



National Energy
Board

Office national
de l'énergie

Reasons for Decision

**TransCanada
PipeLines Limited**

**Vaughan Mainline
Expansion Project**

GH-001-2016

September 2016

Facilities

Canada

National Energy Board

Reasons for Decision

In the Matter of

TransCanada PipeLines Limited

Vaughan Mainline Expansion Project

GH-001-2016

September 2016

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Glossary of Terms and Abbreviations

Applicant, TransCanada or the Company	TransCanada PipeLines Limited
ATP or Application to Participate	The form by which interested persons apply to participate as a Commenter or an Intervenor in this hearing.
Bcf	Billion cubic feet
Board or NEB	National Energy Board
CAC	Criteria Air Contaminants
City of Vaughan	The Corporation of the City of Vaughan
Company	TransCanada PipeLines Limited
Commenter	A person who has relevant information or expertise regarding the Project and who may participate by providing a letter of comment.
Community Meeting	A public meeting where all Participants (Commenters, Intervenors and the Applicant) have an opportunity to present an oral statement expressing their views on the Project directly to the Board.
CMOS	Capacity Management Open Season
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSA Z662	Canadian Standards Association Z662, <i>Oil and Gas Pipeline Systems</i>
DFO	Department of Fisheries and Oceans
EAE	Enhanced Aboriginal Engagement
ECCC	Environment and Climate Change Canada
Enbridge Gas	Enbridge Gas Distribution Inc.
EPP	Environmental Protection Plan
ESA	Environmental and Socio-Economic Assessment
FTNR	Non-renewable Firm Transportation
Gaz Métro	Gaz Métro Limited Partnership
GHG	Greenhouse Gas

GTA	Greater Toronto Area of southern Ontario
Ha	Hectare
HDD	Horizontal Directional Drilling
HDI	Haudenosaunee Development Institute
Hearing Order	The NEB's Hearing Order GH-001-2016
HONI	Hydro One Networks Inc.
HSE MS	Health, Safety and Environment Management System
Intervenor	A party (e.g. individual(s), company or group) who has applied to participate in the hearing and has been granted standing by the Board to participate as an Intervenor; has rights and obligations in the proceedings as set out in the Hearing Order.
IR or Information Request	A written question to an applicant or Intervenor in relation to its evidence, filed by the Board, an Intervenor or the applicant during the written portion of the hearing pursuant to the deadlines set out by the Board, to which a response must be subsequently filed.
KNC	TransCanada's King's North Connection Project
LSA	Local Study Area
mm	Millimetre
M	Metre
Mainline	TransCanada's Mainline pipeline system
MLV	Main Line Valve
MNCFN	Mississaugas of the New Credit First Nation
MNRF	Ontario Ministry of Natural Resources and Forestry
MOECC	Ontario's Ministry of the Environment and Climate Change
MTO	Ontario's Ministry of Transportation
MW	Megawatt
NCOS	New Capacity Open Season
NEB or Board	National Energy Board

NEB Act	<i>National Energy Board Act</i>
NPS	Nominal Pipe Size (in inches)
OD	Outside Diameter
OEB	Ontario Energy Board
OPR	<i>National Energy Board Onshore Pipeline Regulations</i>
Part IV	Part of the NEB Act entitled “Traffic, Tolls and Tariffs”
Participant	A party (e.g. individual(s), company or group) who has applied to participate in the hearing and who has been granted standing to participate by the Board; includes the applicant (TransCanada), Intervenor and Commenters.
PM _{2.5}	Particulate matter up to 2.5 micrometers in size
Pre-Decided Standing	The process by which the Board has decided that parties that are directly affected by the granting or refusing of the Application are approved to participate in this hearing, provided that they register as an Intervenor or Commenter during the Application to Participate process.
Project	TransCanada’s proposal to construct and operate the Vaughan Mainline Expansion Project
RAP	Restricted Activity Period
RH-001-2014	Reasons for Decision on TransCanada PipeLines Limited Part IV Tolls and Tariff Application for 2015-2030 Tolls (filing A65154)
RoW	Right-of-Way
RSA	Regional Study Area
SARA	Species at Risk Act
SHFT	Short-haul Firm Transportation
SLG	St. Lawrence Gas Company Inc.
SSA	Socio-Economic Study Area
Station 130	TransCanada’s Mainline Maple Compressor Station

TBO	Transportation by Others; an arrangement by which all or part of one pipeline's transportation capacity is contracted for by another pipeline. The cost of service for this capacity is included as a line item in the cost of service of the other pipeline.
TCE	TransCanada Energy Ltd.
Tcf	Trillion cubic feet
TransCanada	TransCanada PipeLines Limited
TRCA	Toronto and Region Conservation Authority
TTF	Mainline Tolls Task Force
TWS	Temporary Workspace
Union	Union Gas Limited
VC	Valued Component
York Region	Regional Municipality of York

Recital and Appearances

IN THE MATTER OF the *National Energy Board Act* (NEB Act) and the Regulations made thereunder;

IN THE MATTER OF an application dated 10 November 2015 by TransCanada PipeLines Limited, for an Order from the Board granting approval to construct and operate the Project pursuant to section 58 of the NEB Act, filed with the National Energy Board under File OF-Fac-Gas-T211-2015-05-01; and

IN THE MATTER OF Hearing Order GH-001-2016 dated 10 February 2016.

HEARD in Vaughan, Ontario on 14 – 16 June 2016;

BEFORE

L. Mercier	Presiding Member
S. Parrish	Member
J. Gauthier	Member

Appearances**Participants****Witnesses**

S. Gosnell
P. Nessim
D. Nessim

1595758 Ontario Limited

P. Nessim
T. Jessop

R. Pelletier
M. Picard
S. Picard
R. Williamson

Conseil de la Nation
huronne-wendat

D. Kloeze
S. MacHattie

Her Majesty the Queen in
Right of Ontario

N. Rouskov
N. Ahmed

P. Jurgeneit
S. Allman

St. Lawrence Gas Company
Inc.

E. Belyea

The Corporation of the City
of Vaughan

J. Graziosi
M. Rossi
T. Iacobelli
P. Basilone

E. Belyea

The Regional Municipality
of York

S. Duncanson
H. Weberg
R. Rodier

TransCanada PipeLines
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N. Jalotjot
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I. Tatar
A. Abbate
T. Stringer
T. Skillen
N. Busmann
P. Leys

J. Gillett
J. Charles

Union Gas Limited

M. Marchioni
A. Marchioni

Ussia Family

V. Ussia
J. Ussia

A. Hudson

National Energy Board

Disposition

The Letter Decision was issued on 4 August 2016. The following chapters contain our Reasons for Decision in respect of the Project heard by the Board in the GH-001-2016 proceeding.

File OF-Fac-Gas-T211-2015-05 01
4 August 2016

Ms. Trishna Wirk
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TransCanada PipeLines Limited
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Facsimile 403-260-7024

Dear Ms. Wirk, Mr. Rodier and Mr. Duncanson:

**Hearing Order GH-001-2016 regarding TransCanada PipeLines Limited
(TransCanada)
Application for the Vaughan Mainline Expansion Project (Project)
Decision and Order with Reasons to Follow**

On 10 November 2015, TransCanada applied to the National Energy Board (NEB or Board) for an order from the Board granting approval to construct and operate the Project pursuant to section 58 of the *National Energy Board Act* (NEB Act). In its application, TransCanada also requested exemptions from paragraph 30(1)(a) and section 31 of the NEB Act.

In a letter dated 11 January 2016, the Board confirmed that the application was complete and set the time limit for the Board to issue an order or dismiss the application. On 10 February 2016, the Board issued Hearing Order GH-001-2016 setting the application for a hearing with oral and written components. Seventeen intervenors and five commenters participated in the hearing.¹

The Board considered TransCanada's application and submissions, as well as written submissions and oral statements by all participants on the record for the GH-001-2016 hearing. The Board has decided to release its decision with reasons to follow. It is the Board's view that there is a benefit to the hearing participants, the natural gas market and the public by having a

¹ Mr. Nick Pirruccio of Huntington Acres withdrew as an intervenor on 8 June 2016.

timely decision. The Board's written reasons will be released on or before 9 September 2016 (Reasons for Decision).

The Board issues Order XG-T211-020-2016 (Order), and associated conditions pursuant to section 58 of the NEB Act, the effect of which is to approve the Project. A copy of the Order and its Schedule A, which together, outline the specifics of the Project as approved, is attached. The Board grants TransCanada's request for exemption from the provisions of paragraph 30(1)(a) and section 31 of the NEB Act.

The Board notes that TransCanada made numerous commitments relating to Project matters such as construction scheduling, land agreements and permits and authorizations. Adherence to and reporting on these commitments is set out in Conditions 2, 3 and 5 in the Order.

The Board considered the submissions from Giuseppe and Maria Sidoti that it included in the record in its letter of 19 July 2016 (filing A78594). The Board has approved the revised route as detailed in TransCanada's reply evidence of 8 June 2016 (filing A77451) and the Board's conditions detailed in the Order reflect this revised route. The revised route made changes to the proposed route detailed in the Application (filing A73897) in order to accommodate specific landowner concerns. The Board's reasons for accepting the revised route will be included in the Reasons for Decision.

Intervenors proposed a number of conditions during final argument, some of which related to changes to the proposed and revised route. The Board has not accepted these conditions. Intervenors also proposed a number of conditions relating to compensation, however, matters of compensation are not within the Board's authority to consider. Compensation claims for land use or for damage resulting from construction are handled by the federal Minister of Natural Resources. When a landowner and a pipeline company cannot agree on compensation for lands that the company has acquired or damaged, either party may apply to the Minister of Natural Resources to receive the services of a negotiator, or to have the dispute settled by arbitration.

