils and section 6.2.3 of the EIS Guidelines required the EIS to include a description of how the Project would change the physical terrestrial environment, including, specifically, "changes related to landscape disturbance." The EIS

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[326] Halton Brief on SAEEs, Volume 1, May 29, 2019 (CEAR #800), p. 44.

[327] Dr. Veale, Transcript Volume 2, June 20, 2019 (CEAR #862), p. 309.

[328] Halton Brief on SAEEs, Volume 1, May 29, 2019 (CEAR #800), p. 27.).

Guidelines then directed the proponent to consider how these predicted changes to the environment would affect the VCs identified in section 6.3 of the EIS Guidelines. [329]

454. The existing conditions of topography and soils and the potential changes to topography and soils were described in the EIS in sections. 6.3.2-6.3.4, as well as Appendices E.5 and E.13.[330]

455. Second, CN has proposed to re-use soils on site, including in berms around the terminal, and to develop and implement a Soils Management Plan for the proper handling and storage of soils. The Plan will include best management practices for soil handling, such as separating topsoils from subsoils, to protect soil quality for re-use. In conjunction with the Erosion and Sediment Control Plan, the Soil Management Plan will also serve to prevent erosion of soils by wind and water and maintain stability of soil wherever it is stockpiled and re-used on site. Moreover, other mitigation measures associated with the channel realignment and habitat enhancements on site will address existing soil erosion issues. Thus, on-site soils will not be lost as a result of the Project. They will continue to be productively used on site to support enhanced wildlife habitat and native vegetation on the berms. Thus, there is no loss of or residual adverse effect on soil.

PART XIV – HEARING TOPICS – GROUNDWATER AND SURFACE WATER

A. Evidence of CN

456. CN's evidence is on this topic is outlined below.

<u>EIS GUIDELINES</u>
Section 6 (Part 2) Effects Assessment
Section 7 (Part 2) Summary of Environmental Effects Assessment
Section 8 (Part 2) Follow-up and Monitoring Programs
<u>EIS SECTIONS</u>
December 7, 2015 - section 6.3.4.1 Baseline – Groundwater (CEAR #57)

[329] EIS Guidelines (CEAR #12).

[330] EIS (CEAR #57), s. 6.3.2-6.3.4, pp. 135-138.

December 7, 2015 - section 6.3.4.2 Baseline – Surface Water (CEAR #57)

December 7, 2015 - section 6.4.2.1 Realignment and Hydrological Conditions (CEAR #57)

December 7, 2015 - section 6.4.2.4-6.2.4.6 Changes to Groundwater (CEAR #57)

December 7, 2015 - section 9.4.3 – Follow-up – Groundwater (CEAR #57)

December 7, 2015 - section 9.4.4 – Follow-up – Surface Water (CEAR #57)

TDR

December 7, 2015 - Channel Realignment Technical Data Report (Appendix E.2) (CEAR #57)

December 7, 2015 - Hydrogeology Technical Data Report (Appendix E.6) (CEAR #57)

December 7, 2015 - Surface Water Technical Data Report (Appendix E.15) (CEAR #57)

IR RESPONSES

May 18, 2016 - CN Response to the CEAA's Information Request 1 (IR15, 16, 17) (CEAR #72)

September 30, 2016 - CN Response to the CEAA's Information Request 2 (IR16) (CEAR #375)

April 21, 2017 - CN Response to the Review Panel's Information Request 1 (IR1.2) (CEAR #561)

August 31, 2017 - CN Response to the Review Panel's Information Request 2 (IR2.4, 2.39) (CEAR #592)

January 23, 2018 - CN Response to the Review Panel's Information Request 3 (IR3.17, 3.18, 3.20, IR3.21, 3.23 to 3.31 to 3.36, 3.40, 3.42 to 3.44) (CEAR #613)

March 21, 2018 - CN Response to the Review Panel's Information Request 4 (Group 1) (IR4.40, 4.46, 4.48) (CEAR #632)

May 18, 2018 - CN Response to the Review Panel's Information Request 5 (IR5.11, 5.14) (CEAR #647)

June 12, 2018 - CN Response to the Review Panel's Information Request 5.1_Mitigation (CEAR #655)

August 20, 2018 - CN Response to the Review Panel's Information Request 7 (IR7.3 to 7.8) (CEAR #680)

October 30, 2018 - CN Response to the Review Panel's Information Request 8 (IR8.1) (CEAR #705)

February 15, 2019 - CN Response to the Review Panel's Information Request 6 (IR6.2) (CEAR #714)

OTHER MATERIALS

May 29, 2019 – CN Supporting Documents for the Milton Logistics Hub Commitments Table (CEAR# 799)

UNDERTAKINGS

June 28, 2019 - CN Response to Undertaking 18 (CEAR #893)

July 3, 2019 - CN Response to Undertaking 22 (CEAR #923)
July 8, 2019 - CN Response to Undertaking 20 (CEAR #928)
July 8, 2019 - CN Response Undertaking 23 (CEAR #929)

B. Overview and Conclusions

i. Groundwater

457. The hydrogeological investigation used the information collected during the geotechnical investigation (discussed in Part XIV – "GEOLOGY AND SOILS") to assess whether the form and function of the groundwater system may be affected by the Project and to evaluate the need for measures to mitigate potential effects. The hydrogeological investigation considered subsurface field investigation / characterization, seasonal groundwater monitoring (levels, flow, and quality), data interpretation, recommended mitigation measures, and the need for and scope of follow-up programs.

458. The assessment demonstrated that the subsurface of the PDA predominantly consists of tightly-packed silts and clays that restrict infiltration and groundwater movement in the subsurface in both the horizontal and vertical direction and provide a natural barrier to protect the groundwater system from above-ground activities.[331]

459. Groundwater is not a key contributor of water to Indian Creek, as most of the creek is positioned above the water table. The section of Indian Creek that flows through the PDA is predominantly a groundwater recharge feature; that is, surface water moves downward from this watercourse and into the groundwater system. When groundwater inputs do occur (briefly in the spring at limited locations), the volume is low due to the tight soils and minimal compared to the flow volumes provided by surface water runoff (overland flow) inputs.[332]

460. CN has proposed mitigation measures, management plans, and monitoring to address potential effects on groundwater quality and flow.

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[331] CN Presentation on Geology, Soils, and Soil Quality, June 17, 2019 (CEAR #848), slide 5; NRCan Submission, May 29, 2019 (CEAR #794), s. 3.1.1, p. 3.

[332] IR 3.27-1 (CEAR #613).

461. In their presentation, Natural Resources Canada (NRCan) stated it supports CN's conclusion that the Project site is not vulnerable to groundwater contamination from the surface and that impacts on nearby wells due to dewatering are not likely. NRCan also concurred with CN's proposed monitoring to confirm pre-construction groundwater flow patterns are maintained and monitoring of private wells during Project construction as appropriate to ensure that dewatering does not affect levels.[333]

462. During the hearing, no outstanding concerns regarding groundwater were raised by the Halton Municipalities, Conservation Halton, Environment and Climate Change Canada, or the Ministry of Environment, Conservation and Parks (MECP). In fact, in their April 2019 Brief, the Halton Municipalities concluded that the Project will cause no residual effects to groundwater quantity and quality.[334]

ii. Surface Water

463. With respect to surface water, the PDA falls largely within the Indian Creek watershed. Indian Creek flows permanently across the PDA, while Tributaries A, B, C, and D flow intermittently in and around the site, subject to extended dry conditions throughout the year. These waterways exhibit degraded surface water quality as well as elevated levels of suspended solids, inorganic and organic compounds, metals, and hydrocarbons. The watercourses within the PDA lack riparian cover important in shading the watercourse and preventing erosion.

464. The Project's proposed alterations to surface watercourses aim to:

(a) Protect and enhance the receiving water environment;

(b) Maintain or improve existing flow rates, local flooding conditions, water quality, and aquatic thermal conditions;

(c) Build in climate change resiliency; and

(d) Avoid erosion and soil/sediment loss.

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[333] NRCan Presentation on Hydrology and Water Quality, June 27, 2019 (CEAR #872), slide 14.

[334] Halton Brief, April 9, 2019 (CEAR #742), s. 2.1, p. 13.

Planning of stormwater management systems, diversions, channel realignments, and culvert installations across the PDA have centered on these considerations, as well as those identified for this Project in the Bronte Creek Watershed Study (CH 2002).[335]

465. Effective SWM is essential to ensure successful water quality and flood management. To this end, the Project's SWM system is based on extensive site-specific research and produced in consideration of Conservation Halton's Bronte Creek Watershed Study, the Town of Milton's Indian Creek/Sixteen Mile Creek Sherwood Survey Subwatershed Management Study, and the Town of Milton's Functional Stormwater and Environmental Management Strategy, Boyne Survey Secondary Plan Area. The system was also designed in accordance with provincial standards as established in the Stormwater Management Planning and Design Manual (MOE 2003) guidelines and following best management practices.

466. The Project's SWM system proposes to adopt a water quality treatment train approach for storm water runoff from the Project site area based on at source features such as catch basins, oil-grit separators, runoff harvesting and permeable pavements, followed by conveyance in storm sewers and grassed swales and ending with stormwater ponds with sediment forebays, ponded areas, extended detention and flood storage, and subsurface discharges and outlet valve controls.[336] The Project uses the highest provincial water quality design criteria ("Enhanced") from MOE (2003), [337] which targets 80% removal of total suspended solids (TSS) and is consistent with recommendations from the Boyne Survey. As a result of this system, the Project is anticipated to reduce concentrations of TSS and other deleterious substances within Indian Creek.[338]

467. The quality of water in receiving waterbodies (i.e., Tributary A, Indian Creek) is expected to improve due to improved stormwater quality and temperatures relative to existing runoff from areas currently under agricultural use, increased water oxygenation through defined

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[335] IR3.19, January 24, 2018 (CEAR #613).

[336] EIS Appendix E.15, Appendix B (CEAR #57).

[337] CN's Response to Undertaking 18, June 28, 2019 (CEAR #893).

[338] EIS Appendix E.5 (CEAR #57).

realignment pools and riffle features, and increased shading attenuating water temperature and increasing oxygen saturation potential. [339]These benefits will be further amplified by the removal of the existing on-line agricultural pond, as recommended in the Bronte Creek Watershed Study. Riparian woody plantings and in-channel large woody debris will increase the availability of aquatic carbon and organic materials that are important to the base of the aquatic food chain. In addition, channel realignment design improves in-stream resistance to erosion and scour and thus reduces the erosion potential of bypassing flows.

468. Floodplain and channel realignments within the PDA have been designed to maintain or reduce existing floodplain elevations downstream of the PDA, including the introduction of a flood control berm. Further, as identified in CN's response to Undertaking 20, the extent of existing flooding has either been maintained or improved, whereby there is no predicted increase in flood hazard risk to third parties as demonstrated through the existing and proposed condition floodplain mapping extents upstream and downstream of the PDA.[340] In the event of a regional storm, each proposed SWM pond will include an emergency spillway and discharge channel to provide flood relief and control flows during such an event.

469. CN has committed to developing and implementing environmental management plans to mitigate potential adverse changes to surface water quality, including an erosion and sediment control plan and salt management plan.

470. To ensure the Project meets its environmental commitments, quarterly surface water quality monitoring will occur during construction and over three years following completion of the Project.

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[339] EIS Appendix E.4, EIS Appendix 6, (CEAR # 57); IR4.47, March 21, 2018 (CEAR #632).

[340] CN Response to Undertaking 20, July 9, 2019 (CEAR #938).

C. Principal Issues Raised

i. Groundwater Monitoring

471. CN has proposed the monitoring of water levels in private wells during construction dewatering, for those wells identified as potentially being affected by such activities (if any dewatering is required) to ensure there is no adverse effect on those wells.

472. NRCan has recommended that, where there is to be groundwater monitoring, the proposed monitoring of groundwater levels and quality be continued for a minimum of one year after construction in the geological units used for water supply in the area.

473. In CN's view, groundwater monitoring after construction is not warranted, as there is no potential pathway for effect once Project construction is complete. Any potential effect of dewatering will be reversed, that is groundwater levels will begin to recover to their pre-dewatering level, as soon as any dewatering activity ceases. As noted in EIS Appendix E.6, local private wells are constructed at depths well below where construction dewatering would possibly occur (i.e., the risk of interfering with water levels in private water wells is essentially non-existent).[341] There will be no groundwater withdrawal after construction. Further, as noted previously, the PDA is not vulnerable to groundwater contamination from activities occurring at ground surface due to the protective barrier provided by the tightly-packed silt and clay soils of the subsurface. NRCan concurred with this finding in their presentation.[342] For these reasons, the evidence does not appear to warrant ongoing groundwater monitoring after construction.

ii. Adequacy of hydrologic and hydraulic modeling - data sufficiency

474. In their submissions and presentations, CH and Halton Municipalities indicated that they believed the hydrology modeling was based on just six weeks of field data. They based subsequent arguments regarding the adequacy of both the hydrology modeling and the hydraulic modeling that depended on the hydrology model outputs on this incorrect assumption.

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[341] EIS Appendix E.6 (CEAR #57), s. 5.0, p. 21.

[342] NRCan Presentation on Hydrology and Water Quality, June 27, 2019 (CEAR #872), slide 14.

475. In fact, extensive field data were used to support the hydrology models. As described in the Hydrology and Water Quality TDR, Stormwater Management Strategy, and responses to IRs 1.2, 3.26, 3.36, and 6.2, in addition to the 12 months of field data collected specifically for this Project, the hydrology modeling was based on extensive, multi-year field data collection taken from the Sherwood and Boyne Survey's own hydrology model, as well as 60 years of gauging data from a nearby station on Sixteen Mile Creek. Thus, concerns based on this misunderstanding of the hydrological model field data verification are unfounded.

iii. Adequacy of hydrologic and hydraulic modeling - drainage areas

476. In their 2017 submissions and during the hearing, Conservation Halton and Halton Municipalities suggested that the drainage areas mapped by CN and used in the hydrologic modeling were incorrect. CH noted that under-sized drainage areas would produce under-estimated flows.[343] On this basis, CH asserted the hydrologic model is not likely able to accurately predict flows, which CH and Halton Municipalities noted would cause the assessment to under-estimate risks associated with flooding and erosion, for example due to culvert under-sizing.

477. As explained in CN's response to IR 3.23 and during the hearing, the apparent differences in drainage area were the result of arbitrary watershed cut-off points, such as where a drainage area crosses a road, and that, when the entire drainage areas are compared with CH and Halton Municipalities mapping, CN's drainage area mapping is highly consistent.[344]

478. The drainage areas used in the hydrologic modeling were, therefore, appropriate and the flows predicted by the model are accurate and suitable for Project SWM design and the assessment of flow conveyance and flood and erosion risk.

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[343] Ms. Fischer-Patterson, Transcript, Volume 6, June 27, 2019 (CEAR (#887), pp. 1629-1630; Mr. Scheckenberger, Transcript, Volume 6, June 27, 2019 (CEAR (#887), p. 1704.

[344] IR 3.23 (CEAR #613).

iv. Adequacy of hydrologic and hydraulic modeling - other model inputs

479. In addition to the temporal span of data and drainage areas issues noted above, CH also asserted that other model inputs, such as the Manning coefficient or surface roughness factor, were incorrectly applied in the hydraulic model. On this basis also, CH asserted that the model would be unable to accurately predict flooding.

480. As described by Mr. Smith on behalf of CN,[345] the assessment used CH's own hydraulic model for Indian Creek, and, as CH did not have a hydraulic model of Tributary A at the time the EIS was prepared, CN built its own model, using surface roughness values that reflected the channel and floodplain characteristics proposed to be developed in the channel realignment and habitat enhancement areas.

481. During the hearing, CH indicated it now has a hydraulic model of Tributary A and made it available to CN in Undertaking #19. CN presented regional storm floodline delineations for existing and proposed conditions for Indian Creek and Tributary A using CH's models, including CH's recommended proposed condition surface roughness factors.[346]

v. Adequacy of hydrologic and hydraulic modeling - results

482. In the response to Undertaking #20, CN presented both existing and proposed condition floodplain mapping using CH models for Tributary A and Indian Creek, including CH's recommended proposed condition surface roughness values. Undertaking #20 demonstrated there would be no increase in flood hazard risk on third party lands and that Project flooding effects do not extend upstream or downstream of the PDA. The results shown in Undertaking #20 are consistent with the modeling results previously provided for Indian Creek and for Tributary A in EIS Appendix E.15, and illustrate a reduction of flood hazard risk relative to existing conditions.[347]

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[345] Mr. Smith, Transcript, Volume 6, June 27, 2019 (CEAR (#887), pp. 1557-1558.

[346] CN Response to Undertaking 20, July 9, 2019 (CEAR #938).

[347] See CN Response to Undertaking 20, July 9, 2019 (CEAR #938); EIS Appendix E.15 (CEAR #57).

483. CN's floodplain modeling is in keeping with provincial flood assessment guidance, and shows that the proposed design will maintain or reduce flooding effects on third party lands, effectively provide storage and conveyance of the regional flood, and will not result in adverse flooding effects.

484. The use of appropriate data and model factors, as described above, supported a robust and comprehensive hydrologic and hydraulic modeling exercise that enabled accurate and reliable predictions of flows and flooding and informed the assessment of potential effects on surface water quantity, including potential changes in flood and erosion risk.

vi. Culvert sizing and design, riparian storage, and flood risk

485. CH asserted that the proposed culverts and SWM system are potentially under-sized for larger (regional) storm flows, leading to an increased risk of flooding, including flooding on third party lands.[348] CH also asserted that riparian storage was not considered in relation to the tributaries to Indian Creek and that the Project would cause a loss of riparian storage, potentially increased flood risk.

486. During the hearing, CN confirmed that the hydrologic and hydraulic modeling, including floodplain modeling, and SWM system design considered the regional storm event as well as riparian storage.

487. As noted during the hearing, CN applied American Railway Engineering and Maintenance of Way Association (AREMA) standards, as well as CN's own hydraulics standard, to culvert design. The resulting design storm, headwater to depth ratio, and freeboard results meet or exceed the Ontario Ministry of Transportation's (MTO) highest hydraulic conveyance requirements, that of Freeways, Urban Arterials, and Collectors. Four of the six culverts proposed in the Stormwater Management Strategy will pass the regional storm and, where culverts cannot pass the regional storm (i.e., culverts 2A and 2B beneath the terminal), a regional diversion channel will provide flood relief to effectively manage that extreme storm threshold.

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[348] Ms. Fischer-Patterson, Transcript, Volume 6, June 27, 2019 (CEAR (#887), p. 1630; Conservation Halton Submission, May 29, 2019 (CEAR #790), p. 5.

The diversion channel will divert regional storm flows around the terminal without adversely affecting upstream and downstream flood levels.

488. The design of culverts under the mainline and pad and service tracks is constrained by the static and dynamic loading associated with standing and moving trains. The proposed culvert design takes these constraints into consideration. Along Tributary A, CN proposes replacing two existing round culverts with box culverts. These box culverts would increase the existing capacity of the culvert opening area by approximately 30%. The proposed culverts are sized to pass flows up to the 100-year storm. In addition, CN proposes to establish a diversion channel to convey excess flows during a regional storm event around the facility and back into Indian Creek at a point in the retained channel, upstream of the proposed confluence of the re-aligned channel with the existing channel, on CN property.

489. The modeling results provided in Undertaking #20 (as well as the modeling results provided previously in the Floodplain Assessment (Appendix C of EIS Appendix E.15) demonstrate that, with the proposed culverts, SWM system, and regional diversion, regional storm flows would be accommodated without increasing flood risk upstream, downstream, or on third party lands. The Project will maintain or reduce the flood line downstream of the PDA,[349] including through the increase of riparian storage and the upgrading of culverts within the PDA.[350]

vii. Creek realignment

490. CH suggested in their presentation that the proposed creek realignment is one reason they do not support Project approval.[351]

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[349] EIS Appendix E.15 (CEAR #57), Appendix C.

[350] EIS Appendix E.2 (CEAR #57), C-2.21 - C-2.23.

[351] Conservation Halton Presentation on Hydrology and Water Quality, June 27, 2019 (CEAR #854), slide 12.