The Board notes the concerns from the Conseil de la Nation huronne-wendat. The Board has decided to require TransCanada to file a plan describing participation by Aboriginal groups in monitoring activities during construction for archaeological resources. This requirement is set out in Condition 10. The Board notes TCPL's commitments for training staff on heritage resources, archaeological potential and the Heritage Resources Contingency Discovery Plan. The Board expects that any Aboriginal monitors would also be offered an opportunity to receive this training. The Board expects a qualified archaeologist to participate in the development and delivery of this training. The Board has also decided to require TransCanada to provide an updated Heritage Resources Discovery Contingency Plan that reflects the commitments made during the hearing process and any additional commitments made during ongoing engagement with Aboriginal groups. This requirement is set out in Condition 6(e). The Board's reasons for these conditions will be included in the Reasons for Decision.

TransCanada is directed to notify Intervenors to the GH-001-2016 proceeding when filings pursuant to Board Conditions 6, 7, 9, 10, 11, 15 are made. In addition, Intervenors can request TransCanada to provide them notification of any other filing required by the Board under

Order XG-T211-020-2016. The Board also reminds TransCanada that it must apply for Leave to Open pursuant to section 47 of the NEB Act, prior to the facilities being placed in operation.

The Board recognizes that hearings often raise matters that affect people, the environment, commercial interests and municipal and other government authorities. The Board acknowledges and expresses its appreciation for the participation of parties during the oral portions of the hearing and the quality of the submissions that were made by the Parties. The Board considered all statements and submissions by Parties when making its decisions.

The Board directs TransCanada to serve a copy of this letter, the attached Order and its Schedule A on all interested parties.


The foregoing constitutes our Decision in respect of the Project heard by the Board in the GH-001-2016 proceeding.



L. Mercier
Presiding Member



S. Parrish
Member



J Gauthier
Member

Calgary, Alberta
August 2016

Attachments
c.c. All parties to GH-001-2016

Chapter 1

Introduction

1.1 Overview of the Application

On 10 November 2015, TransCanada PipeLines Limited (TransCanada) applied to the National Energy Board (Board) for an order from the Board granting approval to construct and operate the Vaughan Mainline Expansion Project (Project) under section 58 of the *National Energy Board Act* (NEB Act), which allows the Board to exempt a pipeline from certain provisions of the NEB Act. TransCanada requested exemptions that would otherwise require a certificate and a plan, profile and book of reference.

The pipeline project consists of approximately 11.7 km of 1067 mm (NPS 42) outside diameter (OD) pipeline. It will be integrated into TransCanada's existing Mainline system (Mainline) and its recently approved King's North Connection Pipeline. The project is located in the city of Vaughan, in the Regional Municipality of York, in southern Ontario.

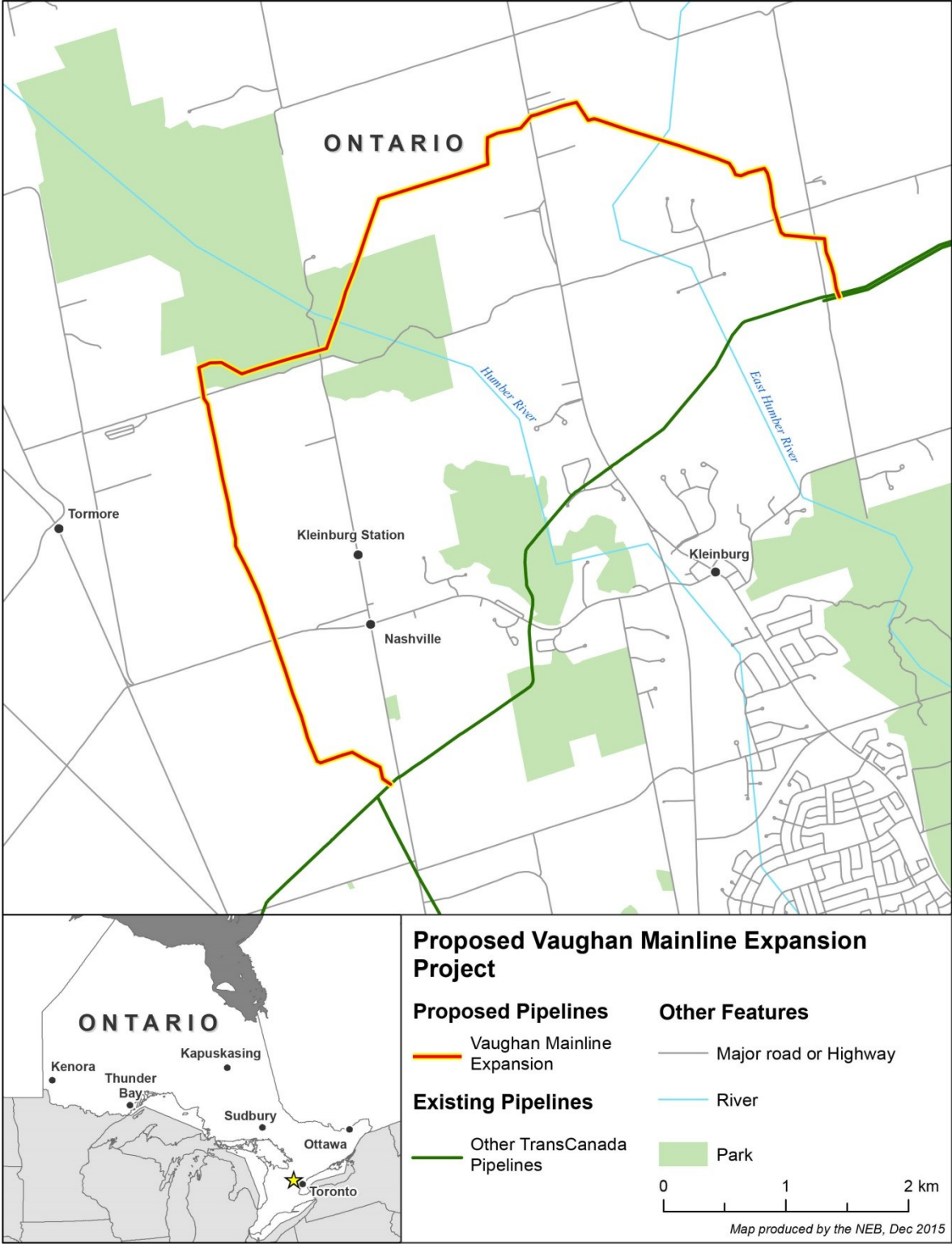
Specifically, TransCanada requested that the Board grant the following relief:

- a) an order pursuant to section 58 of the NEB Act for approvals to construct and operate the following facilities and for exemption from sections 30(1)(a) and 31 of the NEB Act:
 - approximately 11.7 km of 1067 mm (NPS 42) pipeline tie-in into TransCanada's approved 914.4 mm (NPS 36) King's North Connection Project
 - a tie-in into TransCanada's existing Line 200-2, 914.4 mm (NPS 36) pipeline
 - a tie-in to TransCanada's existing Line 200-3, 1067 mm (NPS 42) pipeline
 - associated facilities
- b) such other relief that TransCanada might request or that the Board might deem appropriate.

The Project will facilitate access to the growing natural gas supplies in the northeastern United States. TransCanada is proposing the Project, in conjunction with a Transportation by Others (TBO) arrangement on Enbridge Gas Distribution Inc.'s (Enbridge Gas') Albion pipeline. The Albion pipeline has received approval from the Ontario Energy Board (OEB) and includes the Segment A pipeline and the Albion Station expansion. Together, the Project and the TBO act as a partial loop of TransCanada's Mainline facilities between Parkway and Station 130.

The Project and TBO were a part of the 2013–2030 Mainline Settlement Agreement among TransCanada, Enbridge Gas, Union Gas Limited (Union) and Gaz Métro Limited Partnership (Gaz Métro). The agreement discussed various interrelated tolling, tariff and facilities issues and was the subject of the RH-001-2014 proceeding. Therefore TransCanada's application does not request approvals pursuant to Part IV of the NEB Act concerning the recovery of the costs of the Project through tolls.

Figure 1-1: Project Location Map²



² Project shown as filed on 10 November 2015.

1.2 Overview of the Hearing

On 11 January 2016, the Board determined that the application was complete enough to proceed to assessment. On 10 February 2016, the Board issued Hearing Order GH-001-2016 (Hearing Order), which established an oral process and a written process for the Board's consideration of the application. The Hearing Order stated that the Board also intended to hold a public meeting called a Community Meeting, where all Participants (Commenters, Intervenors and the Applicant) would have an opportunity to present an oral statement expressing their views on the Project directly to the Board. The Hearing Order included the List of Issues (found in Appendix I of these Reasons) that the Board proposed for consideration during its assessment of TransCanada's application.

Pursuant to subsection 55.2 of the NEB Act, the Board must determine who may participate in a hearing for a project before the Board. To be eligible to participate, interested persons or groups must request participation and demonstrate to the Board in their participation application that:

- they are directly affected by the proposed project; or
- they have relevant expertise or information that will assist the Board in making its decision in respect of a proposed project.

Those who wished to participate in the hearing process for the Project were required to submit an Application to Participate (ATP) to the Board by 2 March 2016.

The Hearing Order explained that the Board decided that Aboriginal groups, municipalities, landowners and occupants who are directly affected by the granting or refusing of the application had standing provided they register before the ATP deadline of 2 March 2016. This was referred to as Pre-decided Standing. These groups were able to choose whether to participate as a Commenter or as an Intervenor.

On 18 March 2016 the Board released Ruling No. 1 establishing the List of Parties (comprised of TransCanada and Intervenors) and the List of Commenters for the proceeding. In its Ruling No. 2 the Board decided one application for reconsideration of standing: Mr. Pirruccio of Huntington Acres was granted Intervenor status instead of Commenter status. On 8 June 2016, Mr. Pirruccio filed a letter with the Board stating that the issues raised by Huntington Acres in the regulatory process with respect to the Project have been resolved, and that the party was withdrawing formally from the Hearing Process.

On 15 April 2016 the Board released Procedural Directive No. 2 providing information about the Community Meeting. The Community Meeting was held in the afternoon and evening of 27 April 2016 in Vaughan, Ontario. Four Intervenors and TransCanada presented at the Community Meeting.

On 6 June 2016 the Board released Procedural Directive No. 4 providing information about the oral hearing.

Between 14 June 2016 and 16 June 2016, the Board held the oral hearing in Vaughan, Ontario. The oral hearing consisted of cross examination and final argument.

On 19 July 2016 the Board released Ruling No. 5 in regards to a motion filed on 28 June 2016 by Giuseppe Sidoti and Maria Sidoti through Nick Pirruccio as their agent. The Board decided to open the record to allow the motion and supporting material filed by the Sidoti family to be added to the record together with the response by TransCanada and the reply filed by the Sidoti family.

The regulatory documents on file in the GH-001-2016 proceeding are available on the Board's website, www.neb-one.gc.ca.

The conditions listed in Order XG-T211-020-2016 are presented in Appendix II.

Chapter 2

Engineering Matters

In its examination of pipeline and facility applications, the Board considers relevant engineering issues to ensure that the applicant will design, construct and operate its proposed facilities in a safe and secure manner. The Board examines issues such as the suitability of the proposed design, its operation, integrity management, and how it will be constructed and maintained.

When a company designs, constructs, operates or abandons a pipeline, it must do so in accordance with the Board's *Onshore Pipeline Regulations* (OPR), the commitments made during the Board's hearing process and the conditions attached to any approval. The OPR references various engineering codes and standards including the Canadian Standards Association *Z662 Oil and Gas Pipeline Systems* (CSA Z662). The applicant is responsible for ensuring that it follows the design, specifications, programs, manuals, procedures, measures and plans developed and implemented by the company in accordance with these requirements.

The Board also assesses the potential impacts, and how those impacts will be managed, between a project and land use that may be in proximity to, or overlap with, the Project. These impacts must be suitably considered in the design and planning, to enable a project to be in the public interest.

2.1 Description of Facilities

The Project involves construction and operation of a new buried pipeline to transport sweet natural gas, and will include approximately 11.7 km of 1067 mm outside diameter (OD) (NPS 42) pipeline and associated facilities. The Project is located in the City of Vaughan, in the Regional Municipality of York, in southern Ontario, where the land being traversed is public (municipal and conservation) and private.

The Project will connect into TransCanada's approved 914.4 mm (NPS 36) King's North Connection (KNC) project and the existing TransCanada Line 200-2, 914.4 mm (NPS 36) pipeline northwest of the intersection of Major MacKenzie Drive and Huntington Road. The Project will run north and east before heading south to connect into the existing TransCanada Line 200-3, 1067 mm (NPS 42) pipeline near the existing Main Line Valve (MLV) 201A located southeast of the intersection of Kirby Road and Kipling Avenue. The existing valve, MLV 201A and associated crossover piping will be removed. A receiver barrel and associated piping will be installed at Station 130.

Views of TransCanada

TransCanada acknowledged that routing was one of the key considerations for the Project. However, routing concerns were addressed within the commitment and requirement to meet the OPR and CSA Z662.

The company identified segments of the pipeline that would be required to meet Class 1, 2 and 3 design requirements. It committed to designing the pipeline to Class 3 requirements, the more stringent, for the entire length of the Project.

Views of Participants

Three provincial or municipal authorities (Corporation of the City of Vaughan , the Regional Municipality of York , and the Ontario Ministry of Transportation) raised concerns about how the Project may impact potential utility and transportation infrastructure developments.

The Ussia Family raised concerns that the activities they may undertake on their land may have negative impacts on the integrity of the pipeline. These activities include heavy truck traffic and the operation of a dumping station.

1595758 Ontario Limited (the Nessim Family) requested a rerouting of the pipeline that would have it remain in proximity to a road.

Views of the Board

The Board notes that in each case of potential conflict between existing/proposed utility or transportation infrastructure, and the proposed Project, TransCanada maintained its commitment to comply with CSA Z662, and the OPR. The approaches proposed by TransCanada to accommodate the potential future developments, such as utilizing horizontal directional drilling (HDD) and boring to allow development above the pipeline, are consistent with the typical requirements of the regulations and standards that pertain to pipeline development. The Board is confident that TransCanada's technical proposals are sufficient.

TransCanada advised that the activities the Ussia Family are anticipating on their land are within the range of activities the pipeline is designed to accommodate. The Board agrees with TransCanada that pipelines that are constructed in compliance with applicable regulations and standards are safe and secure in industrialized areas.

The rerouting of the pipeline along the road-side edge of the Nessim Family property, as proposed by TransCanada, is acceptable to the Board. The company has committed to the additional requirements imposed on pipelines that cross or are in proximity to roadways, and the Board accepts these requirements as sufficient.

The Board notes that there are impacts with building a pipeline in a developed and developing area. The Board notes that these conditions, though unique to stakeholders in a given area, are considered and addressed within the standards and regulations the Board requires its regulated pipelines to meet. These impacts can be appropriately resolved in a number of ways including the use of respectful and meaningful discussions.

The Board finds that TransCanada's planning for future development in the Project area in its choice of pipeline materials and installation such as class location pipe is appropriate for compliance with the Board's OPR, and by reference the CSA Z662 in the foreseeable future.

Chapter 3

Land Matters

The Board's *Filing Manual* sets out the Board's expectations for lands information to support an application for an Order under section 58 of the NEB Act. Applicants are expected to provide a description and rationale for the proposed route of a pipeline, the location of associated facilities, and the permanent and temporary lands required for a project. Applicants are also expected to provide a description of the land rights to be acquired and the land acquisition process, including the status of land acquisition activities. This information permits the Board to assess the appropriateness of the proposed route, land requirements and the applicant's land acquisition program.

3.1 Routing and Land Use

Views of TransCanada

TransCanada's proposed route (the route) for the approximately 11.7 km pipeline Project begins at the northern tie-in point of the King's North Connection Pipeline Project (KNC) northwest of the intersection of Major Mackenzie Drive and Huntington Road. The Project parallels the Hydro One Networks Inc. (HONI) transmission corridor, crosses Toronto and Region Conservation Authority (TRCA) lands, Nashville Road, Kirby Road and Huntington Road, the Main Humber River, Highway 27, the East Humber River, Kirby Road (for a second time), and Kipling Avenue, tying into TransCanada's Line 200-3 near the main line valve (MLV) 201A crossover valve site (located southeast of the intersection of Kirby Road and Kipling Avenue). TransCanada stated that 40 parcels of land would be traversed by the Project and required for permanent easement and temporary workspaces (TWS). The company submitted that these parcels are currently held by 27 private landowners and four public entities, with the majority of pipeline alignment on privately held freehold lands. These parcels are designated in terminology specific to the Project, with each parcel identified by numbers beginning with "VMEXXXX". A map showing the parcels relative to the revised route can be found in filing A77451, starting on Adobe page 43.

TransCanada described seven different routes and variations for the Project, including routes suggested by stakeholders and landowners, and identified the reasons for selecting the route described in its application. The company stated it considered and balanced many criteria, including paralleling other existing linear disturbances, minimizing the number and complexity of watercourse and road crossings, avoiding or minimizing effects on identified environmentally sensitive areas, avoiding lands of designated status, such as parks, cemeteries and known historic sites, and considering input received from Aboriginal communities and organizations, as well as stakeholders, and regulatory agencies.

TransCanada stated that its proposed route:

- avoids existing residential, commercial, industrial and other developments where feasible;
- avoids the frontages of developed and yet to be developed affected parcels, thereby reducing the impact on landowners; minimizes the impact on the TRCA lands;
- parallels existing transportation and power transmission corridors where feasible;
- reduces business and traffic interruption during construction;
- considers future development proposals (e.g., Ontario Ministry of Transportation's (MTO's) Greater Toronto Area West Transportation Corridor study area (GTA West Project)); and,
- provides optimal access for operations and maintenance activities because of existing infrastructure setbacks.

TransCanada noted that the Project is sited within the MTO's GTA West Project study area, and that prior to filing the application, it made routing changes to accommodate the MTO's future potential corridors. TransCanada further noted that the MTO has suspended its work on the GTA West Project, but stated that once the MTO selects a preferred route, there will likely be enough room for the MTO to avoid or minimize overlap with TransCanada's Right of Way (RoW). TransCanada stated it will continue to work with the MTO to determine technical solutions and address the MTO's concerns about potential overlap of the Project on the MTO's plans for the future construction and operation of the GTA West Project.

Following a request by the Nessim Family in their written evidence to adjust the route on their property, TransCanada stated that it can accommodate this route modification (the refined route) with a slight offset from the Kipling Avenue road allowance, and that as a result of the route change, the refined route will impact one less landowner because TWS is no longer required on VME2102. Due to the now closer proximity of the pipeline to Kipling Avenue at this location, TransCanada stated it will be installing heavy-wall pipe and burying the pipe with 1.5 m of cover along the frontage of the Nessim Family's property. The company noted that these engineering modifications will provide the Nessim Family with greater flexibility to build a future road over the pipeline and into the property.

Views of Participants

1595758 Ontario Ltd. (Nessim Family) – Landowners (VME1025)

The Nessim Family stated that the proposed route would traverse a portion of their property. The landowners stated that while any future development of the Nessim Family property would require changes at the Provincial level to the planning policy framework currently in place, if these changes did occur, the property is located such that it could reasonably be expected to be included in the City of Vaughan's future settlement area. The Nessim Family submitted that the Project could prohibit future development by preventing access to a public road (Kipling Avenue) or could result in a less than optimal road pattern resulting in a potentially inefficient use of developable land. The Nessim Family recommended that the proposed pipeline be located close to Kipling Avenue to

allow for greater flexibility in locating future local road network on Nessim Family property, providing better opportunities to efficiently use the lands.