491. The Panel heard in presentations by Ms. Schofield of Great Gulf[352] and by Ms. Roberts[353] about channel realignments on Tributary A in the Pony Pines development, and on other watercourses in Milton Heights, which were reviewed and approved by Conservation Halton and the municipalities. Notably, the upper reaches of Tributary A, as identified on the Tertiary Plan for the Boyne Survey Secondary Plan Area, were approved to be realigned upstream of Britannia Road along the east side of the CN mainline to accommodate the proposed residential subdivision. [354]

492. Given that Conservation Halton and the municipalities have previously approved realignments in the watershed, including of Tributary A, it is reasonable to conclude that CH and the municipalities agree that channel realignments can be designed and implemented in a manner that avoids significant adverse environmental effects.

493. In CN's view, the evidence provided by CN to date, including evidence based on CH's own models, supports the conclusion that the Project as proposed, including the channel realignments, culvert designs, flood diversion channel, SWM system, flood berm, and other features and mitigation measures, will effectively manage the conveyance of surface water through and around the PDA without increasing the flood or erosion risk upstream, downstream, or on any third party lands.

viii. Surface water quality

494. In their May 29 submission, the Halton Municipalities acknowledge that the potential adverse effects of the Project on surface water quality "would be expected to be mitigable by the proposed measures, including the SWM system and other measures such as riparian buffers" but assert that such measures are not federally enforceable. [355] The Halton Municipalities therefore concluded that a significant adverse environmental effect would result from the Project.

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[352] Ms. Schofield, Transcript, Volume 11, July 11, 2019 (CEAR #953), p. 3247.

[353] Ms. Roberts, Transcript, Volume 12, July 12, 2019, (CEAR #), p. 3276.

[354] Presentation by Great Gulf, July 11, 2019 (CEAR #951), slide 5.

[355] Halton Brief on SAEEs, Volume 1, May 29, 2019 (CEAR #800), p. 58.

495. As discussed in Part IV – "ENVIRONMENTAL EFFECTS ASSESSMENT METHODOLOGY," CN expects that all proposed mitigation measures will be federally enforceable through conditions of federal approval(s) that may be issued in relation to the Project. This expectation was confirmed by Fisheries and Oceans Canada (DFO) in their submission and presentation to the Panel, who stated that it will include site-specific mitigation as conditions of the *Fisheries Act* Authorization for the Project (if one were to be issued).[356]

496. DFO also acknowledged that the mitigation measures outlined in the EIS and proposed Environmental Protection Plan – many of which directly address surface water quality – are appropriate and comprehensive.

ix. Regulatory framework

497. CH and Halton Municipalities suggested that significant adverse environmental risks, including risk to public health and safety and increased risk of property damage related to erosion and flood hazards, are likely to result from the Project in the absence of "proper regulatory oversight," by which they mean the application of the regulatory regimes of Conservation Halton and the municipalities.[357] In their view, as expressed by Mr. Scheckenberger, on behalf of Halton Municipalities, the permitting process implemented by Conservation Halton and the municipalities ensures that works are "planned, designed, constructed, maintained and operable for the long term."[358] CH and Halton Municipalities also expressed the view that their regulatory oversight is necessary to ensure their concerns are addressed and that mitigation and monitoring programs are implemented.

498. CN agrees with the Panel's position that the appropriate focus in this process is on the potential for adverse environmental effects to result from the Project.

499. Both CH and Halton Municipalities have had ample opportunity through the EA process to review technical information pertaining to the proposed design of the Project and the

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[356] Fisheries and Oceans Canada Presentation on Fish and Fish Habitat, June 28, 2019 (CEAR #828), slide 14; Fisheries and Oceans Canada Submission, May 29, 2019 (CEAR #784), p. 12.

[357] Ms. Fischer-Patterson, Transcript, Volume 6, June 27, 2019 (CEAR (#887), p. 1627.

[358] Mr. Scheckenberger, Transcript, Volume 6, June 27, 2019 (CEAR (#887), p. 1704.

assessment of potential changes the Project may cause to flows and flooding in Indian Creek and its tributaries within, upstream, and downstream of the PDA. Both CH and Halton Municipalities have, in their many submissions to this process, outlined their concerns with respect to the design of culverts, channel realignments, and the SWM system, as well as potential effects on flooding. CN has reviewed submissions from CH and Halton Municipalities to identify issues and has addressed those issues, including those discussed above, through the EIS and TDRs and in responses to IRs, as well as additional evidence provided during the hearing.

500. Further, CN has made repeated efforts to engage with both CH and Halton Municipalities throughout the EA to share technical information and to identify, understand, and address technical issues pertaining to erosion hazards and flood risk, among other issues. CN's engagement efforts are documented in the updated Consultation Record provided to the Panel on May 29.[359]

501. During the hearing, CN also expressed its willingness to continue engaging with CH and the municipalities to facilitate integrating those parties' experience and knowledge into planning and design of the Project.

502. In CN's view, the evidence provided to date shows that the issues identified by CH and Halton Municipalities with respect to these matters have been considered and appropriately assessed. The absence of a formal permit application before either CH or the municipalities has not prevented these issues from being considered and addressed or the potential environmental effects from being fully assessed and mitigated. There is a mechanism by which the input of CH and the municipalities can continue to be integrated into Project planning and design. As described in Part IV – "ENVIRONMENTAL EFFECTS ASSESSMENT METHODOLOGY," CN expects the mitigation and monitoring to which it has committed to be fully enforceable through conditions of any approval that may be issued in respect of the Project. It is therefore reasonable to conclude that significant adverse environmental effects would not result from the absence of regulatory oversight by CH or the municipalities.

[359] CN Consultation Record, May 29, 2019 (CEAR #799).

PART XV – HEARING TOPICS – FISH AND FISH HABITAT

A. Evidence of CN

503. CN's evidence on this topic is identified below.

EIS GUIDELINES

Section 6 (Part 2) Effects Assessment

Section 7 (Part 2) Summary of Environmental Effects Assessment

Section 8 (Part 2) Follow-up and Monitoring Programs

EIS SECTIONS

December 7, 2015 - section 6.3.5 Baseline – Fish and Fish Habitat (CEAR #57)

December 7, 2015 - section 6.5.1 Predicted Effects – Fish and Fish Habitat (CEAR #57)

December 7, 2015 - section 6.6.1.1 Assessment of Cumulative Environmental Effects on Fish and Fish Habitat (CEAR #57)

December 7, 2015 - Table 7.1: Summary of Environmental Effects Assessment (CEAR #57)

December 7, 2015 - section 8.0 Benefits of The Project (CEAR #57)

December 7, 2015 - section 9.4.5 – Follow-up – Fish and Fish Habitat (CEAR #57)

TDR

December 7, 2015 - Technical Data Report Fish and Fish Habitat (Appendix E.4) (CEAR #57)

IR RESPONSES

May 18, 2016 - CN Response to the CEAA's Information Request 1 (IR7, 22, 25) (CEA #72)

September 30, 2016 - CN Response to the CEAA's Information Request 2 (IR22, 25) (CEAR #375)

April 21, 2017 - CN Response to the Review Panel's Information Request 1 (IR1.1) (CEAR #561)

June 19, 2017 - CN Response to the Review Panel's Information Request 1 (IR1.1) (CEAR #574)

August 31, 2017 - CN Response to the Review Panel's Information Request 2 (IR2.12) (CEAR #592)

January 23, 2018 - CN Response to the Review Panel's Information Request 3 (IR3.20, 3.24, 3.25, 3.34, 3.35, 3.37) (CEAR #613)

March 21, 2018 - CN Response to the Review Panel's Information Request 4 (Group 1) (IR4.40 to 4.51) (CEAR #632)

May 18, 2018 - CN Response to the Review Panel's Information Request 5 (IR5.9, 5.11, 5.14) (CEAR #647)

June 12, 2018 - CN Response to the Review Panel's Information Request 5.1_Mitigation (CEAR #655)

October 19, 2018 - CN Response to the Review Panel's Information Request 8 (IR8.1) (CEAR #705)

OTHER MATERIALS

May 29, 2019 – CN Supporting Documents for the Milton Logistics Hub Commitments Table (CEAR# 799)

B. Overview and Conclusions

504. The assessment considered the potential environmental effects of the Project on the identified Valued Component Fish and Fish Habitat in Indian Creek and its tributaries within the PDA (Tributaries A, B, and C). These watercourses support fish that are part of, or support, a Commercial, Recreational, or Aboriginal fishery (CRA fishery). However, CN's assessment of the Project's impact on fish and fish habitat was not restricted to CRA fisheries.[360]

505. Indian Creek permanently flows across the western half of the PDA. The 2015-2016 surface water quantity and quality study found Indian Creek to be degraded, particularly with regard to suspended sediments, metals, and other relevant water quality parameters.[361] In addition, the Bronte Creek Watershed Study (BCWS) identified Indian Creek as the most degraded watercourse within the Bronte Creek watershed (CH 2002). Throughout the PDA, Indian Creek is characterized by limited or non-existent riparian cover and high levels of erosion and turbidity. As a result of these water quality issues, the BCWS found that Indian Creek's ability to support highly sensitive fish species is limited and the species it does support are highly tolerant of poor water quality and high temperature variance.[362]

506. Tributary A is an intermittent watercourse that drains into Indian Creek during spring freshet and high precipitation events. For the remainder of the year, Tributary A experiences extended dry periods.[363] Similar to Indian Creek, the 2015-2016 water quality study and the

[360] IR 5.9, May 18, 2018 (CEAR# 647).

[361] EIS Appendix E.4 (CEAR #57)

[362] EIS Appendix E.4 (CEAR #57), s. 2, p. 5, IR .44, March 21, 2018 (CEAR #632).

[363] EIS Appendix E.4 (CEAR #57), s. 4.2, p. 14.

BCWS described water quality in Tributary A as degraded, limiting its ability to support sensitive fish species.[364] Tributary C also exhibits intermittent flows and exists largely as a roadside ditch at the southern edge of the PDA along Lower Base Line.

507. The Project includes the installation of new or upgrading of existing culverts, the realignment of portions of Tributary A and Indian Creek, the creation and enhancement of riparian and aquatic habitat along Tributary A and Indian Creek, and the development of a SWM system to manage surface water and drainage in and around the PDA.

508. These proposed design and mitigation features — targeting both in-water habitats and those along the riparian zone — will improve water quality and increase the diversity, quality, and availability of habitat types to a variety of fish species and life stages of fish within an otherwise degraded watercourse. The Project will implement the ecosystem improvement objectives identified in the BCWS for this site.

509. From a water quality perspective, the Project's SWM system is anticipated to reduce concentrations of TSS and other deleterious substances, resulting in a positive effect to water quality.

C. Principal Issues Raised

i. Indian Creek realignment and proposed channel design

510. CH stated that the magnitude of the proposed realignment of Indian Creek has not been shown to be necessary and asserted that the proposed realignment would not address the existing slope erosion issues.[365]

511. Realignment of Indian Creek is necessary to address existing erosion and slope stability issues on Indian Creek adjacent to the CN mainline embankment, as well as to provide sufficient

[364] EIS Appendix E.4 (CEAR #57), s. 2, p. 5, IR .44, March 21, 2018 (CEAR #632).

[365] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1821-1822.

space for, and separation between, the creek and the operating area of the terminal. This has been clearly articulated by CN in its submissions and during the hearing.[366]

512. CN has also explained how the realignment offers an opportunity to construct an erosion-resistant channel with improved fish and aquatic habitat, including the creation of several connected and isolated pocket wetland features to support fish spawning.

513. These objectives could not be met by the other alternatives that were considered for the channel realignment, as described in section 2.2.3.8 of the EIS and in the response to IR 2.23.[367]

514. Through construction of the terminal operating area and realignment of the creek, the existing area of erosion and slope instability will be eliminated. The area adjacent to the existing mainline embankment, where erosion is actively occurring, will be infilled and graded to a stable surface. The creek will be realigned to its new channel, designed with an appropriate meander belt and floodplain to prevent future migration and erosion at this location. There is no evidence to suggest that the proposed realignment and design of the Project would not address the existing erosion and slope instability issues.

ii. Fluvial geomorphology

515. CH asserted that the proposed channel realignment would result in indirect impacts on stream processes, for example altered sediment loads, flow velocities, or other fluvial processes.[368] They asserted there is a high risk that the fluvial stream processes will not be replicated and could lead to increased channel instability, resulting in increased erosion in some areas and more deposition in others.[369] CH asserted the EIS did not include a full assessment of

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[366] Mr. Lerner, Transcript, Volume 1, June 19, 2018 (CEAR #860), p. 74; Mr. Howieson, Transcript, Volume 6, June 27, 2019 (CEAR #887), p, 1517.

[367] EIS (CEAR #57), s. 2.2.3.8, p. 35; IR 2.23, August 31, 2017 (CEAR #592).

[368] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1822.

[369] Ms. Fischer-Patterson, Transcript, Volume 6, June 27, 2019 (CEAR #887), p. 1640.

potential impacts to fluvial function.[370] CH proposed open-bottom culverts to allow fluvial processes to proceed naturally.[371]

516. In fact, a comprehensive fluvial geomorphic assessment was completed for the Project, as described during CN's presentation on June 28th.[372] The assessment used stable local reference reaches for Indian Creek and Tributary A to form a natural channel design template, which was then used in concert with threshold channel design to inform the creation of realigned channels that are geomorphically stable, healthy, and productive. The realignments and enhancements will address existing channel instabilities and erosion concerns.

517. Culvert design is addressed in Part XIV – "GROUNDWATER AND SURFACE WATER" above and further below in relation to fish passage.

iii. Habitat loss and offset

518. CH asserted that the proposed channel realignment would result in a loss of 500 m of channel habitat.[373] CH further stated that the proposed habitat compensation should be "located on site, close to site, and within the sub-watershed" and asserted that this approach is not proposed for the Project.[374] These assertions are not correct.

519. In fact, as proposed, the Indian Creek realignment will provide a new 570 m channel, retain 260 m of existing channel to connect headwater areas east of the mainline, and repurpose 184 m of existing creek bend as an oxbow wetland feature, resulting in a net channel length loss of just 61 m.[375] Further, the proposed channel realignment and habitat enhancements, which are

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[370] Ms. Fischer-Patterson, Transcript, Volume 6, June 27, 2019 (CEAR #887), p. 1640; Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1822-1823.

[371] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1844.

[372] Mr. Geddes, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1766-1767.

[373] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1821.

[374] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1823.

[375] Mr. Lerner, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 2077-2078.

located on site, immediately adjacent to and within the same watershed as the lost habitat, will result in a net gain of 217 square metres of aquatic habitat in the same watershed.

520. DFO indicated that CN's offsetting plan "has been designed to replicate and enhance existing habitat features that will improve the productivity of the fishery."[376] DFO indicated that the offsetting measures and enhancements are generally well understood and have been demonstrated as technically feasible and beneficial to fish and fish habitat. DFO also expressed its view that the direct and indirect impacts to fish and fish habitat associated with the proposed Project can be offset with the proposed offsetting plan.

521. Overall, realignment of Indian Creek and Tributary A is anticipated to result in a decrease in sediment input and an overall increase in habitat quality, quantity, and natural function, offering an important opportunity to improve fish habitat conditions on Indian Creek.

522. DFO expressed its confidence, based on experience with similar projects elsewhere, including in the Milton, Burlington, and Greater Toronto areas, that "channel realignments, when designed properly, constructed appropriately, with monitoring and follow-up, are generally successful and do not result in a loss of productivity to fish, to the fishery."[377]

iv. Ecological function of Tributary B

523. Tributary B within the PDA is a largely unchannelized surficial drainage feature that remains dry for much of the year.[378] At the time of the 2015 survey, Tributary B terminated 50m upgradient of Indian Creek and was separated from the creek by a plowed field. The gap prevented fish from moving upstream from the creek to the tributary.[379] Therefore, Tributary B was not found to support fish that are part of, or support a CRA fishery.

524. During the hearing, Conservation Halton asserted that a full assessment of Tributary B as a headwater drainage feature had not been conducted, "as an older HDF assessment methodology

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[376]Fisheries and Oceans Canada Submission, May 29, 2019 (CEAR 784), p. 13.

[377] Mr. Schweitzer, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1870.

[378] EIS Appendix E.4 (CEAR #57), Appendix B.

[379] EIS Appendix E.4 (CEAR #57), s. 5.1.2.

was used" that did not consider ecologic, as well as hydrologic, function.[380] On that basis, CH stated that it does not support the removal of Tributary B without a comprehensive assessment of its current functions and the provision of proper mitigation measures to replicate these functions.

525. Tributary B was assessed as a watercourse, which gives it somewhat more weighting as a feature than if it were considered a HDF. It was assessed and described with respect to its flow regime, channel definition, existing disturbances, riparian condition, and overall ecological function. If Tributary B were evaluated as a HDF using the CVC/TRCA 2014 guidelines, it would be assigned a Mitigation management recommendation, meaning if it were to be removed, its function should be replicated. The lower end of Tributary B will be maintained *in situ*, while a portion of its drainage downstream of the mainline will be directed through the SWM system and ultimately discharged to Indian Creek. Drainage from upstream, or east of the mainline, where most the tributary's drainage area lies, will be unaffected by the Project and will be diverted through the flood diversion channel and discharge to the retained channel portion of Indian Creek. Flow delivery to Indian Creek will therefore be replicated, and the lower end of Tributary B that is surrounded by meadow vegetation will be retained.

526. As described at length during the hearing, a comprehensive assessment of all HDFs in the PDA has already been conducted.[381] CN's evaluation of HDFs included the typical observations of aquatic habitat assessments, including those described in the current 2014 Evaluation, Classification and Management of Headwater Drainage Features Guidelines (CVC/TRCA 2014), including observations of both ecologic and hydrologic function. All HDFs were examined in different years and covered the seasonal observations required by the 2014 guidelines. Observations recorded during the visits included both ecologic and hydrologic condition of the features, and the features were described with respect to their management recommendations found in an older version of the guidelines. Table 1 in Attachment 1 to the response to IR 1.1

[380] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1828-1829.

[381] Mr. Geddes, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1808-1810.

and the corresponding photo log indicates that the HDFs would all be considered as "No Management Required."[382]

v. Fish passage and habitat fragmentation

527. In their presentation, CH asserted that the proposed culverts on Tributary A, specifically the culverts that would convey Tributary A under the terminal (Culverts 2A and 2B), would create a barrier to fish passage and fragment fish habitat upstream and downstream.[383] CH asserted that the proposed Project design is "without regard for ensuring fish passage."[384] They expressed concern with respect to flow velocity, sediment transport, and erosion leading to perched culverts. CH also expressed a belief that the proposed culvert width was less than the width of Tributary A.[385] To mitigate these asserted effects, CH proposed the use of an open-bottom culvert three times the bankfull width of the watercourse.[386]

528. Fish passage in the tributaries within the PDA is already constrained at times due to the seasonal intermittent or ephemeral conditions that prevail, during which the creek bed is entirely dry.

529. The existing culverts within the PDA are characterized by perched high-slope conditions not amenable to fish passage.[387] As indicated by CN during the hearing, no other parties have expressed concerns regarding the existing culverts in this proceeding.[388]

530. The new and upgraded culvert designs proposed by CN would, in fact, improve opportunities for fish passage relative to existing conditions. The new and upgraded culverts

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[382] IR 1.1 (CEAR 574).

[383] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1825, 1826.

[384] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1825.

[385]Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1827; see also Ms. Kim, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1786.

[386] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1827.

[387] EIS Appendix E.2 (CEAR #57), p. 3.

[388] Mr. Reynolds, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1798.

proposed by CN are designed to mimic existing low-channel slopes to improve fish passage, both by ensuring culverts remain accessible to fish and by reducing water velocity within the culverts.

531. In particular, CN proposes to install twinned box culverts (Culverts 2A and 2B) to replace existing round culverts to convey Tributary A under the terminal, which will provide opportunities for sedimentation in the culverts mimicking natural bed conditions, the retention of standing water, and the selective diversion of low flows to the lower of the two twinned culverts. This design will provide for improved connectivity in the watercourse. Fish staging pools will be constructed at the ends of the twinned box culverts, which will provide opportunities for fish to refuge during periods of elevated flow and rest after passage through the culvert.

532. As noted previously, the design of culverts under the mainline and pad and service tracks is constrained by the static and dynamic loading associated with standing and moving trains.[389] The design is also constrained by the invert elevation (the relative elevation of the creek bed and the mainline track).[390] These constraints preclude the use of open-bottom culverts and also limit the possible height and width of culverts. The proposed culvert design takes these constraints into consideration.[391] The proposed twinned box culverts would increase the existing capacity of the culverted area by approximately 30%. The width of these two box culverts is approximately the bankfull width for Tributary A. As noted previously, Culverts 2A and 2B would convey flows up to the 100-year storm event, with regional flows above that elevation being diverted into the regional storm diversion channel.