Following TransCanada's confirmation that the Nessim Family request to move the pipeline closer to Kipling Avenue could be accommodated, the Nessim Family proposed several conditions regarding the Project. One of these conditions pertained to further changes to TransCanada's refined route on the VME1025 parcel. The Nessim Family requested that TransCanada expand the five metre gap between the pipeline easement and Kipling Avenue, and adjust the portion of the route extending eastward from the southwest corner of the property south of the Nessim Family's property, through VME1027, to reach the valve site on VME1026. The Nessim Family also requested that the Board condition TransCanada to ensure that the portion of pipeline on the Nessim Family's property be of heavy wall pipe thickness type with a minimum thickness of 15.9 mm and be buried at least 1.5 m below grade. The Nessim Family further requested that TransCanada be conditioned to construct at its own expense new temporary and permanent access driveways to at least the same standard as the existing driveway.

Further to the Nessim Family's statement that their property is located such that it could reasonably be expected to be included in the City of Vaughan's future settlement area, the Nessim Family recommended, and proposed as a condition, that after the property has been removed from the Greenbelt and zoned to permit development, that detailed as-built drawings of the pipeline should be provided, at no cost and at the Nessim Family's request, subsequent to construction and any subsequent alterations for the owner to retain on file for future reference. The Nessim Family also recommended that there be a crossing agreement registered on title that acknowledges the right of the owner to cross the proposed pipeline for development purposes (access and/or municipal road, all other services) and that TransCanada be responsible for the costs associated with crossing the pipeline in the future. The Nessim Family subsequently proposed that the Board condition TransCanada such that, when the Nessim Family submits a crossing application regarding any of the pipelines on the property owned or controlled by TransCanada that complies with the crossing requirements in place at the time that the application is made, TransCanada will approve the crossing application, and will do so without cost or charge of any kind to the Nessim Family.

Ussia Family – Landowners (VME2032, VME2040, VME2039, VME2034)

The Ussia Family stated that they represent a group of related individual and corporate land owners with several companies located on the properties, some of which are impacted by the Project. The Ussia Family expressed their preference for the Project to be routed to the west of their properties on the adjacent hydro corridor.

The Ussia Family stated that one of the businesses they represent is 1116941 Ontario Ltd. (ChickenCo) (VME2032 and VME20333). ChickenCo is a poultry operations currently located on VME2033 with plans to undergo a major expansion in 2016 onto the west side of VME2032, adjacent to where the proposed Project will be located. The Ussia Family submitted that ChickenCo has concerns with the noise, vibration and potential environmental damage, including impacts on

³ VME2033 is not directly on the Project route; rather it is the current location of ChickenCo. VME2032 is directly on the pipeline route and is the parcel of land where the Ussia Family is proposing to expand ChickenCo.

their well water, related to the pipeline construction and operation. The Ussia Family stated that the entire expansion project is fully funded, was submitted to both the City of Vaughan and other bodies alike, and is ready to begin. The Ussia Family further stated that the City of Vaughan has indicated to the Ussia Family that, once stamped mechanical ventilation and bracing layout drawings are submitted, the application will be approved. The Ussia Family submitted that because of the Project location and subsequent land setbacks and restrictions, it must redesign the entire poultry operations expansion, resulting in a reduction of buildings and a significant loss of production capacity. The Ussia Family also submitted concerns about potential regulations TransCanada may impose, specifically around concrete pads that were designed to meet City of Vaughan regulations and are required for working and maintaining cleanliness for a sanitary agricultural operation. The Ussia Family stated that as a result of TransCanada's proposed Permanent Easement and the associated limitations on the laying of sanitation pads, the Project will push back the location of the potential future ChickenCo expansion by an additional 25 m, resulting in a loss of the western most row of eight proposed buildings.

The Ussia Family contested TransCanada's interpretation of the municipal regulations and bylaws relevant to the proposed chicken expansion plan, and stated that concrete pads do not constitute a structure under By-Law 1-88. The Ussia Family submitted that the City of Vaughan has indicated that it cannot confirm whether it would regard concrete pads as a structure or not without further information. The Ussia Family also submitted the City of Vaughan incorrectly stated that agricultural structures are not permitted in the Greenbelt Plan Area in accordance with Region Official Plan 2010 policy 2.2.25. The Ussia Family noted that only new agricultural uses, agriculture-related uses, or accessory uses are prohibited within key natural heritage features, and/or key hydrologic features, and their associated minimum vegetation protection zones.

The Ussia Family stated that their unequivocal position is that the land on which the expansion will be developed is devoid of any natural heritage features and is not within a hydrologic feature. The Ussia Family further stated only a small portion of land parallel to the westerly Ussia property line is indicated to be within the Greenbelt and designated as protected countryside (and non-developable). The Ussia Family stated that the Greenbelt Plan has attempted to recognize the woodlot located on the neighbouring property not on the Ussia Family property. The Ussia Family stated that the City of Vaughan confirmed that it has not made any determination with respect to the characterization of the poultry operations expansion project about whether it is considered "new" agricultural operations or not. The Ussia Family further stated that "expansion or alteration" is not defined under the Vaughan Official Plan 2010 (VOP 2010) and that the dictionary definition suggests that the poultry operations expansion plan is arguably eligible.

The Ussia Family submitted that although the City of Vaughan confirmed that the subject property has not yet been determined to require a site plan application under the Site Plan Control By-Law 123-2013, a site plan is not required for the expansion project because it is an agricultural development. The Ussia Family stated it considers the only preclusion that will impact the completion of the poultry operations expansion project in accordance with its current plans to be those restrictions imposed by TransCanada in connection with its easement.

The Ussia Family stated that VME2039 also currently hosts a five-plex residential apartment building, Public Disposal and Recycling Inc., and an unnamed commercial tenant. The Ussia Family has expressed concern that the Project will cause the current apartment and commercial

tenants to terminate their leases, and that the ability to re-lease the residential units will be severely diminished or eliminated.

The Ussia Family indicated that Mr. Vince Ussia Jr. and his family have abandoned their plan to build a residence on the eastern portion of VME2040 due to the proximity of the Project. The Family further indicated that there is concern that the property value of VME2036, which hosts a Ussia Family residence, may suffer in the future based on the proximity of the Project.

The Ussia Family stated that another business on their properties (VME2039 at 7055 Kirby Road) Kirby Waste Transfer Solutions, owned by 1853491 Ontario Inc., may be impacted by the Project. The Ussia Family stated that the operation of the waste transfer station creates significant vibration and heavy impacts on the ground, and it is unclear how the installation and operation of the Project will impact this business. The Ussia Family proposed a condition requiring TransCanada to delay the commencement of construction until it has provided the Ussia Family with a Vibration Monitoring Report in relation to the Kirby Waste Transfer Solutions operation; allowed the Ussia Family to review the report within a reasonable time; and address any issues or concerns to the mutual satisfaction of TransCanada and the Ussia Family.

The Ussia Family proposed a number of specific conditions for TransCanada related to the construction schedule; independent construction monitor; complaint tracking; filing of manuals, plans, and programs; and appointment of a joint committee of landowner representatives to assist in resolution of construction disputes.

Giuseppe Sidoti and Maria Sidoti (the Sidoti Family) – Landowners (VME1027)

The Sidoti Family owns a lot adjacent to a large lot owned by a company controlled by the Nessim Family. The Sidoti Family stated that while they had no concerns with the Project route as originally proposed, once TransCanada changed the route from the original application to accommodate the Nessim Family's concerns, the Sidoti Family became a directly affected and negatively impacted party.

The Sidoti Family expressed concern about the proximity of the amended route to their house, garage, and cabana. The Sidoti Family stated that this proximity to the amended route, as well as the excessive bends in the pipeline, carries a major safety risk and will cause substantial nuisance, inconvenience, noise, disturbance, and dust, which will have a detrimental effect on Mrs. Sidoti's health and be a source of disruption for the whole family. The Sidoti Family stated that once construction begins, they would need to be relocated. The Sidoti Family submitted that the amended route will have an adverse effect on this property, substantially lowering its market value. The Sidoti Family stated that construction of the amended route will result in the roots of at least 40 decades-old very large mature trees being cut, leading to the death of these trees. The Sidoti Family stated that the original route was changed to accommodate the Nessim Family's future development that is most likely 25 years away.

The Sidoti Family requested that TransCanada be directed to pay all of the Sidoti Family's costs as a result of their actions. Mr. Pirruccio, the agent representing the Sidoti Family, stated that it would show some good faith on the part of TransCanada to provide Mr. and Mrs. Sidoti with a \$25,000 retainer so that they can hire legal representation and pay other expenses pertaining to this matter.

MTO

MTO stated that TransCanada's proposed route falls within the planning study area of the GTA West project, a future transportation corridor. MTO further stated that while GTA West remains under suspension at the time of filing its final argument, MTO continues to actively protect parts of the planning study area from development that could negatively impact or pre-determine the location of the GTA West transportation corridor. The MTO submitted that the Project route unavoidably overlaps and may negatively impact the constructability of several route alternatives currently under evaluation. MTO submitted that it is concerned that the location of the Project (alignment and profile) will impact the design and construction of the Ministry's future infrastructure, exposing the taxpayer to additional costs of construction as a result of more expensive means and methods not otherwise required but for the existence of a high-pressure gas pipeline.

TransCanada's Reply

1595758 Ontario Ltd. (Nessim Family)

TransCanada stated that it accommodated a route modification proposed by the Nessim Family, and committed to implementing project design measures that will accommodate the Nessim Family's future development plans. The company noted that it agreed to these accommodations notwithstanding the fact that the Nessim Family's property may not be re-zoned to allow for development in the future. TransCanada stated that its refined alignment through the Nessim Family property now includes a five metre offset from the eastern boundary of the Kipling Avenue road allowance (to take into account the possibility that the City of Vaughan may widen the road allowance).

TransCanada stated that it will install heavy-wall pipe and burying the pipe with a 1.5 m of cover along the frontage of the Nessim Family's property. TransCanada also stated that during construction it will build a temporary access off Kipling Avenue to provide access to the tenant currently residing on the Nessim Family's property. The company also stated that once construction is complete, TransCanada will build a new permanent laneway to the north of the proposed pipeline easement and remove the temporary access. TransCanada submitted that it will work with the City of Vaughan to acquire the appropriate permits for the temporary and future laneways into the Nessim Family's property.

TransCanada stated that it would not further reroute the pipeline through the properties located south of the Nessim Family's land (i.e. on VME 1026 and VME1027); doing so would fragment this small parcel, and the pipeline would be in close proximity to the house on this land. TransCanada also noted that while a detailed engineering assessment has not yet been carried out for this scenario, such a relocation would present challenging terrain during construction.

TransCanada stated it is willing to provide as-built drawings to the Nessim Family, but only at such time as the Nessim Family or a subsequent landowner, developer or utility company is actually planning to develop the property, when land use planning policies and zoning permit. TransCanada stated it is committed to continuing to work with the Nessim Family or any future owner or developer to facilitate crossings of the pipeline at the time when such detailed plans become

available. TransCanada submitted it is not appropriate for the Board to predetermine what the process will be in the future for crossing applications. TransCanada committed to the Nessim Family or any future owner or developer of the property that a crossing application in the future will not require a fee to be provided to TransCanada.

Ussia Family

Regarding the Ussia Family's concerns about impacts of the Project on the existing poultry operations, TransCanada stated that the existing ChickenCo operations are located approximately 579 m south of the Project on VME1009 and approximately 680 m east of the Project on VME2032. TransCanada stated that given the majority of the pipeline construction in the area of the existing poultry operations will be completed via conventional trenching techniques, which are not known to create significant vibration, and given the distance from where the pipeline will be constructed to the existing poultry operations, issues due to vibration and noise are not expected. TransCanada further stated that construction activities are not expected to affect well water on their property; no adverse impacts to groundwater quality are anticipated given the mitigation measures identified within the Project's Environmental Protection Plan. The company noted that the Ussia Family has the option of participating in TransCanada's domestic well water sampling program. TransCanada stated that the possibility of a leak on the pipeline is very low due to the materials, coatings and construction techniques that will be applied on the Project, as well as TransCanada's Integrity Management Plan. The company stated that in the unlikely event of a leak or failure, it will implement its Emergency Response Plan. TransCanada also noted that it has a Spill Contingency Plan that will be implemented for the Project if there are spills during Project construction.

Regarding the Ussia Family's concerns about impacts of the Project's location, setbacks, and restrictions on the potential future expansion of the poultry operations, TransCanada stated that even without the Project on the Ussia Family's property, the proposed poultry operations expansion would not comply with the City of Vaughan's zoning bylaws. TransCanada further stated that the Ussia Family's configuration of the proposed ChickenCo expansion did not take into account setbacks required by the City of Vaughan's zoning bylaws, as well as the City of Vaughan Official Plan 2010 Requirements. While the Ussia Family stated that the Project will push back the location of the potential future ChickenCo expansion by an additional 25 m, TransCanada submitted that after taking the bylaw and Official Plan 2010 Requirements into account, the Project would increase the setback for the poultry operations by only 6 m. The company stated that the City of Vaughan submitted that municipal approvals for the Ussia's chicken farm expansion have not been obtained. TransCanada stated it is committed to continuing consultation with the Ussia Family to discuss and, where feasible, address potential impacts that the Project may have on the potential future ChickenCo expansion.

TransCanada stated that the location of Kirby Waste Transfer Solutions is approximately 127 m from the nearest point of the Project construction footprint and approximately 131 m from the nearest point of the Project route. TransCanada submitted that at this distance any vibrational energy from the recycling plant likely would fully degrade and attenuate before reaching the pipeline, with no anticipated vibration effects on the pipeline. As requested by the Ussia Family, TransCanada committed to completing vibration monitoring of the current Kirby Waste Transfer Solutions operations pre-construction to establish a baseline of the vibrations in the area and to

confirm if the current operations of Kirby Waste Transfer Solutions may be anticipated to affect the integrity of the Project. TransCanada stated that it disagrees with the Ussia's request for a condition to delay construction until the results of the vibrational monitoring are available and any concerns and issues addressed to the satisfaction of the Ussia Family and TransCanada. The company submitted that even in the highly unlikely event that the vibration monitoring does identify some concern, there are additional mitigation measures that can be implemented instead of rerouting the pipeline.

TransCanada stated that the location of the five-plex house of VME2039 is approximately 135 m from the nearest point of the Project construction footprint and approximately 149 m from the nearest point of the Project route. TransCanada stated that it requested further information from the Ussia Family about the residential tenants' concerns and requested contact information for those tenants so that TransCanada could address their concerns directly. The company submitted that the Ussia Family was unable or unwilling to provide further information with respect to the concerns of the residential tenants, indicated that they did not want TransCanada to have any contact with these residential tenants, and refused to provide contact information. TransCanada stated it remains committed to understanding and addressing the concerns of the residential tenants, but is confident that by implementing its standard practices any impact on the residential tenants will be minimized or avoided. To address the commercial tenant's security concerns, TransCanada committed that during construction, all contractors working on behalf of TransCanada will remain within the construction footprint, being the TWS and RoW.

Responding to the Ussia Family's statement that Mr. Vince Ussia Jr. and his family have abandoned their plans to build a new residence on VME2040 due to the proximity of Project, TransCanada stated that the proposed permanent RoW on VME2040 is 0.035 acres and located adjacent to the railway corridor. The company further stated that the location of the proposed home is approximately 102 m south of the nearest point of the Project route. TransCanada stated that it does not anticipate that the Project will have an impact on the use and enjoyment of VME2040.

In response to the Ussia Family's expressed concern about the proximity of the Project to the Ussia residence on VME2036, TransCanada stated that this home is located approximately 123 m from the nearest point of the Project construction footprint and approximately 136 m from the Project route. The company further noted that the Project does not cross VME2036, and that the Project RoW is on VME1009, located north of Kirby Road across from VME2036. TransCanada stated that given the distance to the residence, it does not anticipate that the Project will have an impact on the use and enjoyment of VME2036.

Responding to the Ussia Family's preference that the Project be routed to the west of the Ussia Family properties, on the adjacent hydro corridor, TransCanada stated that this would be problematic. By locating the pipeline in the adjacent hydro corridor, the pipeline would cross the Tormore Wetland Complex, an area where species at risk were recorded, a woodland, hydro transmission lines, a rail spur, and the Hydro One Networks Inc. (HONI) Kleinburg Transformer Station on the HONI property. TransCanada stated that as a result of these features, routing the Project within the hydro corridor would introduce technical feasibility concerns and would increase environmental impacts. In addition, the company submitted that routing to the west of the Ussia Family's properties onto the HONI property (VME1004) would increase the overall length of the

Project, thereby increasing the total area disturbed. TransCanada stated that it does not believe that routing the Project within the hydro corridor is appropriate at this location.

TransCanada stated that a number of the conditions proposed by the Ussia Family are already addressed through the Board's conditions, including provision of a construction schedule in advance of construction, complaint tracking, and the provision of certain manuals and programs. TransCanada submitted that the Ussia Family's proposed condition regarding a joint committee of landowner representatives is unnecessary because landowners already have the ability to contact TransCanada land agents during construction to raise any concerns that they might have, because of the Board's complaint tracking condition, and because parties are always free to raise concerns to the NEB directly at any time if they believe TransCanada is failing to comply with its commitments or obligations. In response to the Ussia Family's proposed condition requesting independent construction monitoring and reporting, TransCanada stated that it is already covered by the Board's Environmental Protection Plan condition (Condition 6).

The Sidoti Family – Landowners (VME1027)

TransCanada stated that it selected a route modification that would largely accommodate the Nessim Family's request, but that would not increase effects on the Sidoti Family. The company submitted that the revised route will not increase effects of the Project on the Sidoti Family or their property from the original proposed route.

TransCanada stated that the revised route results in the pipeline running in an east-west direction on the Nessim Family property to the north of the Sidoti Family's property. TransCanada further stated that the route modification will not increase noise, dust or vibration effects on the Sidoti Family's property during construction relative to the original route. The company submitted that the route modification running in an east-west direction is farther away from the Sidoti Family's residence and other buildings than the original north-south portion of the route, and that the revised route is located on the other side of the Sidoti Family's existing laneway.

TransCanada submitted that no trees on the Sidoti Family's property will be affected by the route modification. TransCanada also stated that the pipeline bends will be designed to comply with the requirements of CSA Z662-15 to ensure they pose no safety risk.

TransCanada stated that it agreed to provide compensation for the temporary relocation of the Sidoti Family during construction to address their concerns about disruption and nuisance resulting from Project construction. The company stated that the Sidoti Family's primary concerns are compensation-related and that matters of compensation are outside the scope of the Board's authority.

MTO

TransCanada stated it has made efforts to accommodate the MTO and stated that the Project route selected can coexist with the GTA West Project when the MTO selects a final corridor. TransCanada further stated that when the GTA West Project recommences and the MTO selects a preferred route, and if there are overlaps between the MTO's preferred route and TransCanada's Project, it is committed to collaborating with the MTO to evaluate options that could potentially minimize or avoid impacts to the GTA West Project.