533. DFO expressed the opinion that as long as the culverts are installed and sized to accommodate the expected flows and at an appropriate slope, they would not become perched and would maintain aquatic habitat conductivity, allowing fish passage.[392] DFO also expressed the view that there should not be a concern about fragmentation.

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[389] Ms. Patterson, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1852.

[390] Mr. Smith, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1791.

[391] Mr. Smith, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1787.

[392] Ms. Schweitzer, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1864.

534. The evidence suggests the proposed design of the culverts will improve fish passage over existing conditions, even taking design constraints into consideration, and habitat upstream and downstream of the PDA will not be fragmented by the Project.

vi. Thermal effects

535. The BCWS classifies Indian Creek as a warmwater stream, a conclusion that is supported by temperature logger data collected by Stantec.[393]

536. Conservation Halton raised concerns with respect to thermal effects on water. CH asserted that the Project would result in thermal pollution due to the SWM system and stated that CN had proposed only two measures to mitigate thermal impacts: berm planting and bottom-draw outlets in the SWM ponds. [394] CH recommended additional thermal mitigation measures that have been used in the Boyne Survey area.

537. In fact, in addition to the two mitigation measures acknowledged by CH, CN has proposed additional measures to mitigate increases in water temperature in the SWM system, including the use of permeable pavement, below-grade pipes, grassed swales, pond configuration, riparian planting with shade-providing vegetation, and night-time release of water from the SWM ponds. The measurable reductions from the overland flow collection and conveyance system (below-grade pipes and grassed swales) and SWM pond components (riparian plantings in conjunction with minimum length:width ratio, bottom draw outlet and nighttime release) are expected to discharge the collected overland run-off flow at a temperature equal to or less (-0.8°C) than the existing condition. The temperature reductions that could be achieved by these measures (as well as those outlined below) were described in response to IR 4.47.[395]

538. CN has also proposed to remove the existing on-line agricultural pond on Tributary A. The removal of the on-line pond could result in a decrease in temperature of at least 3°C.

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[393] EIS Appendix E.2 (CEAR #57).

[394] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1830-1831.

[395] IR 4.47, March 21, 2018 (CEAR #632).

539. Further temperature reductions are expected to be achieved in Tributary A due to the proposed twinned box culverts (a further reduction of 0.4°C) and, over time, from shading by riparian plantings along both Tributary A and Indian Creek in the channel realignments and enhanced habitat areas.

540. Thus, for Tributary A, the expected temperature reduction is estimated to be 3.7°C immediately following construction and range from 4.3°C to 4.6°C within 15 to 20 years of construction of the channel realignment when riparian vegetation has fully matured. This cooling will contribute to reducing temperatures in Indian Creek downstream of the confluence. Indian Creek channel waters localized within the PDA will be 1.0 – 2.0°C cooler within 15 to 20 years following construction when riparian vegetation has fully matured and 90% cover is expected to be achieved. Therefore, no additional thermal mitigation measures are considered to be warranted at this time.

541. In their presentation, DFO acknowledged that the mitigation measures outlined in the EIS and proposed Environmental Protection Plan are appropriate and comprehensive, and that they would include site-specific mitigation as conditions of the *Fisheries Act* Authorization.[396] DFO also noted that, in their view, CN has designed an appropriate monitoring and follow-up plan and that monitoring requirements, frequency, and reporting would also be part of the conditions of the *Fisheries Act* Authorization.[397]

542. As noted by DFO, the monitoring plan must ensure predictions made in the EA regarding impacts to fish and fish habitat are accurate; it is therefore anticipated that if monitoring indicates that the temperature from the SWM pond discharge is higher than the temperature of receiving water, CN's proposed adaptive management will ensure that steps would be taken at that time to implement additional mitigation measures if and as required.

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[396] Fisheries and Oceans Canada Presentation on Fish and Fish Habitat, June 28, 2019 (CEAR #828), slide 24.

[397] Fisheries and Oceans Canada Presentation on Fish and Fish Habitat, June 28, 2019 (CEAR #828), slide 21.

PART XVI – HEARING TOPICS – TERRESTRIAL ENVIRONMENT

A. Evidence of CN

543. CN's evidence on this topic is identified below.

EIS GUIDELINES

Section 6 (Part 2) Effects Assessment

Section 7 (Part 2) Summary of Environmental Effects Assessment

Section 8 (Part 2) Follow-up and Monitoring Programs

EIS SECTIONS

December 7, 2015 - section 6.3.6 Baseline - Migratory Birds (CEAR #57)

December 7, 2015 - section 6.3.7 Baseline - Species at Risk (CEAR #57)

December 7, 2015 - section 6.5.2 Predicted Effects – Migratory Birds (CEAR #57)

December 7, 2015 - section 6.5.3 Predicted Effects – Species at Risk (CEAR #57)

December 7, 2015 - section 6.6.1.2 Assessment of Cumulative Environmental Effects on Migratory Birds (CEAR #57)

December 7, 2015 - section 6.6.1.3 Assessment of Cumulative Environmental Effects on Species at Risk (CEAR #57)

December 7, 2015 - Table 7.1: Summary of Environmental Effects Assessment (CEAR #57)

December 7, 2015 - section 8.0 Benefits of The Project (CEAR #57)

December 7, 2015 - section 9.4.6 – Follow-up - Migratory Birds (CEAR #57)

December 7, 2015 - section 9.4.7 – Follow-up - Species at Risk (CEAR #57)

TDR

December 7, 2015 - Technical Data Report Terrestrial (Appendix E.16) (CEAR# 57)

IR RESPONSES

May 18, 2016 - CN Response to the CEAA's Information Request 1 (IR18 to 21, 25) (CEAR #72)

September 30, 2016 - CN Response to the CEAA's Information Request 2 (IR18, 19, 21, 25) (CEAR #375)

April 21, 2017 - CN Response to the Review Panel's Information Request 1 (IR1.3 to 1.6) (CEAR #561)

June 19, 2017 - CN Response to the Review Panel's Information Request 1 (IR1.3, 1.4, 1.6) (CEAR #574)

August 31, 2017 - CN Response to the Review Panel's Information Request 2 (IR2.12) (CEAR #592)

January 23, 2018 - CN Response to the Review Panel's Information Request 3 (IR3.46 to 3.50) (CEAR #613)

March 21, 2018 - CN Response to the Review Panel's Information Request 4.1 (IR4.52 to 4.58) (CEAR #632)

May 18, 2018 - CN Response to the Review Panel's Information Request 5 (IR5.4, 5.7, 5.8) (CEAR #647)

June 12, 2018 - CN Response to the Review Panel's Information Request 5.1_Mitigation (CEAR# 655)

February 15, 2019 – CN Response to Review Panel's Information Request 8 (IR 8.20) (CEAR #714)

OTHER MATERIALS

May 29, 2019 – CN Supporting Documents for the Milton Logistics Hub Commitments Table (CEAR# 799)

UNDERTAKINGS

July 5, 2019 – CN Response to Undertaking 24 (CEAR #939)

B. Overview and Conclusions

544. The assessment considered the potential environmental effects of the Project on the identified VCs, Migratory Birds and Species at Risk. As part of the EA process, CN conducted over five years of comprehensive field studies to identify species and habitats that may be affected by the Project.[398] Habitat assessment within the PDA and LAA included vegetation community mapping and Ecological Land Classification, botanical inventories, and wetland delineation and characterization. Wildlife surveys included amphibian call counts, salamander egg mass surveys, basking turtle surveys, snake coverboard surveys, bat acoustic surveys, Monarch assessments, and breeding bird surveys.

545. Seventy percent of the PDA is comprised of ploughed fields of crops such as corn, soy, and wheat. Twenty-five percent of the PDA is comprised of hay or fallow fields previously disturbed by agriculture. The remaining area is covered by limited wetlands and sparse hedgerows. As is typical with agricultural land in southern Ontario, wildlife and native plant

[398] See EIS (CEAR #57) ss. 6.3.6, 6.3.7, pp. 144, 147; EIS Appendix E.16 (CEAR #57); IR 8.20, February 15, 2019 (CEAR #722).

density within the LAA is limited.[399] Habitat conditions were characterized in the EIS as degraded, and relatively few species at risk (SAR) species were observed or have suitable habitat within the LAA. Those that do occur are species commonly encountered throughout southern Ontario, such as Bobolink and Eastern Meadowlark, which breed in hay fields across Ontario, Snapping Turtles, which are found in a variety of wetlands and waterbodies, and Little Brown Myotis, which are widespread and found across rural and urban areas.

546. The EIS identified measures to mitigate the impact of construction and operation on wildlife, including migratory birds and SAR. In addition, CN has committed to improve SAR habitats both on- and off-site.

547. The proposed grassland habitat enhancement has been tailored to provide habitat for Bobolink and Eastern Meadowlark, as well as Monarch. However, these habitats are expected to support a much wider variety of grassland wildlife. Integrating CN's compensation with adjacent grasslands will increase the value of the compensation to the target species. Most importantly, it provides habitat outside of the agricultural lands and avoids the impacts of hay cutting. In contrast to existing degraded habitat conditions, CN's habitat compensation would contribute to population growth rather than population decline.

548. The on-site habitat enhancements provide a range of habitat types, improve habitat connectivity, and will result in increased diversity and abundance of species relative to existing conditions.

549. ECCC concluded that, with the proper implementation of CN's proposed on-site and off-site habitat creation, enhancement, and rehabilitation, and the proper implementation of ECCC's recommendations, with which CN has concurred,[400] the potential effects of the Project on migratory birds and SAR are expected to be minimal.[401]

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[399] See EIS (CEAR #57) ss. 6.3.6.

[400] Mr. Reynolds, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2056.

[401] Mr. Leonardelli, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2039.

C. Principal Issues Raised

i. Survey adequacy

550. Halton Municipalities asserted that surveys were not properly conducted or were insufficient for Western Chorus Frog, bats, Eastern Milksnake, Jefferson Salamander, and birds.[402] On this basis, Halton Municipalities asserted that the conclusions regarding SAR on the site were not adequately substantiated, there may be more SAR on site, and information regarding life history functions is not sufficient.[403] CH also asserted that amphibian surveys in Tributary B were not conducted.[404]

551. As described in CN's presentation (and in the EIS and responses to IRs), the assessment was based on a comprehensive field program spanning five years, from 2013 to 2017, with additional on-site work conducted in 2019 (as noted in the response to Undertaking 24).[405] All habitats on site were assessed. The breeding bird and SAR surveys followed existing protocols and, in particular, CN experts also consulted with ECCC on protocols for Western Chorus Frog and with ECCC and the Ministry of Natural Resources and Forestry (MNRF) regarding Eastern Milksnake.[406] With respect to amphibian surveys, during the hearing, CN clarified that the amphibian field work study area did include Tributary B, but that a monitoring station was not located there, as there was no pooling water, no amphibian habitat, and no amphibians calling there.[407]

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[402] Ms. Mainguy, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1955; Mr. Konze, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1959-1961, 1968.

[403] Mr. Konze, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1967-1968.

[404] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2029.

[405] See Mr. Taylor, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1898-1899, 1905-1912; EIS Appendix E.16 (CEAR #57), s. 4, p. 9; IR 1.3-1.4, 1.6, April 21, 2017(CEAR #561); IR 3.46, 3.50, January 24, 2018 (CEAR #613).

[406] Mr. Reynolds, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1981-1982.

[407] Mr. Taylor, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 2030-2031.

552. ECCC did not express concern with respect to the surveys that were conducted, but did recommend additional Western Chorus Frog surveys be conducted prior to construction, following protocols developed in consultation with ECCC.[408] CN confirmed during the hearing that it concurs with ECCC's recommendations in this regard.[409]

553. With respect to Jefferson Salamander in particular, ECCC also noted that CN used an appropriate methodology that considers the known distribution of Jefferson Salamander in Ontario and the potential impacts of invasive survey methods.[410] ECCC determined that CN's conclusion that the species is not found in the LAA is adequately supported.

554. CN also described how new information, such as additional species observations or changes to the status of SAR, would be integrated into the refinement of mitigation measures during detailed design and the development of environmental plans prior to construction.[411]

555. On balance, the evidence indicates that the proper surveys were conducted across the PDA, using appropriate methods, with guidance from federal and provincial authorities. The proposed follow-up programs, including additional surveys as recommended by ECCC, will ensure terrestrial species, including SAR, that are or may be present on site will be addressed in the mitigation, management plans, and monitoring to be refined in consultation with ECCC.

ii. Significant Wildlife Habitat

556. CH asserted that Significant Wildlife Habitat (SWH) features were not fully identified or assessed. They asserted that, in the absence of an assessment of SWH, there is a likelihood that

[408] Mr. Leonardelli, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 2050-2051.

[409] Mr. Reynolds, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2056.

[410] ECCC Response to IR 3, March 20, 2018 (CEAR #631).

[411] Mr. Taylor, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 1936-1938.

SWH will be adversely affected if the Project proceeds.[412] CH also asserted that biodiversity and species abundance would be adversely affected.[413]

557. CN explained that its assessment took a more conservative approach, considering *all* habitats and habitat functions regardless of size and abundance and diversity of the species observed, ensuring no wildlife habitats were missed and no groups of species were missed.[414] CN also noted that, in response to the concerns expressed, its terrestrial experts re-reviewed the MNRF criteria for SWH and are confident that no SWH has been overlooked on the site.[415]

558. ECCC also confirmed that no critical habitat pursuant to the federal *Species at Risk Act* has been identified within the PDA.[416]

559. Given that all habitats within the PDA and LAA have been identified and assessed, there does not appear to be any likelihood that SWH would be adversely affected by the Project.

560. The proposed habitat enhancements both on- and off-site are expected to increase both the diversity and abundance of species, including SAR, relative to existing conditions on-site.

iii. Wetland Evaluation

561. CH noted that a formal evaluation of wetlands using the Ontario Wetland Evaluation System (OWES) had not been undertaken. They indicated the Project could not proceed without an understanding of the wetlands and because their "regulatory requirements regarding the protection of wetlands and their function cannot be confirmed." CH also expressed concern with respect to the effectiveness of constructed wetlands being compromised by invasive species.

562. The EIS considered the biological and hydrological attributes of all wetlands within the PDA and evaluated potential Project effects on them, taking mitigation into account, regardless

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[412] Mr. Scholten, Transcript, Volume 7, June 28, 2019 (CEAR #889), pp. 2013, 2018; Conservation Halton Presentation on Terrestrial Environment, June 28, 2019 (CEAR #854), slide 11.

[413] Conservation Halton Presentation on Terrestrial Environment, June 28, 2019 (CEAR #854), slide 7.

[414] Mr. Reynolds, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2021.

[415] Mr. Reynolds, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2021.

[416] Mr. Leonardelli, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2038.

of wetland size or quality. For example, wetland type was described by Ecological Land Classification, the botanical and wildlife surveys catalogued what species were present, and the surface water study described hydrological attributes.

563. The EIS did not include an evaluation of wetlands using the OWES, as that process comprises a formal evaluation aimed to establish whether wetlands warrant formal designation under provincial policy. The formal wetland evaluation protocols would not have added any further understanding of the wetland features on site. However, as noted during the hearing, since the EIS was completed, CN's terrestrial experts had undertaken a comparative analysis with the OWES protocols and determined there is no provincially significant wetland on the site. The results of the OWES analysis were provided in response to Undertaking 23.

564. Of the 3.7 ha of wetland within the PDA, approximately 2.1 ha will be removed to accommodate the construction of the terminal and channel realignment (Tributary A), but approximately 1.6 ha will be retained and enhanced through removal of the on-line pond and naturalization, and approximately 6.7 ha will be gained through the creation and enhancement of riparian wetland habitat (including low-lying marsh and riparian wetland pools) during the realignment of Tributary A and Indian Creek. While stormwater ponds may take on wetland characteristics, and may be used by wetland species, they are considered engineered facilities that are not considered or managed as wetland habitat.

565. Wetland habitat within the PDA is planned to be created at an approximately 2:1 ratio compared to existing conditions, which exceeds the federal wetland policy expectation of no net loss.

566. CN also highlighted that biological diversity and hydrological function will be higher in the created wetlands than in the relatively lower quality wetlands that currently exist on site, resulting in a net benefit to wetland-dependent species.[417] The wetlands and adjacent riparian habitats will be planted with native species, which, as explained during the hearing, is the best opportunity to prevent invasive species from becoming established.[418]

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[417] Mr. Reynolds, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2020.

[418] Mr. Taylor, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1933.

567. CN proposes to monitor the created wetlands for a period of three years following construction, by which time native species are expected to have become established, to ensure the habitat is functioning correctly. Adaptive management measures would be taken if the monitoring shows any issue with invasive species. The monitoring program for the created wetland and riparian habitats will be developed in consultation with DFO during the permitting process and detailed design.

iv. Grassland habitat area and location

568. Halton Municipalities asserted that the amount of proposed grassland habitat compensation is not adequate in terms of area (referring to 50.9 vs 40.7 ha) and expressed concern that the 1:1 ratio is unclear.[419] Halton Municipalities also expressed concern that the location of the proposed grassland habitat compensation is not within Halton Region and suggested that its maintenance is assured only for 20 years, suggesting that the habitat loss would be permanent after that time.

569. The off-site grassland compensation habitat proposed by CN will replace the lost grassland habitat used by Bobolink and Eastern Meadowlark SAR at a 1:1 ratio. As outlined in the EIS, the Project will result in the permanent loss of only 40.7 ha of Bobolink and Eastern Meadowlark habitat. The remaining 10.2 ha of habitat noted by the Halton Municipalities is not suitable for Bobolink or Eastern Meadowlark, due to the small size of habitat patches or the growth of shrubs.

570. The proposed grassland compensation habitat is located within the Luther Marsh Wildlife Management Area approximately 60 km north of the Project. As CN described, locating the grassland habitat adjacent to this extensive existing wildlife habitat will actually increase the diversity and abundance of grassland birds and other species supported by the compensation habitat, relative to what it might have been had the compensation habitat been located in isolation.

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[419] Halton Presentation on Terrestrial Environment (Migratory Birds), June 28, 2019 (CEAR #831), slide 12.

571. ECCC concurred that the proposed location of the grassland compensation habitat is well chosen for the target grassland bird species, Eastern Meadowlark and Bobolink, noting those species are already well established there and that "it's one of the most important parts of the province for both of those species." [420] ECCC also clarified that the proposed grassland habitat is effectively located in the same ecoregion as the Project, and that the ecoregion delineation is irrelevant to the birds' use of the area.[421]

572. MECP confirmed the proposed grassland compensation habitat is consistent with the Ministry's recommendations for creating or restoring habitat for Bobolink and Eastern Meadowlark, and they have no further comment or concerns with respect to the grassland compensation. The MECP recommendations suggest a temporal range for habitat compensation, extending from 10 to 20 years, so the duration of the agreement between CN and Ducks Unlimited Canada regarding the habitat compensation area is at the highest end of MECP's recommended range.

v. Linkages

573. Halton Municipalities asserted that the linkage between habitats on the west side of the existing mainline with habitats to the northeast will be removed with the installation of the culverts on Tributary A.[422] They argued this would create a barrier to movement of species across the terminal area. CH also asserted that the Project would create a barrier to terrestrial movement along Indian Creek and impact terrestrial movement along Tributary A.[423]

574. There are already culverts on Tributary A where it passes under the existing mainline embankment. As described previously in Parts XIV and X, the proposed twinned box culverts will in fact increase the capacity through the culverted area compared to the existing round

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[420] Mr. Leonardelli, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2060.

[421] Mr. Leonardelli, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2064.

[422] Ms. Mainguy, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1965.

[423] Conservation Halton Presentation on Terrestrial Environment, June 28, 2019 (CEAR #854), slide 11.

culverts. Broader, open-bottom culverts as proposed by CH are not feasible under the mainline and terminal tracks, as noted earlier.[424]

575. CN confirmed that the assessment considered linkages and connectivity.[425] For example, CN's experts drew on the Bronte Creek Watershed Study, which made recommendations for protection, enhancements, and restoration of features and functions in the Bronte Creek watershed, including Indian Creek and tributaries. That study recommended specific opportunities to be explored and incorporated as part of CN's proposed intermodal terminal, including enhancements to riparian and forested habitats to provide corridors for wildlife movement[426]. The proposed habitat enhancements are expected to improve opportunities for wildlife movement in and through these areas, and will improve connectivity between the habitats within the PDA and those farther up- and downstream in the Indian Creek valley.