3.2 Land Requirements

Views of TransCanada

TransCanada stated that 41 parcels of land would be traversed by the Project's originally proposed route, and required for permanent easement and TWS. The company submitted that these parcels are currently held by 28 private landowners and four public entities, with the majority of pipeline alignment on privately held freehold lands. The revised route impacted one less landowner because TWS was no longer required on VME2102, resulting in the Project traversing 40 parcels of land and impacting 27 private landowners. The company further stated that approximately 76 percent of the parcels traversed by the Project are privately held freehold lands and approximately 24 percent of the parcels are public lands.

TransCanada stated that the Project requires a minimum construction RoW of 32 m along the entire length of the pipeline, except in areas where trenchless construction methods such as Horizontal Directional Drilling (HDD) will be used, to provide for safe and efficient workspace for pipeline construction. Of this, the company submitted it will need to acquire a minimum 18 m of permanent easement for operations and maintenance purposes, and that additional TWS will also be required for staging areas, water body and infrastructure crossings, topsoil storage, sidebends and where grading is necessary. The company stated that it has increased the width of its proposed easement in one location on the north side of Kirby Road to minimize fragmentation of VME2084.

TransCanada stated that the Project parallels existing disturbances for approximately 32 percent of its length, including power transmission lines for approximately 3.0 km and roads for approximately 0.7 km. The company further stated that approximately 2.6 km of the pipeline will be constructed using trenchless construction methods, resulting in limited surface disturbance at road crossings, select watercourse crossings and woodlots.

Views of Participants

City of Vaughan

The City of Vaughan stated that the Project will require an 18 m RoW corridor which will occupy approximately 20.841 ha of land, mainly within the provincially designated Greenbelt areas of Vaughan. The City of Vaughan stated that it is requesting that no part of the Project RoW easement should negatively impact the potential development opportunities in proposed areas which are important for Vaughan's future growth. The City of Vaughan also requested that TransCanada maximize potential opportunities with other agencies, and minimize the fragmentation of designated Greenbelt lands and natural heritage functions/features.

TransCanada's Reply

In response to the City of Vaughan's request that TransCanada minimize impacts to the Greenbelt and potential development opportunities, TransCanada stated it has consulted with the MTO and HONI to discuss opportunities to parallel one another to minimize impacts to the Greenbelt and the City of Vaughan's Natural Heritage Network. The company submitted that it has routed the Project

primarily through undeveloped areas and the Greenbelt which has avoided or minimized impacts on urban development.

3.3 Land Rights and Land Acquisition

Views of TransCanada

TransCanada stated that it anticipates that all land rights will be acquired and crossing agreements obtained in advance of the scheduled construction. The company stated that notices, in accordance with section 87 of the Act, will be served on owners as defined in sections 75 and 85 of the Act before TransCanada enters into any land-acquisition agreements.

TransCanada stated that its objective is to reach agreements with landowners for land rights, including agreement on the compensation payable for such rights. When TransCanada and a landowner cannot agree on compensation, either party may apply to the Minister of Natural Resources Canada to receive the services of a negotiator, or to have the matter settled by arbitration as provided for in sections 88 to 103 of the Act.

TransCanada noted that lands necessary for the valve and launcher facilities at the upstream tie-in at TransCanada's existing Line 200-2, 914.4 mm (NPS 36) pipeline, and the King's North Connection (KNC) Project, 914.4 mm (NPS 36) pipeline have been acquired as part of the KNC Project.

Views of Participants

Ussia Family – Landowners (VME2032, VME2040, VME2039, VME2034)

The Ussia Family proposed a number of specific conditions for TransCanada related to compensation, easement agreements, and crossing agreements.

City of Vaughan

The City of Vaughan proposed a Multi-Use Recreational Pathway to TransCanada and stated that this pathway would require an easement from the owner of the relevant properties in favour of the City of Vaughan and a Crossing Agreement with TransCanada to access, construct, and maintain a Multi-Use Recreational Pathway along segments of the Project.

TransCanada's Reply

Ussia Family – Landowners (VME2032, VME2040, VME2039, VME2034)

In response to the number of conditions proposed by the Ussia Family, TransCanada stated that many of them relate to specific terms of the land acquisition agreements for the Project, and will be resolved through negotiation between the parties or through the legislative process.

City of Vaughan

TransCanada stated that it supports development of a Multi-use Recreational Pathway system within Vaughan, but that it cannot commit to developing such a pathway system as part of the overall site restoration works for the Project. TransCanada stated that it is only acquiring an easement for the RoW as part of the Project, and fee simple ownership of the underlying lands will remain with the current landowners. TransCanada submitted that land use over the RoW following construction will be at the discretion of the landowners. TransCanada stated it is committed to working with the City of Vaughan to review and assess any potential risks to the safety and integrity of the pipeline associated with a future Multi-use Recreational Pathway.

Views of the Board

TransCanada designed a route in the Greater Toronto area, in close proximity to an urban environment where many competing interests exist. A route modification was proposed by the Nessim Family during the hearing process, and TransCanada confirmed it could accommodate this proposal. The Board recognizes the effort made to accommodate this revision relatively late in the hearing process as well as the effort made by the landowner to provide a workable alternative. The Board is of the view that when considering all of the possible route variations, the revised route presents an appropriate balance of construction feasibility of watercourse, rail and road crossings, impacts to landowners, reduced land fragmentation, suitable terrain, paralleling of existing infrastructure, avoidance of current and planned urban development and residential neighbourhoods, avoidance or minimization of impacts on environmentally sensitive areas and archaeological resources, and avoidance of high-voltage transmission lines.

The Board notes that urban development still in the planning stage can be designed to accommodate pipelines. The Board is of the view that locating the Project route alongside existing and planned linear disturbances is reasonable as it will minimize the Project's environmental and socio-economic impacts. The Board is satisfied that TransCanada has proposed suitable mitigation to address the Project's potential land-related effects during design, construction, and operation. The Board received and considered the representations from the Sidoti Family in opposition to the Project. The Board is of the view that the revised route, suggested by the Nessim Family and accepted by TransCanada, will not impact the Sidoti Family more than the original route, to which the Sidoti Family had no opposition. The Board also considered the additional route modifications suggested during the oral hearing and is of the view that these additional modifications are not as reasonable in balancing competing interests. The Board finds that the revised route, as proposed and including the route modification detailed in TransCanada's reply evidence, is acceptable.

The Board recognizes that TransCanada has not resolved all routing concerns to the complete satisfaction of stakeholders but has committed to continuing consultation with stakeholders to discuss and where feasible, address potential Project-related impacts on future development plans. The Board expects all parties to continue working together to resolve outstanding issues.

The requested RoW and TWS, as described in the application and as amended, are necessary to allow for the construction and operation of the Project in a safe and efficient manner. Therefore the Board finds that TransCanada's anticipated requirements for permanent and temporary land rights are acceptable.

The Board notes that some Intervenors proposed conditions related to land acquisition and compensation. The Board notes that land acquisition agreements must comply with section 86 of the NEB Act. The amount of compensation paid for an easement is negotiated between the company and the landowner. When a landowner and a pipeline company cannot agree on compensation for lands that the company has acquired or damaged, either party may apply under the *National Energy Board Act* to the Minister of Natural Resources to receive the services of a negotiator, or to have the dispute settled by arbitration.

Some Intervenors proposed conditions that relate to construction scheduling, complaint tracking, and the filing of specific documents. The Board notes that these are already encompassed by Board-imposed conditions.

The Board notes that some Intervenors proposed conditions on the Project related to routing and land use. To the extent the proposed conditions are within the scope of this proceeding, TransCanada has already made commitments with respect to many of those concerns during the course of this hearing. The Board's decision on the Project relies in part on commitments made by TransCanada as they address these particular areas of concern. To capture these commitments and to require reporting on them, the Board imposes Condition 7 (Appendix II) requiring TransCanada to file with the Board a commitments tracking table listing all commitments made by TransCanada in its application or in its related submissions, or during the GH-001-2016 proceeding in relation to the Project.

Chapter 4

Public Consultation

The Board's expectations for an applicant regarding public consultation are set out in the Board's *Filing Manual*. Applicants are expected to undertake an appropriate level of public involvement, commensurate with the setting, nature and magnitude of a project. The Board considers public involvement to be a fundamental component during each phase in the lifecycle of a project (project design, construction, operation and maintenance, and abandonment) in order to address potential impacts of that project. This chapter addresses TransCanada's Stakeholder Engagement Program and project-specific consultation activities. TransCanada's Aboriginal engagement and consultation are discussed in the Aboriginal Matters chapter.

4.1 TransCanada's Stakeholder Engagement Program

Consultation activities with potentially affected persons and groups, including landowners

Views of TransCanada

TransCanada stated that its stakeholder engagement program was designed and implemented in accordance with the principles of its stakeholder engagement framework and community relations best practices. The company stated its aim was to foster positive relationships with its stakeholders and to provide stakeholders with an opportunity to provide input to the Project planning and development process.

TransCanada submitted that it undertook preliminary notification and engagement between November 2014 and March 2015, and that these activities provided insight into the interests and questions of potentially interested stakeholders. The company stated that in April 2015, it began broader stakeholder engagement; on 16 April 2015 TransCanada sent all identified Project stakeholders, including residents within a 1 km radius of the route, a mailout that included an introduction to the Project, contact information, a Project fact sheet including the initial proposed route map and routing information, and indicated that an open house would be forthcoming. TransCanada noted that on the same day, it published print and online advertising in local newspapers providing Project and contact information. The company stated that on 29 April 2015 it published print and online advertising, and sent mailouts to approximately 2000 area residents and landowners, as well as interested stakeholder groups, for the upcoming Project open house to be held on 13 May 2015. TransCanada noted that it held the open house for the Project, with 21 people attending.

TransCanada stated that on 29 June 2015, it mailed a notification letter to all stakeholders including directly affected landowners providing a summary of the 13 May 2015 open house and the feedback received. The company submitted that this notification also informed stakeholders that at that time the targeted in-service date for the Project was Q2 2017. The company further submitted that during the week of 26 October 2015, it sent a mailout to stakeholders, including adjacent and directly affected landowners, that included a map of the initial proposed route, and the proposed

route TransCanada intended to include in its application; a letter outlining the reasons for selecting the proposed route and stating the company's intention to file its application with the NEB in early November 2015; and the updated NEB pamphlet titled: *Information for Proposed Pipeline or PowerLine Projects that Do Not Involve a Hearing* (July 2015).

TransCanada submitted that it will continue to notify all stakeholders about the Project and address issues and concerns throughout the regulatory process and construction as they arise. The company further submitted that it has continuously considered stakeholder feedback regarding the pipeline route.

Views of Participants

Ussia Family – Landowners (VME2032, VME2040, VME2039, VME2034)

The Ussia Family submitted proposed conditions which included a joint committee of landowner representatives to be appointed to assist in the resolution of any construction disputes, and stipulating that a member of the Ussia Family shall be appointed to the Joint-Committee of Landowner Representatives.

The Sidoti Family – Landowners (VME1027)

Following the close of the hearing, Nick Pirruccio, on behalf of the Sidoti Family, filed a letter with the Board stating that TransCanada failed to engage the Sidoti Family regarding the revised route that was modified approximately one week prior to the oral component of the hearing. The Sidoti Family stated that as a result of TransCanada's negligence, it lost the opportunity to oppose the revised route. The Sidoti Family stated that once TransCanada modified the route, they became a directly affected and negatively impacted party, as outlined in section 55.2 of the NEB Act and in the NEB Hearing Process Handbook. The Sidoti Family requested that the NEB direct TransCanada to disclose information about communication between TransCanada's land agent and TransCanada about the Sidoti Family.

The Sidoti Family stated that they made it clear to the land agent for TransCanada that they were opposing the route modification, and that the land agent assured them that she would deliver their message of opposition to TransCanada and supply them with the appeal forms. The Sidoti Family submitted that the land agent forgot to get back to the Sidoti Family. The Sidoti Family stated that while TransCanada's management was aware of how critical it was to engage them, the company did not bring the Sidoti Family into the appeal process, notwithstanding that the scheduled final oral argument was less than one week away.

The Sidoti Family submitted that TransCanada had a duty of care to engage the Sidoti Family and that TransCanada's management purposefully did not engage with them in order to undermine any opportunity for the Sidoti Family to file their appeal with the Board. The Sidoti Family submitted that TransCanada did not take steps to engage with them because the company knew that doing so would most likely have delayed the final hearing.

TransCanada's Reply

Ussia Family – Landowners (VME2032, VME2040, VME2039, VME2034)

TransCanada submitted that the Ussia Family's proposed condition regarding a joint committee of landowner representatives is unnecessary because landowners already have the ability to contact TransCanada land agents during construction to raise any concerns that they might have, because of the Board's complaint tracking condition, and because parties are always free to raise concerns to the NEB directly at any time if they believe TransCanada is failing to comply with its commitments or obligations. In response to the Ussia Family's proposed condition requesting independent construction monitoring and reporting, TransCanada stated that it is already covered by the Board's Environmental Protection Plan (EPP) condition and the Construction Progress Report condition.

The Sidoti Family – Landowners (VME1027)

TransCanada submitted that it has engaged with the Sidoti Family since March 2015. The company stated that it sent the Sidoti Family regular Project updates and notification packages, including a copy of the Hearing Order, and a notification letter advising of the key milestones in the regulatory process. TransCanada submitted that the Sidoti Family expressed certain concerns about the Project early in the process, which the company worked with the Family to address and that the Sidoti Family chose not to participate in the NEB's review process for the Project.

TransCanada stated that its land agent did meet with the Sidoti Family on 25 April 2016 to discuss the possibility of re-routing the pipeline as requested by the Nessim Family, which included locating the Right of Way (RoW) partially on the Sidoti Family's property. The company submitted that during that meeting the Sidoti Family expressed concern with any change to the route that would increase impacts on their property, and that as a result of this engagement TransCanada selected a route modification that would largely accommodate the Nessim Family's request, but that would not increase effects on the Sidoti Family. TransCanada stated it regrets that there was evidently some confusion regarding an interaction between the Sidoti Family and the company's land agent.

With respect to the Sidoti Family's request that TransCanada produce all memoranda, emails, and notes relating to the Sidoti Family between itself and its land agent, TransCanada stated that such a request is very broad in scope, unreasonable and unwarranted. The company stated that it has already provided the Sidoti Family and the Board with all relevant information regarding the location of the Project route in proximity to the Sidoti Family's property and TransCanada's proposed mitigation measures.

4.2 Consultation Activities with Government Stakeholders

Views of TransCanada

TransCanada stated that it began engaging with provincial agencies, the Toronto and Region Conservation Area (TRCA), and regional and municipal personnel in November 2014. TransCanada noted it engaged with Hydro One Networks Inc. (HONI)/Infrastructure Ontario to discuss the Project, HONI's power transmission infrastructure, and land rights. TransCanada

indicated it has had ongoing dialogue with the Ontario Ministry of Transportation (MTO) discussing the King's North Project and MTO's plans for the Greater Toronto Area (GTA) West Project. The company further stated that it had an initial meeting on 18 February 2015 with the GTA West Project team to introduce the Project, and that additional meetings were held to discuss the areas of overlap between the two project routes.

TransCanada noted that it has been having discussions with Ontario's Ministry of Natural Resources and Forestry (MNR) and Ontario's Ministry of the Environment and Climate Change (MOECC). TransCanada stated it will continue to work with the MNR and MOECC.

Views of Participants

City of Vaughan

The City of Vaughan stated that it is satisfied with the current cooperative approach that TransCanada is taking to come to a resolution of the issue regarding appropriate natural heritage compensation for impacts to woodlands and the woodland vegetation protection zone in three way discussions among TransCanada, the City of Vaughan and the TRCA.

MTO

MTO stated that earlier consultation and engagement by TransCanada with MTO could have improved the two projects by clearly identifying potential conflicts of each. MTO noted TransCanada's commitments to collaborate with the MTO to ensure that any conflict between the two projects is minimized or avoided. As an example, MTO stated that it expects that TransCanada will review and provide comment on MTO's preliminary design plans for the GTA West Project expeditiously in the event that the GTA West Project resumes.

TransCanada's Reply

TransCanada committed to work collaboratively with MTO to evaluate opportunities for accommodation. TransCanada also stated that it will continue to work with the MTO to determine technical solutions and address the MTO's concerns about potential overlap of the Project on the MTO's plans for the future construction and operation of the GTA West Project.

Views of the Board

The Board recognizes that public involvement is a fundamental component during each phase throughout the lifecycle of a project in order to address potential impacts.

The Board notes that during this hearing process, there were outstanding land related issues pertaining to the Project (see Chapter 3). As a result, the Board determined that a community meeting would be useful to assist in understanding the benefits and burdens associated with these land related issues. A community meeting was held on 27 April 2016 in Vaughan and all participants had an opportunity to present an oral statement expressing their views on the Project directly to the Board. Participants included TransCanada, the City of Vaughan, and other Intervenor, including landowners. The Board acknowledges the efforts made by the parties to participate in and attend the community meeting.

The Board was persuaded that the Sidoti Family may not have been provided with an opportunity to make representations to the Board as contemplated by section 55.2 of the NEB Act, and therefore has considered the Sidoti Family's representations regarding the effects of the revised route on their property.

The Board finds that the design and implementation of TransCanada's Project-specific public consultation activities could have been improved in regards to the Sidoti Family, but was otherwise appropriate given TransCanada's efforts to identify and engage stakeholders, notify stakeholders of the Project, and respond to their input. The Board expects TransCanada to continue to work with stakeholders during construction and operation. The Board imposes Condition 14 (Appendix II) requiring TransCanada to create and maintain records to track Project-related complaints or concerns by landowners, including municipal and regional governments, and how they have been addressed. The Board notes that this condition is for a period of five years, the time during which the pipeline's construction and operation will be the most disruptive. The Board notes that it is mandated to provide regulatory oversight for the duration of a project's lifetime; once a project is approved, the NEB will monitor and verify compliance with requirements during construction, operation, abandonment, and post-abandonment. The NEB also investigates compliance as a result of complaints, reports of high-risk activity or incidents. The Board is of the view that the creation of a joint committee of landowners is not required since, in addition to the complaint tracking condition, landowners may raise concerns with the company's land agents, and bring them to the NEB. The Board also notes that TransCanada committed to address issues and concerns throughout the regulatory process and construction.

The NEB *Filing Manual* explains that applicants are to have a company-wide Consultation Program that establishes a systematic, comprehensive and proactive approach for the development and implementation of project-specific consultation activities. The Board expects TransCanada to provide appropriate engagement resources to potentially affected persons and groups that reflect a range of Board hearing and non-hearing scenarios that may be specified in a project's hearing order. The NEB *Filing Manual* also states that the Board expects Project-specific consultation activities to continue throughout the construction and operation phases of the Project. Similarly, the Board expects TransCanada to provide all potentially affected persons and groups with additional Project-related information, including timelines for activities on the owner's lands, and a construction schedule.

Chapter 5

Aboriginal Matters

The Board takes Aboriginal interests and concerns into consideration before it makes any decision that could have an impact on those interests. Whenever a project has the potential to impact the interests, including rights, of Aboriginal groups, the Board requires the proponent to obtain sufficient evidence in that regard so that the Board may assess and consider the potential impacts in its decision.