576. Halton Municipalities acknowledged that the fauna and flora of the area are adapted to the landscape conditions of the area and the majority of species move freely across the landscape.[427] As CN has explained, agricultural use of CN-owned lands adjacent to the PDA is expected to continue; wildlife are expected to continue to use the open agricultural and natural areas much as they do today.

577. However, CN has proposed exclusion fencing around the PDA to exclude vulnerable species from entering the terminal area to prevent conflict with vehicles and equipment on site. As confirmed by ECCC, such exclusion fencing can be a very effective means of protecting SAR, including amphibians and reptiles.[428]

578. ECCC recommended the consideration of eco-passages to facilitate terrestrial movement under the rail line, and indicated that would best be done within the context of developing

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[424] Conservation Halton Presentation on Fish and Fish Habitat, June 28, 2019 (CEAR #855), slide 7.

[425] Mr. Reybolds, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1980.

[426] See CN's presentation on June 28, slide 23 (CEAR #850)

[427] Mr. Sharp, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1948.

[428] Mr. Leonardelli, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2059.

environmental management plans for SAR, as proposed by CN.[429] CN has agreed to consult with ECCC with respect to these recommendations, including the development of management plans for SAR.[430]

579. Through these measures, CN is confident that the design of the Project will accommodate safe movement of terrestrial wildlife species in and around the PDA as much as practicable in light of technical constraints imposed by the linear character and static and dynamic loading forces of the trains on the mainline, pad, and service tracks.

vi. Duration of monitoring

580. During the hearing, there was general discussion regarding the duration of monitoring of the mitigation measures proposed by CN, including the habitat enhancements and compensation habitats.

581. Halton Municipalities described monitoring programs undertaken in relation to residential development projects elsewhere in the region, which may span many years.[431] Halton Municipalities noted that those programs may extend from five to eight years, up to a decade, until the development project is largely (80%) built out. As noted previously, the Project is expected to be fully built out in less than two years, so there will not be any ongoing construction activity that would warrant ongoing monitoring as there may be in a residential subdivision development project spanning many years.

582. CN has proposed three years of monitoring of the channel realignments and habitat enhancements to ensure they are functioning as proposed and the native vegetation is established and stabilized. As noted previously, the successful establishment of native vegetation is considered most effective for preventing the establishment of invasive species. CN has also described ongoing monitoring and inspection activities during construction and operation.

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[429] Mr. Leonardelli, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2051-2052, 2065.

[430] Mr. Reynolds, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 2056.

[431] Mr. Dougan, Transcript, Volume 7, June 28, 2019 (CEAR #889), p. 1991.

583. DFO noted that, in their view, CN has designed an appropriate monitoring and follow-up plan and that monitoring requirements, frequency, and reporting would also be part of the conditions of the *Fisheries Act* Authorization.

584. CN has also indicated its commitment to continue to consult with DFO and ECCC with respect to refining the monitoring programs. We are confident that the appropriate duration of monitoring will be determined through that process, and that provisions for adaptive management will be agreed upon in the event that monitoring identifies unforeseen effects or determines that mitigation is not as effective as expected.

585. CN also committed to establishing a Community Working Group, with which the results of monitoring programs would be shared.

PART XVII – HEARING TOPICS – AIR QUALITY AND HUMAN HEALTH

A. Evidence of CN

586. CN's evidence on this topic is identified below.

EIS GUIDELINES

Section 6 (Part 2) Effects Assessment

Section 7 (Part 2) Summary of Environmental Effects Assessment

Section 8 (Part 2) Follow-up and Monitoring Programs

EIS SECTIONS

December 7, 2015 - section 6.3.1 Atmospheric Environment (CEAR #57)

December 7, 2015 - section 6.4.1 Changes to the Atmospheric Environment (CEAR #57)

December 7, 2015 - section 6.5.4 Human Health (CEAR# 57)

December 7, 2015 - section 6.6.3.2 Effect of Extreme Weather and Climate Conditions on the Project (CEAR #57)

December 7, 2015 - section 8.0 Benefits of The Project (CEAR #57)

December 7, 2015 - section 9.4.1 Air Quality (CEAR #57)

TDR

December 7, 2015 - Technical Data Report Air Quality (Appendix E.1) (CEAR #57)

December 7, 2015 - Technical Data Report Human Health Risk Assessment (Appendix E.7) (CEAR #57)

IR RESPONSES

May 18, 2016 - CN Response to the CEAA's Information Request 1 (IR10 to IR13) (CEAR #72)

September 30, 2016 - CN Response to the CEAA's Information Request 2 (IR10 to IR13, IR25) (CEAR #375)

January 23, 2018 - CN Response to the Review Panel's Information Request 3 (IR 3.1 to 3.16) (CEAR #613)

March 21, 2018 - CN Response to the Review Panel's Information Request 4.1 (Group 1)(CEAR #632)

May 14, 2018 - CN Supplemental Response to the Review Panel's Information Request IR3.7 (CEAR# 643)

May 18, 2018 - CN Response to the Review Panel's Information Request 5 (IR 5.5) (CEAR #647)

August 20, 2018 - CN Response to the Review Panel's Information Request 7 (IR 7.2) (CEAR #680)

March 1, 2019 - CN Response to the Review Panel's Information Request 8 (IR 8.2) (CEAR #722)

March 22, 2019 - CN Response to the Review Panel's Information Request 8 (IR 8.2) (CEAR #732)

OTHER SUBMISSIONS

May 29, 2019 - Update to Air Quality Assessment Based on Modelled Mitigation (CEAR #799)

May 29, 2019 - Update to Human Health Risk Assessment Based on Modelled Mitigation (CEAR #799)

B. Overview and Conclusions

587. The EIS Guidelines required CN to describe ambient air quality in the Project areas and the PDA, taking into account a number of contaminants including fine particulate matter ($PM_{2.5}$), particulate matter up to 10 micrometres in size (PM_{10}), diesel particulate matter (DPM), and nitrogen oxides (NO_x), among others. The EIS Guidelines also required CN to describe any potential changes in air quality and assess the potential environmental effects to the identified Valued Component, Socio-Economic Conditions, specifically human health, from those potential changes.[432] The assessment of potential effects on human health was to be supported by a Human Health Risk Assessment (HHRA).

[432] EIS Guidelines, (CEAR #12), ss. 6.1.1, 6.2.1, 6.3.5.

588. Stantec, on behalf of CN, completed the air quality and human health assessments. First, Stantec selected contaminants to include in the study (including those named in the EIS Guidelines). Stantec then collected existing air quality data from federal (National Air Pollution Surveillance Program (NAPS) stations) and provincial air quality monitoring stations surrounding the PDA. Stantec supplemented those data with local Milton data and site-specific data collected through one year of air quality monitoring on the Project site.

589. At the same time, Stantec identified expected emission sources from the Project and, taking a conservative approach, looked to "intentionally overpredict what those emissions would be."[433] Stantec then conducted dispersion modeling of Project-related emissions from both stationary sources and mobile sources to predict how those emissions would mix and move from the Project site into the surrounding airshed. The dispersion modelling was applied to a 20-by-20 kilometre grid around Project site and considered over 13,000 receptors, including 98 specific receptors close to the Project and along the routes that may be used by Project-associated traffic.[434] The initial emissions evaluation did not take into account the implementation of mitigation measures, again to provide conservative (i.e., worst-case) predictions of potential contaminant concentrations.

590. The predicted contaminant concentrations were compared against relevant air quality criteria, specifically the National Ambient Air Quality Objectives (NAAQO),[435] the Canadian Ambient Air Quality Standards (CAAQS), and, where federal criteria were not available, the Ontario Ambient Air Quality Criteria (AAQC).[436] The NAAQOs were established by the federal government in the early 1970s to protect human health and the environment. The CAAQS are

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[433] Mr. Prits, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2102.

[434] See EIS Appendix E.1 (CEAR #57) ss. 6, 7, Appendix C; see also IR 3.1-3.17 (CEAR #613), IR 7.2 (CEAR #680), IR 8.2); IR 8.2 (CEAR #732).

[435] See EIS Appendix E.1 (CEAR #57), s. 4, p. 20.

[436] See EIS Appendix E.1 (CEAR #57), s. 4, p. 20.

health-based air quality standards for pollutant concentrations in outdoor air. The AAQC used in the EIS are also health-based criteria.[437]

591. Most of the air contaminant concentrations were predicted to be below the relevant air quality criteria, meaning exposure to them is not expected to result in changes to human health. Three contaminants (benzene, benzo(a)pyrene, and particulate matter (including $PM_{2.5}$ and PM_{10})) exceeded criteria at times at specific receptors close to the Project.

592. Based on the potential changes in air quality as a result of the Project, Stantec completed a two-step HHRA to evaluate the implications for human health. The first step compared predicted contaminant concentrations to health-based air quality criteria. As noted above, only three contaminants exceeded these criteria. But exceeding these benchmarks does not necessarily indicate an adverse health effect is expected or that a change to human health will occur. Rather, it triggers the second step: a more in-depth review into what the exceedance might mean.

593. In the second step of the HHRA, Stantec conducted a more detailed assessment based on the interaction amongst receptors (homes and buildings where people are reasonably expected to be), the exposure (how could people be exposed) and the hazard (the toxicity of the contaminant at issue). Stantec characterized the risk by evaluating the frequency, magnitude, and extent of the exceedance, as well as the modeling assumptions. To assess the cancer risk from exposure to Project related-emissions, Stantec calculated the Incremental Lifetime Cancer Risk (ILCR), which represents the risk attributed to Project-related emissions on top of existing background risk. The ILCRs were compared to the ILCR threshold used by Health Canada. .[438]

594. Using these steps, Stantec evaluated the risks from possible exposures to the over-criteria contaminants: benzene, benzo(a)pyrene, and particulate matter (both $PM_{2.5}$ and PM_{10} fractions). With respect to benzene and benzo(a)pyrene, no locations were above the ILCR threshold used by Health Canada, Stantec therefore concluded there would be no predicted change to human

[437] For an outline of the regulatory framework applied in this analysis, see EIS (CEAR #57), s. 4, p. 17.

[438] See EIS Appendix E.1 (CEAR #57); IR 3.11, January 24, 2018 (CEAR #613); IR4.29, March 21, 2018 (CEAR #632); CN Update to Human Health Risk Assessment, May 29, 2019 (CEAR #799).

health. For $PM_{2.5}$ and PM_{10}, taking mitigation into account, Stantec also concluded that Project-related emissions were not predicted to result in changes to human health.

595. Stantec also evaluated the potential risks from diesel exhaust, which is a complex mixture of individual contaminants. There is no consensus in the scientific community on how to best assess cancer risk from exposure to diesel exhaust. Stantec first assessed the ILCR for under-criteria contaminants with carcinogenic modes of action that make up the diesel exhaust mixture, namely acetaldehyde, 1,3-butadiene, and formaldehyde. Concentrations of these three contaminants met air quality criteria and like benzene and benzo(a)pyrene, no locations were above the ILCR threshold used by Health Canada.

596. Then, Stantec assessed diesel exhaust risk as a mixture, applying the "relative risk" approach. This is an approach that is used to compare health outcomes between two groups and draw subsequent conclusions about one group "relative" to the other. Using existing conditions as a comparator to Project-related conditions, Stantec determined that the relative risk of cancer mortality for the Milton area is currently 1.04.[439] The existing relative risk in the Milton area reflects the fact that exposure to diesel exhaust is already occurring in the area. Stantec then determined that, with Project-related emissions, the relative risk of cancer in the Project area would range from 1.04 to 1.05. As recognized by Stantec, the independent peer reviewers of the Stantec assessment, and Health Canada during the hearing, the difference between 1.04 and 1.04-1.05 is "difficult statistically to distinguish."[440] Stantec concluded that the relative risk with or without the Project would essentially be the same and, on that basis, Project-related emissions were not predicted to result in changes to human health.

597. Several leading experts conducted independent peer-reviews of Stantec's air quality and human health assessments. Dr. Hatzopoulou, the Canada Research Chair in Transportation and Air Quality at the University of Toronto, conducted a peer review of the air quality work

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[439] A relative risk of 1.0 would mean that the community had no exposure to diesel exhaust. Thus, Milton already has diesel exhaust in its airshed.

[440] Mr. Jessiman, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2372.

conducted by Stantec. In her view, the "analysis, the modelling was rigorous, it's fine-scaled"[441] and the "very worst case" scenario was modelled.[442] She also concluded that the proposed mitigation measures stem from a deep understanding of the factors driving peaks in air pollution.[443]

598. Drs. Raizenne and Krewski conducted a peer review of Stantec's human health risk assessment. Both have held leadership roles in Health Canada. In their view, Stantec conducted the human health assessment with well-established methodologies and reached sound conclusions. Dr. Raizenne concluded that the "[t]he relative risk of lung cancer mortality from diesel emissions from the Project is statistically indistinguishable from current background risk."[444]

599. In addition to her peer review, Dr. Hatzopoulou also explained how this Project will decrease GHG emissions and air pollution throughout the GTHA. As she explained, "mod[al] shift, from truck to rail, contributes substantially to the greening of supply chains. It has to be part of the conversation when we talk about how do we move to more sustainably in this region."[445]

600. These benefits do not accrue only at the regional level – local residents of Halton Region and the Town of Milton will also experience measurable air quality improvements due to the modal shift of goods movement from long-haul trucks to rail. As Dr. Hatzopoulou explained, the emissions intensity of a truck is highest when it is operating on the highway. Thus, removing trucks from the highway decreases the overall exposure of Milton and Halton residents,

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[441] Dr. Hatzopoulou, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2121

[442] Dr. Hatzopoulou, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2193.

[443] CN Presentation on Air Quality and Human Health, July 8, 2019 (CEAR #959), slide 55.

[444] Dr. Raizenne, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2139.

[445] Dr. Hatzopoulou, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2125.

especially those individuals living near Highway 401.[446] By minimizing the local air quality effects from the Project, a substantial local and regional benefit accrues.

601. In summary, CN assessed the potential changes to air quality and risks to human health using appropriate baseline data and modeling and analytical methods. The assessments were based on conservative and worst-case assumptions that were designed to over-predict emissions and contaminant concentrations; the changes to air quality that will result from the Project are likely lower than described in the assessment. Even based on the conservative predictions, the cancer risk in the area with the Project will be essentially the same as it is now. However, the Project will enable air quality improvements and consequential human health benefits across a wide region, including Halton and Milton. Moreover, the Project will also support Canada in achieving its commitment to addressing climate change by enabling significant greenhouse gas emissions reductions.

C. Principal Issues Raised

i. Baseline assessments and modelling methodology

602. The Halton Municipalities[447] and Milton Says No[448] have both asserted that Stantec's assessment of existing air quality and modeling methodologies are flawed. They argue that Stantec did not assess all contaminants of concern or take into account rising background contaminant levels. In particular, Halton Municipalities argue that Stantec should have assessed crystalline silica in its assessment. Halton Municipalities and Milton Says No also assert that Stantec did not apply a conservative approach to calculating baseline and future pollutant levels.

603. These assertions are unfounded. First, Stantec assessed appropriate air contaminants. To select the air contaminants to assess and model, Stantec considered the contaminants listed in the EIS Guidelines,[449] potential Project emissions sources, expected emissions from combustion

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[446] CN Presentation on Air Quality and Human Health, July 8, 2019 (CEAR #959), slide 65.

[447] Mr. DiGiovanni, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2394.

[448] Ms. Newman, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2238.

[449] EIS Guidelines (CEAR #12), s. 6.1.1.

sources, and provincial guidance for transportation projects.[450] Stantec did not specifically assess crystalline silica because common air quality assessment methodologies (such as the Ontario Ministry of Transportation's 2012 guidance) do not recommend including it.[451] Indeed, Halton transportation environmental assessments have not assessed crystalline silica.[452]

604. Second, as Dr. Hatzopoulou explained in her peer review and answers to Panel questions, Stantec's air quality analysis applied conservative assumptions throughout the process and considered the "very worst case" scenario.[453] Specific examples of the worst-case scenario assumptions include:

(a) Stantec overestimated the number of pieces of equipment operating on site during the construction phase by 35%.[454]

(b) Stantec assumed 1,008 trucks would move through the terminal each day during Project operation, rather than the Project's known capacity of 800 trucks.[455]

(c) Stantec assumed the trucks would be evenly distributed throughout the day (i.e. more trucks at night than are actually expected), which. as Dr. Hatzopoulou explained, would result in an overestimate of air quality changes because night-time emissions are stable and not prone to mixing or dispersion.[456]

(d) Stantec's initial dispersion modelling for the EIS did not consider the mitigation measures described and quantified in the report, Additional Air Quality

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[450] CN Presentation on Air Quality and Human Health, July 8, 2019 (CEAR #959), slide 6.

[451] Dr. Hatzopoulou, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2124.

[452] Mr. Reynolds, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2419.

[453] Dr. Hatzopoulou, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2193.

[454] Mr. Prits, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2104; CN Presentation on Air Quality and Human Health, July 8, 2019 (CEAR #959), slide 22; Dr. Hatzopoulou, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2138.

[455] Mr. Prits, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2104.

[456] Dr. Hatzopoulou, Transcript, Volume 8, July 8, 2019 (CEAR #930), pp. 2122-2123.

Assessment of Certain Recommended Mitigation Measures, submitted to the Panel on May 29, 2019,[457] further reflecting worst-case analysis.

605. ECCC agreed that CN's air quality assessment and modeling was complete, thorough, and conservative. Mr. Leonardelli, speaking on behalf of ECCC, stated that "ECCC is of the view that the proponent used appropriate baseline meteorology and baseline air quality as inputs to the modelling. All relevant air pollutant sources were included in the modelling and the proponent's estimates of emissions are conservative, meaning they likely overestimate emissions." Mr. Leonardelli concluded that ECCC considers CN's air quality predictions to be "conservative worst-case scenario air quality assessment", and that the GHG assessment was also "appropriately conservative."[458]

606. Finally, Mr. DiGiovanni's assertion about rising levels of particulate matter in the area does not appear to be consistent with available air quality data for Ontario.[459] Despite increased activities in the GTHA, MECP air quality reports for Ontario have shown a general decreasing trend for most air contaminants.[460] Further increases in background contaminants are therefore not expected.

607. The evidence therefore indicates that the baseline data and modeling and analytical methods were appropriate, complete, and suitably conservative, and can be relied upon to understand potential changes to air quality and human health due to the Project.

ii. Diesel risk assessment

608. As mentioned previously, to assess the potential health effects of diesel, Stantec evaluated the ILCR associated with the principal individual constituents of diesel and also

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[457] See Additional Air Quality Assessment of Certain Recommended Mitigation Measures, May 29, 2019 (CEAR #799).

[458] Mr. Leonardelli, Transcript, Volume 8, July 8, 2019 (CEAR #930), pp. 2286-2287.

[459] Mr. DiGiovanni, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2390, 2429.

[460] Mr. Reynolds, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2420.

conducted supplementary analysis of risk associated with the diesel exhaust mixture using the relative risk approach.

609. Halton Municipalities and Health Canada commented on Stantec's evaluation of human health risk related to diesel exhaust. On behalf of the Halton Municipalities, Dr. Thurston advocated for a different approach. He used an inhalation unit risk (IUR) factor developed by the California Environmental Protection Agency's ("CalEPA") for DPM to calculate the ILCR from diesel exhaust associated with the Project.[461] While Health Canada did not advocate for the use of one particular risk assessment methodology, it suggested that CN should perform either a quantitative assessment using the CalEPA or a robust qualitative assessment.[462] The CalEPA approach, published in 1998, uses a toxicity value for DPM, which is a surrogate of the diesel exhaust mixture.

610. There is no consensus in the scientific community on the methodology for evaluating health risks from exposure to diesel exhaust.

611. Stantec examined the efficacy of various health risk assessment approaches to identify an appropriate method to use to assess the potential health effects of diesel. Through that analysis, it was determined that the CalEPA method had several flaws. First, during the review process of the CalEPA approach, the primary author of the studies underlying the CalEPA approach warned about uncertainties in his data. In a 1997 letter, he wrote that his data could not "allow the calculation of unit risk with confidence."[463]

612. Second, the studies that the CalEPA relied on did not account for smoking, a primary factor in lung cancer. Those studies are also now outdated—newer methods rely on newer studies that better account for smoking. Moreover, those older studies were based on diesel emissions and engines from the 1980s and earlier. The CalEPA approach does not reflect the important advances made over the last three decades to diesel engines and their emissions

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[461] Halton Brief on SAEEs, Volume 2, May 29, 2019 (CEAR #800), p. 256.

[462] Health Canada Presentation on Air Quality and Human Health (CEAR #817), slide 10.

[463] Dr. Knopper, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2115; Mr. Reynolds, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2336.

profile. As Health Canada acknowledged, "the diesel fleet and diesel engines have changed quite substantially" since many of these studies were conducted.[464]

613. Third, the U.S. Environmental Protection Agency stated in 2002 that the CalEPA data were considered "too uncertain to derive a confident assessment of cancer unit risk."[465]

614. Given these serious concerns, the CalEPA approach cannot be relied upon to accurately characterize health risks from the Project. Indeed, the use of the CalEPA approach may seriously misrepresent risks associated with diesel exhaust, given diesel formulations and engine technologies of today and better understanding of other factors contributing to risk.

615. Instead, Stantec selected a newer approach to assess health risk: the relative risk approach. Health Canada had suggested that the relative risk of lung cancer associated with fine particulate matter ($PM_{2.5}$) could provide an alternative approach to the CalEPA approach for the estimation of cancer risk from diesel.[466] This method relies on more substantial and recent scientific data to provide more accurate assessments of risks. As Dr. Knopper indicated on July 8, the diesel epidemiology expert panel convened by the Health Effects Institute suggested that the studies used by this large research group are the most suitable for use in a quantitative assessment of cancer risk from exposure to diesel exhaust.[467] In CN's view and the view of Dr. Razienne and Dr. Krewski, the relative risk approach better captures the health risk from diesel than the other possible methods.

616. Health Canada stated that it applies relative risk approach in its own health-based analyses of air pollution[468] and agreed that the relative risk approach is "widely accepted in the scientific literature."[469] Nonetheless, Health Canada recommended that CN also consider a

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[464] Mr. Leonardelli, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2350.

[465] Dr. Knopper, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2115; Mr. Reynolds, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2337.

[466] Health Canada Submission, Appendix 1, July 16, 2018 (CEAR #666).

[467] Dr. Knopper, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2358.

[468] Mr. Jessiman, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2343.

[469] Mr. Jessiman, Transcript, Volume 8, July 8, 2019 (CEAR #930), pp. 2371-2.

robust qualitative assessment of cancer risk from diesel. Dr. Knopper explained that relative risk has qualitative aspects and that, in response to Health Canada, CN has already provided some qualitative analysis of particulate concentrations.[470] Health Canada in fact acknowledged that statistical outputs from the relative risk method requires a degree of qualitative analysis.[471]

617. Despite the evident shortcomings of the CalEPA approach, Dr. Thurston, on behalf of Halton Municipalities, used it to estimate risk associated with the Project. Dr. Thurston stated that risk arising from DPM would exceed Health Canada's risk rates. [472] Based on these numbers, he projected adverse health effects on Milton residents.

618. CN has serious concern regarding Dr. Thurston's application of the CalEPA metric. In addition to using the flawed CalEPA IUR, Dr. Thurston used the maximum predicted concentration of $PM_{2.5}$ and applied it to the entire airshed. This results in a vastly exaggerated and entirely unrealistic estimation of risk. The predicted maximum concentration level occurs only at one location alongside the PDA, and $PM_{2.5}$ levels drop rapidly as one moves away from the PDA; thus, $PM_{2.5}$ levels would be lower than the maximum concentration at all receptors. [473] Indeed, Dr. Knopper stated, [474] and Dr. Raizenne confirmed,[475] that the maximum concentrations of $PM_{2.5}$ at the locations around the Project where people are reasonably expected to spend time are lower than the health-based CAAQS.[476] Thus, even leaving aside CN's concerns with the validity of the CalEPA approach, Dr. Thurston's projections cannot be viewed as plausible.

619. Based on input from Health Canada and review of available scientific literature, CN has selected a reasonable and widely accepted method to assess human health risk associated with

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[470] Dr. Knopper, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2358. 2358

[471] Mr. (Jessiman, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2372.).

[472] Dr. Thurston, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2407. (2407)

[473] Mr. Reynolds, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2425. Darren 2425

[474] Dr. Knopper, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2109. (see also IR4.1 (4.31))

[475] Dr. Raizenne, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2137.

[476] See also IR 4.31 (CEAR #632).

diesel. The two approaches used – calculating ILCRs for individual constituents of diesel that are carcinogenic and the relative risk of the diesel exhaust mixture – both give consistent results; that is, risks from exposure to predicted Project emissions are not expected to result in changes to human health. The assessment integrates both quantitative and qualitative elements. In CN's view, the assessment has adequately characterized the potential risks to human health associated with diesel.

iii. Hotspots

620. Milton Says No and Halton Municipalities raised concern about "hotspots" of contaminant concentrations on and around the site.[477] Mr. DiGiovanni, on behalf of Halton Municipalities, specifically stated that CN's air quality assessment did not account for existing hotspots for $PM_{2.5}$. [478]

621. Dr. Hatzopoulou explained that a hotspot is a microenvironment that tends to trap air pollution. These are typically found in locations where air circulation is constrained, for example in busy downtown areas where there are very dense, very tall buildings.[479] Dr. Hatzopoulou also confirmed, in response to a question from Halton Municipalities, that the Project site itself is not a hotspot.

622. Stantec's analysis considers the possibility of hotspots by considering the 90th percentile of the existing background air quality. This approach accounts for inherent variation in air quality, because most of the time the actual existing air quality is below the 90th percentile background level. [480]

623. Stantec's work captured potential hot spots in its modelling because it used the highest concentration of particulate matter at each NAPS station to determine baseline amounts.[481] In

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[477] Ms. Newman, Transcript, Volume 8, July 8, 2019 (CEAR #930), pp. 2226-2227.

[478] Mr. DiGiovanni, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2390.

[479] Dr. Hatzapoulou, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2157.

[480] Dr. Hatzapoulou, Transcript, Volume 8, July 8, 2019 (CEAR #930), pp. 2158-9.

[481] Dr. Hatzapoulou, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2156.

other words, Stantec used a conservative value from each station to ensure that the assessment, when adding project emissions, would represent a reasonable worst-case scenario that had the highest concentration.

iv. Other rail facilities

624. A number of parties also referred to various articles and reports about contaminant concentrations at or around other rail facilities elsewhere in North America. [482] Those articles and reports pertain to different facilities in different locations with different background conditions, different emissions sources, and different types and levels of activity. The other parties suggested that the findings of these articles were indicative of potentially serious adverse environmental effects that could be expected to result from the Project.

625. The findings of articles and reports related to other projects in other locations are not transferable to Milton or to the Milton Logistics Hub. It cannot be assumed that effects experienced with other projects in other locations will occur here.

626. The potential environmental effects of any project are specific to the project and its location, among other things, including the existing conditions and trends that are being experienced at that location. That is why there is so much emphasis in the EA process on clearly documenting existing conditions and context and carefully predicting how the project specifically would alter those conditions, alone and in combination with other projects and activities that have been and will be carried out.

627. The assessment carried out in relation to the Milton Logistics Hub is highly project- and site-specific. The assessment of potential changes in air quality and potential human health effects in particular has taken into account existing air quality, local and regional meteorological conditions, existing emissions sources, Project sources, other existing and planned projects and activities in the area, and proposed mitigation and monitoring.

628. Information about other similar projects in other locations or other projects in this location can be useful for identifying the kinds of effects that may warrant consideration in an

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[482] Ms. Newman, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2227; Ms. Vogel-Post, Transcript, Volume 2, June 20, 2019 (CEAR #862), p. 400.

EA. In that regard, the assessment of the Milton Logistics Hub has considered the kind of emissions sources that would be expected from an intermodal rail facility and the kinds of changes and potential environmental effects that might reasonably be expected to result.

v. Non-threshold contaminants

629. Health Canada[483] and the Halton Municipalities[484] have noted that $PM_{2.5}$ and NO_2 are non-threshold substances that may cause health effects at any level of exposure. In recognition of this, in their submissions to the Panel, Health Canada noted that they encourage proponents to implement mitigation measures to reduce emissions, including emissions of non-threshold pollutants.[485]

630. Throughout the hearing, CN has expressed its ongoing commitment to reducing emissions from its operations network-wide, and described significant fuel efficiency improvements and emissions reductions achieved over the last 25 years. CN also described its acquisition of state-of-the-art Tier 4 locomotives, which will decrease emissions by up to 70 percent compared to CN's older models, and implementation of innovative technologies, like Trip Analyzer and SmartStart™, designed to further reduce locomotive and truck emissions.

631. In addition, CN described its investment in electric trucks, which it hopes will lead to further electrification of the short-haul fleet. [486] Not only does moving away from long-haul trucking decrease emissions, it also makes the possibility of electric trucks more probable as well. Shorter truck trips are more conducive to electrification.[487]

632. With respect to the Project in particular, CN also reiterated its plan to use Tier 4 reach stackers at the Milton Logistics Hub and to implement other mitigation measures to reduce

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[483] Ms.Ma, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2374. (2374)

[484] Dr. Thurston, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2414.

[485] See, e.g., Health Canada Submission, Appendix 1, July 16, 2018 (CEAR #666); Health Canada Response to IR 3, March 16, 2018 (CEAR #630).

[486] Mr. Reynolds, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2339. 2339

[487] Dr. Hatzapoulou, Transcript, Volume 8, July 8, 2019 (CEAR #930), pp. 2126.

Project-related emissions, including emissions of non-thresholds pollutants, as much as feasible.[488]

633. Following Stantec's initial technical work, CN and its experts identified additional construction and operation mitigation measures that will substantially decrease emissions from the Project. As noted previously, these additional mitigation measures were not modelled in Stantec's initial air quality assessment. With the application of these mitigation measures, Stantec expects a 59% reduction in PM_{10} emissions during construction, a 50% reduction in $PM_{2.5}$ emissions during operations, and a 34% reduction in NO2 emissions during operations. [489] The effectiveness of these mitigation measures is quantified in detail in the Additional Air Quality Assessment of Certain Recommended Mitigation Measures submitted by CN to the Panel on May 29, 2019.[490] Halton Municipalities' expert, Mr. DiGiovanni, explained that mitigation "works so long as you define it properly." [491] CN has committed to work closely with ECCC, Health Canada, and other authorities to refine mitigation measures, management plans, and follow-up programs during the detailed design stage, well in advance of commencing Project activities. [492]

vi. Food and soil contaminants

634. Health Canada raised concern about the potential for airborne particulate matter from the Project to deposit onto the ground and accumulate in soils and country foods. [493] Other hearing

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[488] See EIS Appendix E.1 (CEAR #57) s. 8; CN Additional Air Quality Assessment, May 29, 2019 (CEAR #799).

[489] CN Presentation on Air Quality and Human Health, July 8, 2019 (CEAR #910), slides 24, 25.

[490] CN Updated Commitments Table, May 29, 2019 (CEAR #799).

[491] Mr. DiGiovanni, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2460.

[492] Mr. Reynolds, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2422.

[493] Health Canada Presentation on Air Quality and Human Health (CEAR #817), slide 18; Mr. Leonardelli, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2332.

participants[494] and residents[495]raised similar concern about possible exposure to contaminants through food and soil. Health Canada recommended that CN engage local residents regarding concerns about dust and country foods.

635. In response to IR 8.3, CN assessed the potential health effects of deposition of airborne contaminants onto soils and garden produce.[496] That assessment showed that the maximum potential concentration of contaminants in soil were well below the soil quality guideline for human health. The potential risk to human health due to exposure through uptake of contaminants by food plants or by dermal exposure to soils was determined to be negligible. Moreover, as Health Canada recognized, CN's proposed air quality mitigation measures will decrease the possibility for food and soil contamination.[497]

636. CN noted that food-related concerns had not been raised directly with CN in past consultations. [498] Going forward, CN believes that engaging with local residents about dust and country foods would be best accomplished through the proposed Community Working Group. Through that group, CN can look into any concerns raised by members of the community regarding country foods, and follow up with that group on a plan of action where necessary. [499]

vii. Truck idling

637. Interested parties raised two issues regarding truck idling. First, on behalf of the Halton Municipalities, Mr. DiGiovanni argued that Stantec's modeling for on-site idling did not use a worst-case scenario estimate. He noted that the air quality modeling was based on 20 idling trucks, but asserted that the proposed on-site 1.7 km access road was designed to accommodate

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[494] Mr. Radisc, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2437.

[495] Letter from Cristina Machado, February 21, 2018 (CEAR #623).

[496] See IR 8.3, February 15, 2019 (CEAR #714).

[497] Ms. Ma, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2333.

[498] Mr. Reynolds, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2251.

[499] Mr. Reynolds, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2340.

140 trucks, and that all of these should have been assumed to be queuing and idling. [500] Second, several parties argued that anti-idling policies at the terminal will not be effective.[501]

638. Neither concern is well-founded. With respect to idling trucks on site, there are several factors that make Mr. DiGiovanni's assertion incorrect. First, the assumption that there would be 140 trucks queuing and idling on site is incorrect. BA Group, on behalf of CN, modeled the truck traffic flows into the terminal and determined that, under design operating conditions, the number of trucks that would be queuing at the gate would be between zero and five.[502]

639. Second, a key design objective of the proposed terminal is to provide customers with timely service. To do so requires moving trucks through the facility as quickly and efficiently as possible. Thus, the facility had been designed to limit the need for trucks to queue or wait at any point during their entry or departure or while they are inside the terminal. [503] For example, when a truck arrives at the facility to drop off or pick up a container, the biometric gate system will direct the driver where to go to for unloading or loading. Ideally, the truck will be unloaded and/or loaded with little or no waiting time. The truck engine will be turned off when it is being unloaded and/or loaded, and would only be restarted when moving between areas on site and when departing the facility. [504] CN's gate reservation system also minimizes congestion at the gates, further reducing wait times and idling.

640. Third, as described during the hearing, CNTL trucks are equipped with software that shuts off the truck after five minutes of idling. Other trucking companies have similar technology.

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[500] Mr. DiGiovanni, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2390.

[501] Ms. Meyer, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2257.

[502] IR 2.35-1, August 31, 2017 (CEAR #592).

[503] Mr. Reynolds, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2257.

[504] Mr. Lerner, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2201.

641. Finally, Stantec used conservative idling assumptions in the air quality modeling. Stantec assumed on-site idling that is 200% of what is likely to occur at the site.[505]

642. With respect to the effectiveness of anti-idling policies, CN has several mechanisms to ensure that anti-idling policies are enforced. For example, CN will educate drivers registered to serve the terminal and will ensure proper anti-idling signage is in place.[506]

643. The anti-idling software installed in CNTL and other trucks will increase the likelihood of compliance.

644. The evidence therefore indicates that emissions from idling have been appropriately considered and that measures are in place to minimize truck idling.

PART XVIII – HEARING TOPICS – LIGHT

A. Evidence of CN

645. CN's evidence on this topic is identified below.

EIS GUIDELINES
Section 6 (Part 2) Effects Assessment
Section 7 (Part 2) Summary of Environmental Effects Assessment
Section 8 (Part 2) Follow-up and Monitoring Programs
EIS SECTIONS
December 7, 2015 - section 6.3.1.4 Project Setting and Baseline Conditions - Light (CEAR #57)
December 7, 2015 - section 6.4.1.3 Predicted Changes to Physical Environment - Light (CEAR #57)
TDR
December 7, 2015 - Technical Data Report Light (Appendix E.8) (CEAR #57)
IR RESPONSES
August 31, 2017 - CN Response to the Review Panel's Information Request 2 (IR2.29) (CEAR #592)

[505] Mr. Reynolds, Transcript, Volume 8, July 8, 2019 (CEAR #930), pp. 2420, 2428.

[506] Mr. Lerner, Transcript, Volume 8, July 8, 2019 (CEAR #930), p. 2199.

May 18, 2018 - CN Response to the Review Panel's Information Request 5 (IR4.2 to 4.5) (CEAR #646)

May 18, 2018 - CN Response to the Review Panel's Information Request 5 (IR5.4, 5.11) (CEAR #647)

December 19, 2018 – CN Response to Review Panel's Information Request 8 (IR8.6, 8.7) (CEAR #705)

B. Overview and Conclusions

646. The EIS Guidelines required CN to describe existing ambient night-time light levels at and around the Project site. The EIS Guidelines also required CN to describe any potential changes in night-time light levels.[507]

647. CN conducted a light assessment in the vicinity of the Project, which included a study of existing ambient light and a predictive modelling assessment of potential changes in light at nearby receptors around the perimeter of the proposed terminal.[508] The assessment measured light trespass (light spill off the site), glare (annoyance experienced from a point of observation by having nighttime light in the field of view), and sky glow (illumination of the sky or clouds at night).

648. Stantec applied the Commission Internationale de L'Éclairage's ("CIE") Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations ("CIE 150") to evaluate light emitted from the Project. CIE 150 is an internationally recognized guideline and provides criteria to assess and limit environmental effects of outdoor lighting.

649. The assessment determined that additional light from the Project will be well below the recommended thresholds in the CIE guidelines.[509] In particular, the model determined that, with respect to light spill (trespass), the maximum predicted illuminance at each point of reception (POR) was below 15% of the allowable light spill under CIE 150.[510] The trespass assessment

[507] EIS Guidelines (CEAR #12), ss. 6.1.1, 6.2.1.

[508] EIS Appendix E.8 (CEAR #57).

[509] EIS (CEAR #57), s. 6.4.1.3, p. 163.

[510] EIS Appendix E.8 (CEAR #57), p. 32.

also includes glare, as glare is the subset of trespass that will be horizontally impacting receptors adjacent to the site.[511] This prediction is conservative, as it did not take into account any reduction of trespass or glare of low-elevation luminaires that may achieved by the on-site berms, barriers, and vegetation. With respect to sky glow, the Project was predicted to result in a change in sky quality of approximately 1% of the expected 2021 sky quality.[512] In other words, with the Project, Stantec concluded that the view of stars in the night sky will remain about the same.[513]

650. Light will be controlled by CN's proposed mitigation measures, which will include full cut-off luminaires, high masts with downlighting, glare shields where required to mitigate glare at off-site receptors, and landscaping. The assessment of glare determined that only two of the luminaires in the preliminary lighting design would potentially require glare shields. These and other mitigation measures are extensively detailed in the response to IR 4.5.[514] The lighting plan will be refined during detailed design of the Project. The need for and placement of additional mitigation measures, such as glare shields on specific luminaires, will be determined at that time. CN will also consider new and alternative feasible light mitigation technologies (such as alternate colour spectrum LED lights) that may be available at that time.[515]

651. The proposed mitigation measures and lighting plan refinement are expected to be effective in reducing light trespass, glare, and sky glow from the Project. Both CN and Halton Municipalities' expert, Mr. Luginbuhl, spoke about the proven effectiveness of light mitigation measures. As Mr. Luginbuhl explained, for example, "[f]ully shielded fixtures" which are "already planned by CN, can by itself reduce sky glow by about 50 percent."[516]

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[511] See IR 8.6, December 19, 2019 (CEAR #705).

[512] IR 4.2-1, June 15, 2018 (CEAR 646).

[513] CN Presentation on Light, July 9, 2019 (CEAR #911), slide 25.

[514] IR 4.5, June 15, 2018 (CEAR 646).

[515] Ms. Patterson, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2732.

[516] Mr. Luginbuhl, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2706.

652. CN retained Mr. Faszer of Golder Associates to conduct an independent evaluation of Stantec's light assessment work. Mr. Faszer discussed his assessment on July 9th, concluding that the assessment is "thorough and comprehensive" and that the proposed lighting plan meets relevant criteria.[517]

C. Principal Issues Raised

i. Compliance

653. In their written submissions and presentation, the Halton Municipalities assert that the Town of Milton Official Plan and the Ontario *Environmental Protection Act* are "regulatory standards" by which to assess light trespass, glare, and sky glow.[518] They then assert that CN is not compliant with these standards, and based on these assertions in part, conclude that the Project will have significant adverse environmental effects.[519] These statements are inaccurate and misleading.

654. Neither the Town of Milton OP nor the Ontario *EPA* provide an assessment methodology or criteria for light trespass, glare or sky glow. In Halton Municipalities' words, "the Town of Milton Official Plan does not include standards for these metrics."[520] Further, Halton Municipalities acknowledged that "[t]here are no standards regarding sky glow (light pollution) at the international, national, provincial, or regional levels."[521]

655. As noted previously, Stantec, on behalf of CN, relied on the widely used and respected CIE 150 guide to assess the potential changes to night-time light that may result from the Project. The assessment demonstrated that the Project will meet the criteria specified in the CIE 150

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[517] Mr. Faszer, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2683.

[518] Halton Brief on SAEEs, Volume 1, May 29, 2019 (CEAR #800), pp. 133-134; Mr. Luginbuhl, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2693.

[519] CN Presentation on Light, July 9, 2019 (CEAR #911), slide 10.

[520] Halton Brief on SAEEs, Volume 1, May 29, 2019 (CEAR #800), p. 134.

[521] Halton Brief on SAEEs, Volume 1, May 29, 2019 (CEAR #800), p. 134.

guide. There is therefore no reason to expect the Project to result in significant adverse environmental effects due to light.

ii. Incomplete design and insufficient detail

656. Halton Municipalities asserted that the proposed lighting design was incomplete and there was insufficient detail regarding the mitigation to support an evaluation of Project-induced changes to night-time light levels.[522]

657. As described by Mr. Prits, the light assessment was based on the preliminary lighting design for the Project. The preliminary lighting design included information about the number and placement of light masts and luminaires, mast height, and luminaire type. The level of detail provided for the purposes of the light assessment is typical of this stage of the EA and Project planning process. The information regarding lighting design was sufficient to enable predictions of light trespass, glare, and sky glow from the luminaires that are expected to be installed on the site, and to demonstrate that, taking mitigation into account, relevant CIE criteria would be met.

658. As noted previously, Halton Municipalities' light expert, Mr. Luginbuhl himself acknowledged the proven effectiveness of measures to mitigate light pollution. CN agrees that protective measures are effective and has included these in its preliminary lighting design.

659. As stated in the Light TDR, the lighting design will be refined during detailed design of the Project; as noted previously, refinement of mitigation during detailed design is a normal practice.[523] CN has also committed to carry out confirmatory light measurements to ensure the design and mitigation are working as intended.

660. In CN's view, it has provided sufficient information to enable an understanding of the potential changes in night-time light that may result from the Project and the effectiveness of the mitigation measures it has proposed. With the follow-up work proposed, CN is confident night-time light from the Project will be appropriately mitigated.

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[522] Halton Presentation on Light, July 9, 2019 (CEAR #904), slides 11, 25.

[523] EIS Appendix E.8 (CEAR #57).

iii. Light Trespass

661. Halton Municipalities acknowledges that the Project will comply with the CIE trespass criterion with or without mitigation.[524] Indeed, Mr. Luginbuhl stated on July 9th that, whether the site area is classified as rural (E2) or suburban (E3) under the CIE 150, the light trespass predictions fall below the CIE threshold.[525] Halton Municipalities nonetheless argues that increased light trespass will cause a significant adverse effect.

662. Halton Municipalities' position is unfounded. While any new facility will emit some light, Halton Municipalities has not provided a metric or basis to support its assertion that the light trespass from the site will have a significant adverse environmental effect.

663. The light assessment determined that light trespass would be less than 0.3 lux, which is significantly lower than the 2 lux threshold recommended under CIE 150. Stantec also conducted a quantitative assessment of vehicle headlight trespass,[526] which also demonstrated that the light trespass from the Project will be well under the CIE 150.[527] Thus, there is no basis for concluding that the Project will result in significant light trespass.

iv. Glare

664. Halton Municipalities asserts that increased glare from the Project will cause a significant adverse environmental effect. Halton Municipalities relies on three arguments to support this conclusion: (i) Halton Municipalities suggests that the Project does not comply with the CIE glare guidelines at two points of observation; (ii) Halton Municipalities suggests that CN assessed glare from only a single fixture on a lighting pole rather than all fixtures on each pole;

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[524] Halton Brief on SAEEs, Volume 1, May 29, 2019 (CEAR #800), p. 134.

[525] Mr. Luginbuhl, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2694.

[526] IR 8.7, December 19, 2018 (CEAR #512).

[527] Mr. Prits, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2677-2678.

and (iii) Halton Municipalities suggests that mounting the fixtures on 30-metre poles will increase glare over large distances.[528]

665. None of these arguments has merit. First, the assessment considered all luminaires and reported the maximum glare figure in its results, consistent with CIE guidance.[529]

666. Second, while CN did identify two specific luminaires that could result in off-site glare, CN has committed to review the lighting design during detailed design to determine the need for and placement of mitigation measures, such as glare shields or adjustments to mast placement, to ensure Project lighting meets the CIE 150 glare criterion at all off-site receptors.[530] Through refinement of the lighting design, implementation of mitigation measures, and confirmatory light measurements, glare from the Project will be effectively mitigated.

667. Third, as Mr. Faszer explained, the CIE guidance recommends increasing the height of the standards to accommodate downlighting and this can also reduce glare and trespass.[531]

v. Sky Glow

668. Halton Municipalities also argue that the Project will cause significant adverse environmental effects because it will increase sky glow. Halton Municipalities asserts that CN has proposed no mitigation for sky glow.

669. Sky glow is the effect of increasing sky brightness so as to reduce star visibility. Because star-gazing is focused overhead at the zenith, not at the horizon, measuring sky glow from the zenith is appropriate to assess how the Project may change the visibility of stars.

670. Contrary to Halton Municipalities' assertion that no sky glow mitigation was considered, CN has, in fact, proposed measures to mitigate sky glow. The preliminary lighting design incorporates downlighting and full cut-off light fixtures to avoid direct upward lighting that can

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[528] Halton Brief on SAEEs, Volume 1, May 29, 2019 (CEAR #800), p. 137; Mr. Luginbuhl, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2699.

[529] Mr. Faszer, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2722.

[530] Mr. Prits, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2678.

[531] Mr. Faszer, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2686.

contribute to sky glow. Moreover, as Mr. Faszer explained, the Project is consistent with CIE guidance to limit sky glow: CIE suggests a maximum limit on the upward light ratio, which is the amount of light emitted at and above the horizon. The Project design has a zero percent upward light ratio, which is well below the recommended limit of 5 percent. The Project's upward light ratio is indeed suitable for intrinsically dark areas.[532] Mr. Luginbuhl himself described the effectiveness of mitigation measures to reduce sky glow. During the hearing, CN also expressed its commitment to consider additional feasible technologies, such as amber lighting, during the refinement of the lighting plan.

671. Taking mitigation into account, the assessment determined that the change in sky quality attributable to the Project would be about 1% and that the view of the night sky would remain about the same. Thus, there is no reason to conclude that the Project would result in a significant adverse environmental effect due to sky glow.

vi. Consideration of other light sources

672. Halton Municipalities also used moonlight and other celestial comparisons to define the magnitude, frequency, and duration of trespass and glare in the Project area. A more appropriate comparison of Project lighting would be to the existing and planned development of street lighting, which will be added to regional arterial and other municipal roads regardless of the Project and will operate continuously. Halton Municipalities indicated they did not assess road lighting, even though they acknowledged that significant amounts of road lighting is expected on the roads around the Project site. [533]

673. Indeed, Halton Municipalities' arguments do not appear to consider the considerable growth in population, transportation, and residential expansion expected and planned in this area. The fact that Halton Municipalities has approved and/or planned these developments and road improvements, despite the potential for increased lighting, suggests that they agree that light can be effectively addressed with appropriate planning and mitigation measures.

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[532] Mr. Faszer, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2687.

[533] Mr. Luginbuhl, Transcript, Volume 9, July 9, 2017 (CEAR #933), p. 2742.

PART XIX – HEARING TOPICS – NOISE AND VIBRATION

A. Evidence of CN

674. CN's evidence on this topic is identified below.

EIS GUIDELINES

Section 6 (Part 2) Effects Assessment

Section 7 (Part 2) Summary of Environmental Effects Assessment

Section 8 (Part 2) Follow-up and Monitoring Programs

EIS SECTIONS

#December 7, 2015 - section 6.3.1.3 Nose (CEAR #57)

December 7, 2015 - section 6.4.1.2 Noise and Vibration (CEAR #57)

December 7, 2015 - Table 7.1: Summary of Environmental Effects Assessment (CEAR #57)

December 7, 2015 - section 8.0 Benefits of The Project (CEAR #57)

December 7, 2015 - section 9.4.2 Acoustic Environment (CEAR #57)

TDR

December 7, 2015 - Technical Data Report Noise Baseline (Appendix E.9) (CEAR #57)

December 7, 2015 - Technical Data Report Noise Effects (Appendix E.10) (CEAR #57)

December 7, 2015 - Technical Data Report Vibration Effects (Appendix E.1) (CEAR #57)

IR RESPONSES

May 18, 2016 - CN Response to the CEAA's Information Request 1 (IR14, IR19) (CEAR# 72)

September 30, 2016 - CN Response to the CEAA's Information Request 2 (IR14-2, IR19-2) (CEAR #375)

January 23, 2018 - CN Response to the Review Panel's Information Request 3 (IR3.45) (CEAR #613)

March 21, 2018 - CN Response to the Review Panel's Information Request 4 (Group 1) (IR4.35, IR4.36, IR4.46) (CEAR #632)

June 12, 2018 - CN Response to the Review Panel's Information Request 4 (Group 1) (IR4.64 to IR4.85) (CEAR #654)

June 15, 2018 - CN Response to the Review Panel's Information Request 4 (Group 1) (IR4.21) (CEAR #656)

May 18, 2018 - CN Response to the Review Panel's Information Request 5 (IR5.13) (CEAR #647)

June 12, 2018 - CN Response to the Review Panel's Information Request 5.1_Mitigation (CEAR# 655)

December 19, 2018 – CN Response to Review Panel's Information Request 8 (IR8.8, 8.10, 8.11 to 8.16, 8.18) (CEAR #705)

February 15, 2019 – CN Response to Review Panel's Information Request 8 (IR8.17) (CEAR #714)

March 22, 2019 - CN Response to the Review Panel's Information Request 8 (IR8.9) (CEAR #732)

OTHER MATERIALS

May 29, 2019 – CN Supporting Documents for the Milton Logistics Hub Commitments Table (CEAR# 799)

UNDERTAKINGS

July 11, 2019 CN Response to Undertaking 31 (CEAR #954)

B. Overview and Conclusions

675. The EIS Guidelines required CN to describe ambient noise levels at key receptor points (i.e. residences) around the Project. The EIS Guidelines also required CN to describe any potential changes in ambient noise levels and to assess the potential environmental effects to human health from those potential changes.[534]

676. Applying a robust modeling and assessment framework, described further below, Stantec, on behalf of CN, conducted a survey of ambient noise levels and modeled predicted changes in ambient noise levels during Project construction and operation.

677. Existing sound levels were measured at selected points of reception (PORs) at existing residences, existing subdivisions, and the location of future residential developments using calibrated sound level metres. The conservative results from the measurements of existing sound levels was later confirmed through modeling. The number and distribution of receptors provided comprehensive representation of all existing and future residential areas that may be affected by noise from the Project. Stantec determined that the existing sound level conditions were typical of a suburban acoustical environment.

[534] EIS Guidelines (CEAR #12), ss. 6.1.1, 6.2.1, 6.3.5.

678. Stantec identified and characterized the sources of noise that are expected during Project construction and operation. Stantec measured representative noise levels of typical intermodal equipment and locomotives at existing CN rail facilities. Stantec then applied predictive methods to model the predicted noise levels at the PORs. Stantec evaluated these predicted noise levels against FTA and Health Canada's noise criteria.

679. With noise mitigation measures in place, including both physical measures (e.g., installing berms) and procedural measures (e.g., speed limits on site), Stantec concluded that the noise effects from the Project will meet both FTA and Health Canada criteria. No construction or operational vibration is expected to be experienced outside CN's property. Mr. Penton, Halton Municipalities' expert, indicated in his oral testimony that he also expects no issues from construction noise or vibration.[535]

680. Stantec also addressed additional noise considerations, including noise from truck routes, low frequency noise, and sleep disturbance.[536] Stantec concluded that no noise issues are expected from these additional considerations. Indeed, Mr. Penton, Halton Municipalities' expert, explained that with respect to traffic noise, "most of the level of increase that we are discussing here is due to the increase in car traffic, not the increase in truck traffic." [537]

681. CN retained Mr. Coulson of RWDI to conduct a peer review of Stantec's noise assessment. In his view, Stantec adopted a "a rigorous approach" that applied the appropriate health-based and community response criteria to evaluate the noise effects of the Project. He concluded that "the mitigation that's proposed is feasible and suitable for a facility of this type" and he does not anticipate any noise or vibration issues.[538]

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[535] Mr. Penton, Transcript, Volume 9, July 9, 2019 (CEAR #933), p. 2579.

[536] IR 8.9, December 18, 2018 (CEAR #705).

[537] Mr. Penton, Transcript, Volume 9, July 9, 2019 (CEAR #933), p. 2614.

[538] Mr. Coulson, Transcript, Volume 9, July 9, 2019 (CEAR #933), p. 2501.

C. Principal Issues Raised

i. Modeling and assessment framework

682. On behalf of Halton Municipalities, Mr. Penton asserted that inadequate guidelines were used in the noise assessment.[539]. He asserted that MECP's Guideline D-6 and Publication NPC-300, as well as the Federation of Canadian Municipalities / Railway Association of Canada's (FCM/RAC) *Guidelines for New Development in Proximity to Railway Operations*, should have been used in the noise assessment. Mr. Penton further asserted that the Project would not meet "key standards."

683. During the hearing, Mr. Babic, on behalf of CN, described the modeling and assessment framework that was used for the noise assessment. Specifically, he described the use of the CTA's *Railway Noise Measurement and Reporting Methodology* and the US Federal Transit Authority's (FTA) *Transit Noise and Vibration Impact Assessment* guide, as well as the International Standards Organization's (ISO) 9613-2 *General Method of Calculation* for noise propagation outdoors and Health Canada's *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise* (2017). The CTA and FTA guides were developed specifically for rail. The FTA guidance, in particular, considers both transportation (mobile) and stationary sources and has a comprehensive treatment of all different rail noise source types, during construction and operation, aligned with North American train types. As Mr. Coulson described, it is considered the highest tier modelling and assessment technique for rail, "probably the most robust or comprehensive in the world"[540] and is applicable to freight rail projects.[541]. Mr. Coulson also stated that ISO 9613 is considered the "highest tier modelling for stationary sources" of sound.[542] Both the FTA and Health Canada criteria provide health-based community

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[539] Halton Presentation on Noise, July 9, 2019 (CEAR #905), slide 14).

[540] Mr. Coulson, Transcript, Volume 9, July 9, 2019 (CEAR #933), p. 2498.

[541] Mr. Coulson, Transcript, Volume 9, July 9, 2019 (CEAR #933), p. 2509.

[542] Mr. Coulson, Transcript, Volume 9, July 9, 2019 (CEAR #933), p. 2498.

response criteria that are consistently and broadly applied to a wide range of projects and noise sources, including rail.

684. Together, these guidelines and criteria provide a comprehensive and robust noise modeling and assessment framework that covered all potential types and sources of noise for the Project and allowed for consideration of all potential noise effects. The guidelines used in CN's assessment consider impulsive noise adjustments and night-time noise, and they are also the only ones that tie directly to health effect research. They are therefore well-suited to and most appropriate for the elaborate assessment necessary for this complex rail Project. The resulting noise assessment is thorough, comprehensive, and provides a complete and accurate noise profile for the Project.

685. With respect to compliance with "key standards", Mr. Penton indicated he did not have enough information to make a determination but speculated that sound level limits are "likely to be exceeded" at many points of reception, especially at night. In this regard, Mr. Penton was referring to the NPC-300 criteria, an Ontario provincial guidance document. However, neither Mr. Penton nor the Halton Municipalities conducted any noise modeling or assessment of the Project. Their assertion of exceedances is speculative, based on guess-work rather than the actual data. Moreover, the modeling and assessment results derived from the CTA/FTA framework applied by CN cannot be accurately compared to criteria articulated in the NPC-300 guidelines, as those are based on different modeling and assessment methods.

686. Mr. Penton also asserted that CN did not assess potential noise effects identified in Health Canada's guidance, specifically sleep disturbance and speech comprehension. In fact, CN did assess the potential effects on sleep disturbance, as discussed further in part iv below. During the hearing, CN also provided documentation of its consideration of potential effects on speech comprehension, in the response to Undertaking 31.[543]

687. There is therefore no credible basis for Halton Municipalities' assertions of exceedances of noise criteria of any kind, and no basis for any concern that all sound types and sources were not fully and properly considered.

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[543] CN Response to Undertaking 31, July 11, 2019 (CEAR #954).

ii. Stationary source

688. During the hearing, Mr. Penton characterized the Project as a stationary sound source. On this basis, he argued that different noise measurement and modeling methods should have been used, specifically hourly assessments pursuant to NPC-300. Mr. Penton also referred to a provision he believed indicated the potential use of regarding hourly assessment in the CTA framework.[544].

689. As Messrs. Babic and Coulson explained, the Project comprises both transportation (mobile) and stationary sources, including moving trains, trucks, and equipment, as well as fixed noise sources, such as generators. The modeling and assessment framework used by CN considered *both* transportation and stationary sources in an integrated approach using compatible methods that allowed the results to be combined to provide a noise profile for the entire Project, and approach much more suitable for a complex rail facility. NPC-300 cannot resolve the combination of these source types.

690. Mr. Babic also clarified that the provision for hourly assessment in the CTA framework that Mr. Penton noted actually pertains to measurement of noise from an existing facility in response to a noise complaint; it does not apply to predictive modeling of a proposed facility.[545] Nowhere in the CTA guidance is there any indication that an hourly assessment methodology should be applied for a proposed facility[546].

691. The noise assessment conducted for the Project properly accounts for the combined transportation (mobile) and stationary aspects of the Project, in the manner contemplated in the CTA guidance.

iii. Additional receptors

692. Mr. Penton stated that Stantec should have considered additional noise receptors at different places in future residential development areas, arguing that Stantec placed PORs for the

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[544] Mr. Penton, Transcript, Volume 9, July 9, 2019 (CEAR #933), p. 2503.

[545] Mr. Babic, Transcript, Volume 9, July 9, 2019 (CEAR #933), 2504.

[546] Mr. Babic, Transcript, Volume 9, July 9, p. 2504.

assessment of potential noise effects on the future residential subdivision too close to the existing rail line.

693. The placement of PORs for the assessment of potential noise effects on the future residential subdivision was based on Stantec's determination that homes close to the rail line in this area would have the greatest potential to be affected by noise. While homes located within the interior of the proposed residential development could have quieter levels of background noise from the rail and road traffic, Mr. Babic explained that those interior locations are also likely to be shielded from Project-associated noise by the other buildings around them. However, homes located near the rail line would not benefit from that additional shielding, and would be exposed to greater noise levels. Hence, Stantec concluded that these sites would reasonably be expected to be the "worst case" locations and would therefore provide the most conservative assessment. [547]

iv. Sleep disturbance

694. Halton Municipalities assert that CN did not assess the potential for sleep disturbance[548] and did not "employ" the Health Canada guidelines "to their full extent."[549] They further assert that the Health Canada sleep disturbance criteria are likely to be exceeded at many PORs and that there is a potential for significant adverse effects.[550]

695. These assertions are incorrect for the reasons outlined below. In making these assertions, Halton Municipalities mischaracterized both the Health Canada guidelines and the assessment carried out by CN.

696. In fact, as documented in IR 4.78, CN did assess the potential for sleep disturbance.[551] Moreover, CN did follow the Health Canada guidelines properly.

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[547] Mr. Babic, Transcript, Volume 9, July 9, 2019 (CEAR #933), p. 2611.

[548] Mr. Penton, Transcript, Volume 9, July 910, 2019 (CEAR #933), p. 2592.

[549] Mr. Penton, Transcript, Volume 9, July 9, 2019 (CEAR #933), p. 2602.

[550] Mr. Penton, Transcript, Volume 9, July 9, 2019 (CEAR #933), p. 2594.

[551] IR 4.78 (CEAR #652).

697. As described in the response to IR 4.78 and during the hearing, the assessment of sleep disturbance followed Health Canada's *Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise* (2017). [552] That guidance identifies several criteria, the application of which depends on the circumstances being assessed. The first criterion identified, based on World Health Organization (WHO) guidelines from 1999, pertains to "quiet rural areas" and recommends thresholds for continuous noise and individual noise events. As discussed during the hearing[553], the sound levels around the Project area are not considered to reflect a quiet rural environment. The next criterion identified is based on a more recent WHO guideline from 2009 and comprises a recommended annual average outdoor sound level at night. However, existing sound levels in the Project area already exceed this criterion. The Health Canada guidelines note that when the WHO guidelines for sleep disturbance are "too difficult" to meet, the assessment of sleep disturbance should consider the community response criterion (change in %HA). Following the guidance, CN applied the change in %HA criterion in its assessment of sleep disturbance.

698. The assessment of sleep disturbance in accordance with Health Canada guidelines determined that, taking mitigation into consideration, the Project would, in fact, meet the Health Canada criterion of less than a 6.5% change in %HA. To be clear, the applicable Health Canada criterion for sleep disturbance would *not* be exceeded at *any* of the PORs, contrary to Halton Municipalities' assertions. On this basis, Stantec concluded there would be no adverse effects on sleep.

699. During the July 9th technical session, Health Canada acknowledged that the existing noise levels in the Project area exceed the WHO guidelines, but suggested that CN nevertheless assess the distribution of existing and predicted individual noise events at night-time. Health Canada It also recommended that, if noise events at night are predicted to be higher than 60 dB, 10 to 15 times per night, or if sleep-related Project noise complaints are received, CN should consider

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[552] Mr. Coulson, Transcript, Volume 910, July 910, 2019 (CEAR #933944), pp. 2652-2654; IR 4.78 (CEAR #652).

[553] Mr. Coulson, Transcript, Volume 910, July 910, 2019 (CEAR #933)),944), pp. 2653.

additional mitigation measures.[554] On questioning, Health Canada acknowledged that the 10 to 15 times per night criterion was an approximate threshold that itself was based on a quiet rural area, which the local area is not. For that reason, the baseline noise levels would have to be taken into account when conducting any assessment of night-time events.

700. CN has committed to implement both of Health Canada's recommendations pertaining to sleep disturbance.[555] CN is confident that the Project will meet the Health Canada guidelines, but will conduct further work, in consultation with Health Canada, during the detailed design phase of the Project to evaluate the individual night-time noise events.[556,] To the extent there is a concern with respect to individual noise events, CN will consider additional mitigation measures.

701. During the hearing, CN described its existing complaints resolution process and commitment to establish a Community Working Group. These measures will enable CN to identify and investigate any complaints relating to noise, including complaints regarding sleep disturbance, and to consider additional mitigation measures. Through these mechanisms, CN is confident that any issues pertaining to sleep disturbance can be effectively addressed.

v. Mitigation

702. Halton Municipalities asserted that CN has not provided sufficient information on which noise mitigation measures will be implemented during the operation of the terminal or to assess the efficacy of those mitigation measures.[557] Notwithstanding this position, and despite not having undertaken any noise modeling or assessment of the Project, Mr. Penton, on behalf of Halton Municipalities, asserted that the mitigation measures proposed by CN were insufficient.

703. Also, with respect to mitigation, Ms. Schofield, a late registrant on behalf of Pony Pines Developments, Stevenson Land Development, and Shadybrook Development, asserted that CN

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[554] Health Canada Presentation on Noise, July 9, 2019 (CEAR #818), slide 8.

[555] Mr. Lerner, Transcript, Volume 910, July 9, 2019 (CEAR #933), pp. 2656-2657.

[556] Mr. Lerner, Transcript, Volume 910, July 9, 2019 (CEAR #933), p. 2654.

[557] Halton Presentation on Noise and Vibration, July 9, 2019 (CEAR #904), slide 16.

was "externalizing" mitigation of environmental effects of its "recently proposed intermodal hub" onto the residential community.[558].

704. CN submitted information to the Panel describing proposed measures to mitigate Project-associated noise, when they would be implemented, and how those measures will reduce noise effects. CN proposes to implement both physical and procedural noise mitigation measures. The physical measures include strategic berms and barriers around the terminal and housing generators inside buildings with silencers and mufflers.

705. With respect to Ms. Scofield's concern, the data clearly show that the Project will remain below the noise criteria at the nearest receptors in the developments that she represents, without any additional mitigation by CN.

706. Mr. Penton admitted that berms work: they block noise and "as a result of blocking it, they provide attenuation."[559] The procedural measures include speed limits within the terminal and truck anti-idling and anti-engine brake policies. These mitigation measures will be reviewed and adjusted during detailed design.

707. Ms. Patterson also confirmed on July 9th "that the berms, indoor generators and noise policies and procedures will be in place early, before start of operations. The berms, for example, will be installed in the first phase of construction."[560]

708. The mitigation measures proposed by CN, as well as mitigation measures that exist or are proposed by other parties in the residential subdivisions north of the PDA (based on site visits and third-party development plans available at the time the assessment was carried out), were taken into account in the comprehensive and robust noise modeling and assessment that was completed for the Project. The assessment showed that, with mitigation, the Project would meet FTA and Health Canada criteria at all receptors around the Project. In addition, noise monitoring will be undertaken to confirm sound levels are as predicted during both construction and

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[558] Ms. Schofield, Transcript, Volume 11, July 11, 2019 (CEAR #953), p. 3243.

[559] Mr. Penton, Transcript, Volume 9, July 9, 2019 (CEAR #933), 2629.

[560] Ms. Patterson, Transcript, Volume 9, July 9, 2019 (CEAR #933), p. 2600.

operation, and, if required, CN will consider additional noise mitigation measures to address issues as they arise.

709. There is therefore no reason to consider the proposed mitigation measures insufficient to mitigate noise generated by the proposed Project. In particular, no additional mitigation measures beyond those that already exist or are proposed by residential developers in plans submitted to the municipalities are expected to be required.

PART XX – HEARING TOPICS – ARCHAEOLOGY AND HERITAGE RESOURCES

A. Evidence of CN

710. CN's evidence on this topic is identified below.

EIS GUIDELINES

Section 6 (Part 2) Effects Assessment

Section 7 (Part 2) Summary of Environmental Effects Assessment

Section 8 (Part 2) Follow-up and Monitoring Programs

EIS SECTIONS

December 7, 2015 - section 5.4.3 Engagement in Environmental Baseline Studies (CEAR# 57)

December 7, 2015 - section 5.4.7 Document Review (CEAR# 57)

December 7, 2015 - section 5.6.2.1 Six Nations Document Review (CEAR# 57)

December 7, 2015 - section 5.6.3.1 Huron Wendat Document Review (CEAR# 57)

December 7, 2015 - section 5.6.4.1 MNO Document Review (CEAR# 57)

December 7, 2015 - section 6.2.2 Selection of VCs (CEAR# 57)

December 7, 2015 - section 6.3.1.1 Effects Assessment – Project Setting and Baseline Conditions (CEAR# 57)

December 7, 2015 - section 6.3.2 Project Setting and Baseline Conditions, Archaeology (CEAR# 57)

December 7, 2015 - section 6.5.6 Predicted Effects on Valued Components, Archaeology (CEAR# 57)

December 7, 2015 - section 6.6.1.6 Cumulative Effects Assessment (CEAR# 57)

December 7, 2015 - Table 7.1: Summary of Environmental Effects Assessment (CEAR# 57)

December 7, 2015 - section 8.0 Benefits of The Project (CEAR# 57)

December 7, 2015 - section 9.4.8 Follow-up Programs, Aboriginal Peoples (CEAR# 57)

December 7, 2015 - section 9.4.12 Follow-up Programs, Heritage Resources (CEAR# 57)

December 7, 2015 - section 9.4.13 Follow-up Programs, Archaeological Resources (CEAR# 57)

December 7, 2015 - section 9.5.1 Monitoring Program, Construction Monitoring (CEAR# 57)

December 7, 2015 - section 10 Summary and Conclusions, Table 10.1 and 10.2 (CEAR# 57)

TDR

December 7, 2015 - Technical Data Report Cultural Heritage Assessment (Appendix E.3) (CEAR# 57)

December 7, 2015 - Technical Data Report Stage 1-2 Archaeological Assessment (Appendix E.14) – ORIGINAL (CEAR# 57)

December 7, 2015 - Technical Data Report Stage 1-2 Archaeological Assessment (Appendix E.14) – REVISED (May 2, 2016; P256-0398-2016) (CEAR# N/A)

IR RESPONSES

May 18, 2016 - CN Response to the CEAA's Information Request 1 (IR7, IR9) (CEAR# 72)

September 30, 2016 - CN Response to the CEAA's Information Request 2 (IR9-2) (CEAR# 375)

March 21, 2018 - CN Response to the Review Panel's Information Request 4.1 (IR4.32, IR4.37) (CEAR# 632)

May 18, 2018 - CN Response to the Review Panel's Information Request 5 (IR5.10, IR5.14, IR5.16) (CEAR# 647)

June 12, 2018 - CN Response to the Review Panel's Information Request 5.1_Mitigation (CEAR# 655)

August 20, 2018 - CN Response to the Review Panel's Information Request 7 (CEAR# 680)

OTHER MATERIALS

May 29, 2019 – CN Supporting Documents for the Milton Logistics Hub Commitments Table (CEAR# 799)

B. Overview and Conclusions

711. Section 6.5.6 of the EIS presents an assessment of the potential effects of the Project on the identified Valued Component, Archaeological and Heritage Resources. The archaeological assessment was performed in accordance with the procedures established by the Ontario Ministry of Tourism, Culture and Sport (MTCS), as required by the terms of licence of the professional archaeologists conducting the work.

712. Registered archaeological sites within the LAA were identified based on a review of the Ontario Archaeological Sites Database (ASDB) maintained by MTCS and previously conducted archaeological assessments in and adjacent to the LAA.

713. No previously registered archaeological sites were determined to be located within the PDA and no previous archaeological assessments had occurred within the limits of the PDA. Based on the Stage 1 archaeological assessment, most of the PDA was identified to have the potential to contain archaeological resources.

714. The Stage 2 archaeological assessment of the PDA resulted in the identification of a total of 60 archaeological resources. Of these, 17 met criteria for further assessment (i.e., Stage 3 archaeological assessment), including 12 pre-contact Aboriginal sites, 3 Euro-Canadian historic period sites, and two multi-component (pre-contact and Euro-Canadian) sites. During the Stage 2 archaeological assessment, the archaeological team included representatives from First Nations communities.

715. The Stage 3 archaeological assessment of the PDA resulted in the assessment of 17 archaeological locations. The objective of the Stage 3 assessment was to assess and refine the archaeological knowledge of the site. The Stage 3 assessment determined that 14 of the 17 archaeological locations met criteria for further work (i.e., Stage 4 archaeological assessment). During the Stage 3 archaeological assessment, the archaeological team included representatives from First Nations communities.

716. The Stage 4 archaeological assessment was completed to reduce or eliminate anticipated impacts from the Project. The archaeological sites were subject to various field activities, including the hand excavation of one-metre by one-metre units, topsoil removal by mechanical means, and hand excavation of buried features and settlement pattern. During the Stage 4 archaeological assessment, the archaeological team included representatives from First Nations communities. A number of sites were named based on input from Aboriginal participants in the programs. Aboriginal artifacts that were recovered included flakes of stone, stone tools, and projectile points or arrow heads. Non-Aboriginal or European artifacts that were recovered included tablewares and glasswares, personal items such as jewelry, buttons, coins and smoking pipes, and structural artifacts such as brick, mortar, nails, and window glass.

717. The archaeological locations identified during the programs are expected of the area and are typical of other archaeological sites in the region.

718. Mitigation for the PDA is now considered complete through the 4-stage archaeological process. All reports and findings have been filed with MTCS and interested Aboriginal

communities. Draft reports were provided to the Aboriginal groups and feedback received was addressed in the final reports. While an Archaeological Resources Protection Plan will be developed for the Project as part of the Environmental Management Plan, further effects from the Project are anticipated to be low.

719. A Cultural Heritage Assessment was conducted focused on the historic environment including built heritage and cultural heritage landscapes. Through this assessment, historic structures and landscapes were identified, evaluated, and assessed to identify the effects resulting from the Project. Where effects were identified, mitigation strategies were prepared to either protect the resources or lessen the impacts. The assessment was informed by a detailed background history of the study area focused on the Euro-Canadian period, as well as a site assessment to identify any built structures or modified landscapes reflective of this history. The study was also supplemented with the Town of Milton's Heritage List, which includes properties the municipality considers having potential heritage value.

720. Five properties were identified where effects may be experienced. The effects relate to the potential for vibration to damage buildings during construction activities. To mitigate these potential indirect effects, CN proposes to conduct vibration monitoring if less than a 50-metre buffer exists between heritage attributes and construction activities.

721. In addition, a shed at 5269 Tremaine Road is proposed to be removed to accommodate construction of a stormwater management pond. The property contains a farmstead that dates to the late 1800s and includes a residence, barn, and various outbuildings. The shed represents a single heritage attribute of the resource. It was built in the 1940s or 1950s to supplement the ongoing agricultural activity on the property. Both the barn and the residence date to the 1890s. While the shed is associated with the historical use of the property, it dates to a later period and contributes only to the overall contextual value of the property. Where the residence and barn are connected historically and are representative of the same building era, the shed does not have that connection. As a result, removal of the structure will not compromise the value of the residence or barn, as the relationship between the barn and residence will be maintained. Mitigation for removal of the shed will include documentation and salvage prior to demolition. Detailed documentation and salvage are often the preferred mitigation measures where retention

or relocation is not feasible or warranted. Documentation allows for the creation of a detailed record of the history of the building and any distinguishing characteristics.

C. Principal Issues Raised

i. Ossuaries

722. The Huron Wendat Nation expressed concern regarding the potential for ossuaries to remain undetected on the site and to be disturbed during construction of the Project. They described the nature of ossuaries and their typical depth of burial ranging from 20 cm to 2 m below subsoils.

723. Both CN and the Huron Wendat Nation noted that no evidence of an ossuary has been identified on the site.[561] CN further explained that no evidence of permanent settlement or village, with which human burials might be expected to be associated, was identified during the extensive archaeological assessment work undertaken throughout the PDA.[562] The potential for such sites to remain undetected on the site is considered to be low.

724. The Huron Wendat Nation has requested, and CN has agreed, to have a representative on site during Project construction to monitor excavation for evidence of an ossuary or other archaeological resources. The training and chance find procedures that will be included in the Archaeological Resources Protection Plan, which will be developed in consultation with the potentially affected Aboriginal groups, will ensure that appropriate steps are taken to protect sites and resources, should any be encountered during Project construction. As necessary, the MTCS will be consulted to provide additional guidance for chance finds.

725. CN has also committed to continue to engage the Huron Wendat Nation, and other Aboriginal groups, in relation to the Project and its potential effects on archaeological resources, among other issues of interest to them.

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[561] See Mr. Dickson, Transcript, Volume 10, July 10, 2019 (CEAR #933), p. 2791; Mr. Picard Transcript, Volume 10, July 10, 2019 (CEAR #933), p. 2812.

[562] Mr. Dickson, Transcript, Volume 10, July 10, 2019 (CEAR #933), p. 2776.

726. With respect to Huron Wendat ossuaries in particular, the Huron Wendat Nation and CN both agreed that, in the event an ossuary were to be found on the site, they would work together to determine the appropriate course of action.[563]

ii. Chance finds

727. CN has proposed to develop and implement an Archaeological Resources Protection Plan. The Plan would include measures for the continued protection of archaeological resources that may be encountered during Project construction.

728. During the hearing, Panel members enquired about the nature of employee and contractor training with respect to the recognition of archaeological artifacts, some of which may be difficult for a non-specialist to recognize.

729. As CN's archaeologist explained, the training will enable workers to recognize features and attributes of archaeological artifacts that may be encountered on site.[564] CN also noted that it will have archaeological monitors on site during ground disturbance activities to monitor for any chance finds. Aboriginal monitors, many of whom have already been extensively involved in the archaeological field work on site, will also continue to be present during ground disturbance activities.

730. The archaeological assessment and mitigation work in the PDA has been thorough and the likelihood of encountering any remaining archaeological resources is expected to be low. Nevertheless, through the implementation of the Archaeological Resources Protection Plan, any such resources will be appropriately identified, assessed, and mitigated.

731. MTCS concluded that CN has made appropriate commitments for the eventuality of archaeological resources being encountered during construction, and stated they have no outstanding concerns with respect to the Project.[565]

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[563] Mr. Pelletier, Transcript, Volume 10, July 10, 2019 (CEAR #933), pp. p.2816-2818.

[564] Mr. Dickson, Transcript, Volume 10, July 10, 2019 (CEAR #933), p. p.2798-2799.

[565] Mr. LaForme, Transcript, Volume 11, July 11, 2019 (CEAR #953), p. 3113.

iii. Mitigation

732. Halton Municipalities asserted that the archaeological mitigation (Stage 4) should not have proceeded in advance of the conclusion of the EA process.[566]

733. MTCS clarified that the archaeological assessment process, including Stage 4 mitigation, is commonly undertaken independent of other application or review processes that may be required and can proceed whether or not there is another application or review process underway.[567] The Stage 3 reports outlining the proposed mitigation were provided to the Aboriginal groups for review prior to Stage 4 and Aboriginal groups participated in the Stage 4 mitigation work. Completion of the archaeological assessment process is not dependent on any approval pursuant to another process.

734. CN reiterated that it followed the MTCS standards for archaeological assessment, including mitigation.[568] As noted previously, MTCS has indicated they have no outstanding concerns with respect to the Project.

iv. Heritage Impact Assessment and mitigation

735. Halton Municipalities asserted that CN did not complete Heritage Impact Assessments (HIAs) for the cultural heritage resources identified through the assessment.[569] They specifically referred to two elements, an implementation and monitoring plan and conservation recommendations, that they asserted had not been provided in an HIA form and for which they felt they did not have sufficient detail to support an evaluation of mitigation. Halton Municipalities further expressed concern with respect to the ongoing preservation of vacant cultural heritage properties on CN-owned lands.

736. Through CN's cultural heritage assessment, historic structures and landscapes were identified, evaluated, and assessed to identify the effects resulting from the Project. Where

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[566] Ms. Côté, Transcript, Volume 10, July 10, 2019 (CEAR #944), pp. 2841-2843.

[567] Ms. Prowse, Transcript, Volume 10, July 10, 2019 (CEAR #944), pp. 2843-2844.

[568] Mr. Lerner, Transcript, Volume 10, July 10, 2019 (CEAR #944), p. 2845.

[569] Ms. Côté, Transcript, Volume 10, July 10, 2019 (CEAR #944), pp. 2836, 2838.

effects were identified, mitigation strategies were prepared to either protect the resources or lessen the impacts. The proposed mitigation measures, including how vacant cultural heritage properties would be secured, were documented in the assessment reports.[570]

737. MTCS confirmed that detailed plans are normally developed after the EA process is complete, during detailed design.[571] MTCS noted that the cultural heritage resources assessment documentation provided by CN contained an assessment of the potential effects and proposed mitigation, typical of this stage in an EA process.

738. CN has expressed its openness to proposed re-use of the cultural heritage properties. However, to date, no adaptive re-use proposal has been received by CN from the Town of Milton or any other party.

v. Vibration

739. CN has proposed to establish a 50 m buffer between construction activities and cultural heritage properties, to protect the latter from possible damage due to vibration. Halton Municipalities questioned the adequacy of the proposed buffer.

740. As explained during the hearing, the use of a 50 m buffer is a standard tool during the EA process to screen for potential effects.[572] The determination of its appropriateness was informed by the results of the geotechnical work conducted across the site. That work characterized the nature of the soils and subsurface conditions across the site. The vibration assessment examined the potential extent of vibration propagation in these soils.

741. The assessment of vibration[573] due to the Project determined that vibration is expected to be below thresholds for structural damage within 15 m of the mainline.[574] Project construction

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[570] See IR 7CN's response to IR7.9 (CEAR #680); IR 4.34-4.36 (CEAR #632); Mr. Wong, Transcript, Volume 10, July 10, 2019 (CEAR #933), p. 2856.

[571] Mr. Minkin, Transcript, Volume 10, July 10, 2019 (CEAR #944), pp. 2838-2839.39

[572] Ms. Patterson, Transcript, Volume 10, July 10, 2019 (CEAR #944), pp. 2862-2863.

[573] See EIS (CEAR# 57)

[574] See IR 8.18 (CEAR #705), EIS Appendix E.18 (CEAR #57), s. 5.2, p. 26.

activities are expected to cause lower levels of vibration than trains passing on the mainline. Structures located beyond that distance are not expected to experience vibration at levels that could cause structural or cosmetic damage.

742. Based on these conditions, the 50 m buffer is expected to provide a very conservative separation between construction activity and cultural heritage resources.

743. In their response to Undertaking 33, MTCS expressed its opinion that 50 metres serves as an appropriate conservative default buffer for monitoring, and confirmed that they generally expect proponents to use that buffer distance in the absence of an engineering justification for a more narrow buffer.[575]

744. CN has also committed to monitoring during construction to ensure adverse vibration effects on cultural heritage resources are avoided. These measures are expected to protect cultural heritage properties from vibration damage.

PART XXI – HEARING TOPICS – ABORIGINAL CONSULTATION

A. Evidence of CN

745. CN's evidence on this topic is identified below.

EIS GUIDELINES
Section 5 (Part 2) Aboriginal Engagement and Concerns
Section 6 (Part 2) Effects Assessment
EIS SECTIONS
December 7, 2015 - section 5.0 Aboriginal Engagement and Concerns (CEAR #57)
December 7, 2015 - Table 7.1: Summary of Environmental Effects Assessment (CEAR #57)
December 7, 2015 - section 8.0 Benefits of The Project (CEAR #57)
December 7, 2015 - section 9.4.8 Follow-up Programs, Aboriginal Peoples (CEAR #57)
December 7, 2015 - section 10.4 Summary of Aboriginal Engagement (CEAR #57)
December 7, 2015 - Appendix D7 – Aboriginal Community Consultation (CEAR #57)

[575] MTCS Response to Undertaking 33, July 12, 2019 (CEAR #960).

TDR

December 7, 2015 - Technical Data Report Stage 1-2 Archaeological Assessment (Appendix E.14) – ORIGINAL (CEAR #57)

December 7, 2015 - Technical Data Report Stage 1-2 Archaeological Assessment (Appendix E.14) – REVISED (May 2, 2016; P256-0398-2016) (CEAR N/A)

IR RESPONSES

May 18, 2016 - CN Response to the CEAA's Information Request 1 (IR7, IR9) (CEAR #72)

March 21, 2018 - CN Response to the Review Panel's Information Request 4.1 (IR4.37, IR4.38, IR4.39) (CEAR #632)

May 18, 2018 - CN Response to the Review Panel's Information Request 5 (IR5.13, IR5.16) (CEAR #647)

June 12, 2018 - CN Response to the Review Panel's Information Request 5.1_Mitigation (CEAR #655)

OTHER MATERIALS

May 29, 2019 – Aboriginal Engagement Update Report (CEAR# 799)

May 29, 2019 – CN Supporting Documents for the Milton Logistics Hub Commitments Table (CEAR# 799)

B. Overview and Conclusions

746. CN's Aboriginal Vision and Strategy guides CN's relations with Aboriginal groups, including the Project-specific engagement on the proposed Milton Logistics Hub. CN's Aboriginal Vision was adopted and endorsed by CN's executive leadership team to guide all CN employees towards the same goal and ensure a proactive approach. CN's Aboriginal Vision is a two-fold commitment to:

(a) Develop respectful and mutually beneficial relationships with all Aboriginal people, while ensuring service to CN's customers.

(b) Be recognized by all stakeholders, including customers and governments, as having a sound approach to engaging with Aboriginal communities and having a respectful and sustainable relationship with Aboriginal peoples across the CN network.

747. CN has developed a five-pillar Strategy to support the achievement of its Aboriginal Vision, including: engaging smartly and respectfully with Aboriginal communities; promoting employment opportunities; increasing employee engagement; identifying and fostering business

opportunities; and increasing smart stakeholder engagement. Annually and for each pillar, CN develops and implements initiatives and projects to ensure it is progressing and living its Aboriginal Vision. It is also important to note that CN is the first transportation company to achieve Bronze level in the Progressive Aboriginal Relations program administered by CCAB.

748. These pillars are reflected in the engagement activities CN has undertaken and relationships CN has established with the Aboriginal groups in respect of the Project.

C. EIS Guidelines Requirements

749. Among other things, the EIS Guidelines identified the Aboriginal groups with whom CN, as the proponent of the Project, is expected to engage and specified the information to be considered by CN and provided in the EIS. Specifically, the EIS Guidelines directed CN to provide information to, meet with, and hear and record the views of the following potentially affected Aboriginal groups:

(a) The Mississaugas of the Credit First Nation (MCFN);

(b) Six Nations of the Grand River (Six Nations or SNGR); and

(c) Huron -Wendat Nation (HWN).

750. The EIS Guidelines also directed CN to provide information to and hear and record the views of the Métis Nation of Ontario (MNO).

D. CN's approach to engagement with Aboriginal groups

751. The EIS (sections 5.1 to 5.4) described CN's engagement with these Aboriginal groups up until the time the EIS was prepared and submitted, including the information that was provided to the Aboriginal groups, how the Aboriginal groups participated in field studies, traditional land use studies, document review, and other forms of engagement. The EIS also provided a description of the Aboriginal groups[576] and a summary of the views expressed by each Aboriginal group regarding the Project.[577] The EIS also documented where and how

[576] EIS (CEAR #57), s. 5.5, p. 97.

[577] EIS (CEAR #57), s. 5.6, p. 101.

traditional knowledge obtained through engagement with the Aboriginal groups was incorporated into the assessment.[578] An update of CN's Aboriginal engagement since the EIS was submitted was provided to the Panel on May 29.[579]

752. It is anticipated this information will assist the Panel in fulfilling its mandate with respect to Aboriginal rights and interests and, as described in section 2.3 of Part 1 of the EIS Guidelines, will ultimately inform decisions under CEAA 2012 and contribute to the Crown's understanding of potential impacts of the Project on potential or established Aboriginal or Treaty rights and the effectiveness of measures proposed to avoid or minimize those impacts.

ii. Mississaugas of the Credit First Nation (MCFN)

753. Through its ongoing engagement activities, CN has continued to share information about the Project and its potential effects and to receive feedback from MCFN regarding their Aboriginal and traditional knowledge, traditional land uses, other interests in the Project, and concerns regarding the Project. MCFN have expressed broad interest in the Project as it relates to potential environmental effects, archaeological resources, and potential future business opportunities.

754. In correspondence to the Panel dated February 21, 2017, MCFN indicated that it continues to work collaboratively with CN and Stantec to address issues and concerns.[580] MCFN also indicated in that letter that "throughout the process to date, we feel that our views have been respected, our concerns addressed and that we have a role in decision making." MCFN subsequently confirmed, in its letter to the Panel on June 15, 2017 (and follow-up letter dated June 29, 2017), that their concerns related to the EIS have been properly addressed through a "thorough and comprehensive issues management process."[581] MCFN further confirmed in its letter to the Panel dated March 7, 2018 that CN and its consultant have worked closely with

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[578] EIS (CEAR #57), s. 6.2.2, p. 113.

[579] CN Aboriginal Engagement Update Report, May 29, 2019 (CEAR #799).

[580] MCFN Letter to the Panel, February 21, 2017 (CEAR #479).

[581] See MCFN Letter to the Panel, June 15, 2017 (CEAR #573); MCFN Letter to the Panel, June 29, 2017 (CEAR #581)

MCFN in developing and implementing mitigation strategies to address MCFN concerns and noted that CN and its consultant have demonstrated that they will continue to work closely with MCFN to address concerns as they arise.[582]

755. During the hearing, MCFN confirmed that it had no residual concerns with respect to the Project. MCFN expressed its expectation that engagement with CN with respect to the Project would continue for the life of the Project.[583] MCFN also stated that they expect to be directly involved in any monitoring undertaken in relation to the Project, including participation in any fieldwork, review of draft monitoring plans, review of reports of planned and completed monitoring, input into the need for and scope of monitoring, and discussion of mitigation that may be determined through monitoring to be required. At the hearing, Mr. LaForme – on behalf of MCFN – described CN's commitment and handling of the relationship as "exemplary."[584]

756. CN has undertaken extensive engagement with MCFN, including providing opportunities to provide information on the effects of changes on the environment on traditional use and potential adverse impacts on potential or established Aboriginal and Treaty rights. Based on past and ongoing engagement with MCFN, and consistent with MCFN's submissions to the Panel noted above, CN is not aware of any outstanding concerns related to the potential effects of the Project on MCFN that have not already been addressed or will not be addressed through ongoing engagement as agreed to by CN and MCFN.

757. CN has reiterated its commitment to continue engaging and working with MCFN, including with respect to MCFN's ongoing participation in monitoring, in relation to the Project, should it proceed.

iii. Six Nations of the Grand River (SNGR)

758. Through ongoing engagement activities, CN has continued to share information about the Project and its potential effects and to receive feedback from SNGR regarding their Aboriginal

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[582] MCFN Letter to the Panel March 7, 2018 (CEAR #627).

[583] Mr. LaForme, Transcript, Volume 11, July 11, 2019 (CEAR #953), p. 3113.

[584] Mr. LaForme, Transcript, Volume 11, July 11, 2019 (CEAR #953), p. 3109.

and traditional knowledge, traditional land uses, other interests in the Project, and concerns regarding the Project. SNGR have expressed interest in the Project mainly as it pertains to potential effects on archaeological resources. They have also expressed interest in other matters not specifically related to the Project, such as matters relating to their reserve, potential employment and procurement opportunities, and tree planting.

759. In correspondence to the Panel dated May 26, 2017, SNGR confirmed it continues to constructively engage with CN to address the issues raised in relation to the Project, and indicated that SNGR and CN are discussing a Memorandum of Understanding.[585] SNGR further stated that, as a result of ongoing engagement with CN, SNGR had no outstanding issues with the EIS.

760. During the hearing, SNGR described its concerns regarding climate change and environmental stewardship of Six Nations lands. CN reiterated its leadership in tree-planting initiatives and its commitment to meaningful ongoing dialogue with SNGR on issues of mutual interest, as well as SNGR's direct participation as monitors during the construction of the Project.

761. Based on past and ongoing engagement with SNGR and, consistent with SNGR's submissions to the Panel noted above, CN is not aware of any outstanding concerns related to the potential effects of the Project on SNGR that have not already been addressed or will not be addressed through ongoing engagement as agreed to by CN and SNGR.

762. CN anticipates that this ongoing engagement, guided on CN's part by its Aboriginal Vision, and by both parties by the principles of peace, friendship, and respect articulated by the SNGR.

iv. Huron -Wendat Nation (HWN)

763. Through its ongoing engagement activities, CN has continued to share information about the Project and its potential effects and to receive feedback from HWN regarding their

[585]SNGR Letter to the Panel, May 26, 2017 (CEAR #567).

Aboriginal and traditional knowledge, traditional land uses, other interests in the Project, and concerns regarding the Project.

764. HWN expressed interest in the Project as it relates to potential effects on archaeological resources. HWN requested the presence of an HWN monitor in archaeological fieldwork and HWN representatives participated in all archaeological field surveys. CN also provided copies of all draft archaeological assessment reports to HWN for review and comment. HWN and CN also established an agreement related to HWN's participation in archaeological assessments related to other CN projects in Ontario. HWN also expressed interest in the benefits of the Project, including potential employment opportunities.

765. Based on past and ongoing engagement with HWN and, consistent with HWN's submission to the Panel, CN is not aware of any outstanding concerns related to the potential effects of the Project on HWN that have not already been addressed or will not be addressed through ongoing engagement, including participation in monitoring during Project construction (particularly with respect to the potential for ossuaries, as discussed previously), as agreed to by CN and HWN.

v. Métis Nation of Ontario (MNO)

766. Through its engagement activities, CN has continued to share information about the Project and its potential effects and to solicit feedback from MNO regarding their Aboriginal and traditional knowledge, traditional land uses, other interests in the Project, and concerns regarding the Project.

767. CN has provided information to MNO and invited engagement with them, including providing opportunities to provide information on the effects of changes on the environment on traditional use and potential adverse impacts on potential or established Aboriginal rights. To date, no issues or concerns with respect to the Project or potential effects of the Project on its Aboriginal rights or interests have been raised by MNO either directly with CN or in correspondence between MNO and the Panel. CN is therefore not aware of any outstanding concerns related to the potential effects of the Project on MNO.

PART XXII – HEARING TOPICS – PUBLIC CONSULTATION

A. Evidence of CN

768. CN's evidence on the topic is identified below.

EIS GUIDELINES

Section 4 (Part 2) Public Consultation and Concerns

Section 6 (Part 2) Effects Assessment

Section 7 (Part 2) Summary of Environmental Effects Assessment

Section 8 (Part 2) Follow-up and Monitoring Programs

EIS SECTIONS

December 7, 2015 - Section 4 Community Stakeholder Consultation (CEAR #57)

December 7, 2015 - Section 6.2.2.2 Issues Identification (CEAR #57)

December 7, 2015 - Section 6.5.1.3 Consideration of Issues Raised During Consultation and Engagement (CEAR #57)

December 7, 2015 - Section 6.5.2.3 Consideration of Issues Raised During Consultation and Engagement (CEAR #57)

December 7, 2015 - Section 6.5.3.3 Consideration of Issues Raised During Consultation and Engagement (CEAR #57)

December 7, 2015 - Section 6.5.4.3 Consideration of Issues Raised During Consultation and Engagement (CEAR #57)

December 7, 2015 - Section 6.5.5.3 Consideration of Issues Raised During Consultation and Engagement (CEAR #57)

December 7, 2015 - Section 6.5.6.3 Consideration of Issues Raised During Consultation and Engagement (CEAR #57) December 7, 2015 – Appendix D Record of Consultation (CEAR #57)

IR RESPONSES

March 21, 2018 - CN Response to the Review Panel's Information Request 4 (Group 1) (IR 4.8) (CEAR #656)

OTHER MATERIALS

February 9, 2018 Letter to the Panel Chair, including Consultation Summary Report and Consideration Memo (CEAR #620)

May 29, 2019 – Updated Consultation Record (CEAR# 799)

May 29, 2019 – CN Supporting Documents for the Milton Logistics Hub Commitments Table (CEAR# 799)

B. Overview and Conclusions

769. CN recognizes the importance of consultation with stakeholders, including residents, community members, and other interested parties as an integral aspect of the Project. Active participation by stakeholders through consultation throughout the EA process contributes to an open and fair process and strengthens the quality and credibility of results. To this end, CN has encouraged public participation throughout the EA.

770. Preliminary consultation began in 2014, prior to announcement of the Project, when CN met with stakeholders, agencies, and municipal representatives to request existing background information to supplement publicly available documents.

771. CN initiated the formal consultation process for the Project through its public announcement on March 19, 2015 and with the official opening of the Public Information Centre on March 28, 2015.

772. CN's consultation activities during and up to the submission of the EIS were described in detail in section 4 and Appendix D of the EIS. CN's consultation activities since the submission of the EIS were described in the Updated Consultation Record submitted to the Panel on May 29, 2019.[586]

773. Through the consultation process, CN has:

(a) provided information to agencies, municipalities, interest groups and members of the public;

(b) engaged with those who may be affected or have an interest in the Project;

(c) ensured all agencies, municipalities, interest groups, and members of the public were notified early and often throughout the EA process;

(d) welcomed input from the community, agencies, municipalities, and other stakeholders;

(e) considered all input, regardless of source, intention, or viability;

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[586] CN Updated Consultation Record, May 29, 2019 (CEAR #799).

(f) used input, where applicable, to focus the ongoing field studies, scope the assessment, and ultimately inform Project design; and

(g) transparently documented input and comments received, how the Project team responded, and how the input and comments were considered, if applicable. If input could not influence the study or the design, the rationale was documented.

774. CN published various Project announcements and notices throughout the EA process in the local newspaper, the Milton Canadian Champion, with general distribution in the Town of Milton. These notices were supplemental to the notifications provided by the CEA Agency in accordance with regulatory requirements and are listed in the EIS section 4, Table 4.1.[587]

C. Principal Issues Raised

i. Adequacy of notification and consultation

775. During the hearing, several residents expressed concern related to the communication of information about the proposed Project.

776. As noted previously, CN summarized its consultation efforts related to the proposed Project in the EIS and in the Updated Consultation Record. Those documents outline the extensive efforts that CN has made to reach out to the community and engage them in the consultation process related to this Project.

777. These efforts have included taking the extensive, detailed information about the proposed Project, and distilling the information into more easily digestible summaries, intended for members of the community. Those summaries of the assessment, as well as fact sheets related to technical subjects, have been available on the Project website for over two years. Those documents were also available in print at the Information Centre and at engagement events.

778. At various consultation events, CN also presented summaries of key Project subject areas on display boards and in printed materials, and CN and their team of experts were available to answer questions from the public.

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[587] EIS (CEAR #57), s. 4.1, p. 69.

779. CN's significant outreach efforts have included the following:

(a) *Summer 2015:*

(i) Opening an Information Centre in Milton;

(ii) Project notifications, a Project website, dedicated 1-800 line, and email address; and

(iii) A public open house on July 16, 2015;

(b) *Fall 2017:*

(i) 11,700 postcards with the consultation schedule and Project information, distributed to addresses near the proposed Project;

(ii) 18 newspaper ads, with tailored schedule information;

(iii) Four posters, with the consultation schedule and Project information, placed on community boards at public locations (e.g., grocery stores) in Milton;

(iv) Two invitations and reminder emails sent to a Project distribution list with over 200 addresses that included members of the public;

(v) Five public open houses in Milton (2), Burlington, Oakville, and Halton Hills to present updated information; and

(vi) Two small group meetings in Milton to discuss issues and listen to concerns;

(c) *Winter – Spring 2018:*

(i) 13,000 door-hanger notification cards distributed to residences in southern Milton;

(ii) 8 newspaper advertisements in Halton Region community papers;

(iii) 9 days of online advertising on TheIFP.ca, InsideHalton.ca, and Google display network;

(iv) Two notification emails to the Project's distribution list of over 200 addresses;

(v) Three Community Benefits Roundtables in Milton and Oakville; and

(vi) Three days of GO Station pop-up engagement events; and

(d) Dozens of meetings with government agencies, local municipalities and other stakeholders to discuss the Project and seek feedback prior to and following the announcement.

780. CN has strived to make the information about the Project and the assessment accessible both in terms of its availability and in the use of non-technical language for summaries and fact sheets.

781. CN has employed various and numerous techniques and media for outreach, including direct mail, on-line and print advertisements, emails, web, telephone, information centre, open houses, small group meetings, community board postings, and in-community pop-up events. These engagements were designed to reach a broad and diverse range of stakeholders.

782. The evidence supports the view that CN has made reasonable efforts to notify and engage residents and community members who may be affected by the proposed Project.

ii. Polling

783. During the hearing, Mr. Canzona asserted that the polling conducted by CN and described in the Consultation Summary Report submitted to the Panel on February 9, 2018 was conducted during CN-led public consultation events,[588] and involved only 655 people from a "captive audience of invitation only participants."[589] For that reason, Mr. Canzona argued that the results were not random and could not be considered statistically significant, that is to say important or meaningful. Mr. Canzona called on the Panel to disregard the polling results.

784. However, this survey – or consultation poll – was a separate survey from the on-line and paper survey that CN conducted at the same time that was open to any member of the public. The consultation poll was conducted between September 26 and October 11, 2017, by Pollara

[588] See CN Consultation Summary Report, February 9, 2018 (CEAR #620).

[589] Mr. Canzona, Transcript, Volume 11, July 11, 2019 (CEAR #953), p. 3258.

Strategic Insights, an independent polling firm. The 655 respondents to this poll comprised a reliable sample of adult residents of Halton Region who were members of one of Canada's largest, most-respected online research panels. The respondents were randomly selected and invited to participate in the poll. On-line, invitation-only research panel surveys like this are a standard, reliable methodology of the survey research industry, accounting for a clear majority of all surveys conducted each year by research firms in Canada. Over the course of the past two decades, on-line surveys have been proven to be a reliable survey methodology.

785. Although a margin of error cannot be assigned to on-line surveys, as a guideline, a probability sample of this size would carry a margin of error of ±3.8%, 19 times out of 20. Furthermore, gender, age, and municipal quotas were employed to ensure reliable representation from amongst key demographic and geographic sub-samples. The final dataset was weighted using standard statistical techniques in order to ensure that the sample's demographic and municipal population proportions accurately represent those of the actual adult population of Halton Region.

786. An open consultation feedback form was offered in addition to the consultation poll (which was conducted to get a reliable sample for comparison). All residents of Halton Region were invited to fill out that feedback form. 11,700 postcards, 18 newspaper ads, and two emails to the Project email list were used to encourage participation. The results of the poll, and the feedback form, were presented side by side in CEAR #620.[590]

787. The results of the consultation poll demonstrated that a majority of Halton residents supported the proposed Project, and that support increased significantly as participants were provided with more information about the Project, proposed mitigation measures, and potential benefits. In CN's view, these results are both valid and reliable, and relevant to the Panel's consideration of community interests in the Project.

[590] CN Consultation Summary Report, February 9, 2018 (CEAR #620).

PART XXIII – CLOSING

788. We trust the above submissions will assist the Panel in its evaluation of the Project and the preparation of its report.