Before filing a project application, applicants are required by the Board's *Filing Manual* to identify, engage and consult with potentially affected Aboriginal groups. The *Filing Manual* also requires that an application include detailed information on any issues or concerns raised by potentially affected Aboriginal groups or that are otherwise identified by the applicant. The Board expects applicants to provide information about the project and initiate early discussions with potentially impacted Aboriginal groups in the planning of the project and report on these activities to the Board: this allows for early exchange of information and for matters of concern to be considered at the onset of the project and through the design phase. The extent of the project-specific consultation activities that needs to be implemented is determined, to a large extent, by the nature, scope, and setting of a project. Aboriginal groups are encouraged to engage with applicants so that their concerns are identified early, considered by the applicant, and potentially resolved before the application is filed. The Board also encourages Aboriginal groups who are directly impacted by a proposed project, or have information and expertise that could help the Board gain a greater understanding of the project under consideration to apply to participate in the hearing process.

This chapter deals with the participation of Aboriginal groups in the Board's Enhanced Aboriginal Engagement (EAE) Process, participation of Aboriginal groups in the Board's hearing process, Aboriginal engagement by TransCanada, and the impacts of the Project on their interests.

5.1 Participation of Aboriginal groups in the Board's Enhanced Aboriginal Engagement Process

The Board's EAE process involves proactive contact with Aboriginal groups that may be affected by a proposed project, including those groups that have publicly claimed or asserted the right to use the land for traditional purposes. The Board identified the following Aboriginal groups that may be affected the Project:

- Chippewas of Rama First Nation
- Mississaugas of the New Credit First Nation
- Chippewas of Georgina Island First Nation
- Six Nations of the Grand River
- Mississaugas of Scugog Island First Nation
- Métis Nation of Ontario

- Haudenosaunee Development Institute
- Conseil de la Nation huronne-wendat

For the Project, the Board carried out its EAE activities between 14 January 2016 and 1 March 2016. The Board sent a letter to each of the eight potentially affected Aboriginal groups on the list to inform them of the proposed Project and the Board's regulatory role. Following issuance of the letter, Board staff followed up with phone calls to ensure the letter was received, respond to any questions, and offer to conduct information meetings with them. Of the eight groups identified by the Board, no Aboriginal group requested or participated in meetings with Board staff to discuss the hearing process, the Participant Funding Program (PFP), and how to participate in the hearing.

5.2 Participation of Aboriginal groups in the Board's hearing process

Pre-decided Standing

The Board decided that the Aboriginal groups, municipalities, landowners, and occupants who are directly affected by the granting or refusing of the Application may have standing provided they registered before the ATP deadline of 2 March 2016. This is referred to as Pre-decided Standing. All eight Aboriginal groups that received a letter from the Board about the Project were granted Pre-decided Standing and were able to choose whether to participate, and if so, as a Commenter or as an Intervenor.

Hearing Process

In developing its hearing process to assess TransCanada's Project, the Board considered means by which all potentially affected Aboriginal groups were provided with a reasonable opportunity to make their concerns known to the Board. During the proceeding, Aboriginal Participants were able to present their views to the Board in numerous ways. Through the various stages in the hearing, all interested persons had the opportunity to submit comments on the Hearing Order. Intervenors could submit written evidence, ask written questions of TransCanada and other parties, respond to any written questions asked of them by the Board and TransCanada, conduct oral cross-examination of TransCanada, and submit written or oral final argument. Intervenors and Commenters could present an oral statement at the Community Meeting.

The following 3 Aboriginal groups registered to participate in the proceeding as Intervenors:

- Mississaugas of the New Credit First Nation
- Haudenosaunee Development Institute
- Conseil de la Nation huronne-wendat

The Conseil de la Nation huronne-wendat was given Pre-decided Standing and registered as an Intervenor. The Conseil de la Nation huronne-wendat submitted written evidence and participated in oral cross-examination and oral final argument.

Both the Mississaugas of the New Credit First Nation (MNCFN) and the Haudenosaunee Development Institute (HDI) were given Pre-decided Standing and registered as Intervenors. Neither MNCFN nor HDI submitted evidence or final argument.

No other Aboriginal groups who were given Pre-decided Standing registered as an Intervenor or as a Commenter, and no other Aboriginal group not given Pre-decided Standing applied to participate in the proceeding.

The Board received three PFP applications from Aboriginal groups and allocated funding awards of \$100,000 in total.

Oral Traditional Evidence Sessions

The Board understands that Aboriginal groups have an oral tradition for sharing stories, lessons, and knowledge from generation to generation; and that this information cannot always be shared adequately in writing. The scope of oral traditional evidence focuses on personal and community knowledge and experiences as they may relate to the potential effects of a project and how the project would impact the Aboriginal group's interests and rights.

The Board extended an invitation to provide oral traditional evidence in person or remotely to all Aboriginal Intervenors in the proceeding. None of the Aboriginal Intervenors chose to provide oral traditional evidence.

5.3 Aboriginal Engagement by TransCanada

Views of TransCanada

TransCanada stated that it works with First Nation and Métis communities and organizations to identify and consider potential effects of the Project on the current use of lands for traditional activities, and to identify and implement appropriate mitigation measures. The company further stated that, in collaboration with First Nation and Métis communities and organizations, it also identifies sites of cultural and historical importance to Aboriginal people that might be affected by the Project and considers appropriate mitigation measures.

TransCanada submitted that its Aboriginal engagement process is designed to assist the company in Project planning, and in particular to:

- determine potential effects on the current use of lands for traditional purposes
- identify sites of cultural and historic importance in the Project area
- obtain local and traditional knowledge about the Project area
- develop appropriate mitigation to reduce potential effects
- identify potential socio-economic effects and suitable Project-related opportunities

TransCanada stated that initial engagement of First Nation and Métis communities and organizations began on 4 and 5 November 2014 with notification sent to the following:

- Chief of the Chippewas of Rama First Nation
- Chief of Chippewas of Georgina Island First Nation
- Leadership of the Métis Nation of Ontario
- Chief of the Mississaugas of the New Credit First Nation
- Chief of Six Nations of the Grand River Reserve
- Chief of Mississaugas of Scugog Island First Nation
- Consultation Coordinator for Ontario Projects of the Conseil de la Nation huronne-wendat

After TransCanada filed the Project Application, the NEB identified the HDI as potentially impacted. As part of the Board's EAE as described above, the NEB sent a letter to the HDI to advise them of the Project and the regulatory process.

TransCanada stated that it sent Project factsheets and the Project update to identified First Nation and Métis communities and organizations. TransCanada indicated that all initially identified First Nation and Métis communities and organizations were invited to attend an open house, although no representatives were identified as having attended. TransCanada submitted that it notified the leadership and consultation contacts of all initially identified First Nation and Métis communities and organizations of proposed changes to the route of the Project, the company's dispute resolution process, and notification that the application was filed.

TransCanada stated that following construction, engagement activities will transition from construction to operations, and that regionally-based liaison contacts will continue to build and maintain relationships with First Nation and Métis communities and organizations in the Project area.

Chippewas of Georgina Island First Nation, Chippewas of the Ramas, Mississaugas of Scugog Island First Nation

TransCanada stated that while the Chippewas of Georgina Island First Nation and the Chippewas of the Ramas have not responded to the company's outreach on the Project, TransCanada will continue to provide the Chippewas of Georgina Island First Nation with Project updates and information. TransCanada also stated that consistent with their position stated in a meeting on 23 April 2015, the Mississaugas of Scugog Island First Nation continue not to express an interest in the Project, and that the company will continue to provide the Mississaugas of Scugog Island First Nation with Project updates and information.

Métis Nation of Ontario, Toronto and York Region Métis Council, Credit River Métis Council

TransCanada stated that the Métis Nation of Ontario has requested that all correspondence and communications from TransCanada be directed to the Métis Nation of Ontario Land and Resources department and not individual Métis Nation of Ontario member Councils. The company submitted that the Métis Nation of Ontario has not expressed any interests or concerns about the Project, and that TransCanada will continue to provide the Métis Nation of Ontario with Project updates and information. The company also submitted that no response has been received from either the Toronto and York Region Métis Council or the Credit River Métis Council.

Six Nations of the Grand River

TransCanada stated that monitors from the Six Nations of the Grand River participated in the Stage 2 archaeology assessment field work for the Project lands. The company further stated that the Six Nations of the Grand River's participation in TRCA-conducted archaeology studies was facilitated by TransCanada through a Letter of Agreement finalized on 16 October 2015.

TransCanada stated that the Six Nations of the Grand River has not expressed any interests or concerns about the Project, and that the company will continue to provide the Six Nations of the Grand River with Project updates and information.

HDI

TransCanada stated that following its 16 February 2016 correspondence regarding the NEB's Hearing Order, in which the HDI were invited to contact TransCanada with any questions or comments it may have regarding the Project, the company has not received any response from the HDI.

MNCFN

TransCanada stated that monitors from the MNCFN participated in the Stage 2 archaeology assessment field work for the Project lands. The company further stated that the MNCFN's participation in Toronto and Region Conservation Area (TRCA)-conducted archaeology studies was facilitated by TransCanada through a Letter of Agreement finalized with the MNCFN on 13 October 2015.

The company stated that in autumn 2015, the MNCFN contacted TransCanada to discuss the renewal of the community agreement between the two parties that had expired in 2013. TransCanada submitted that the MNCFN suggested meeting in 2016 once the new Chief and Council had been elected, and indicated that it would be in touch with TransCanada in the new year with possible dates for the meeting. The company stated that as of 15 March 2016, a meeting date has yet to be proposed.

TransCanada stated that in December 2015, it approved a request by the MNCFN that the company fund a community initiative.

TransCanada indicated that it committed to contact the MNCFN should any Project-related environmental field studies take place in 2016, and if so, discuss opportunities for community monitors to participate.

The Conseil de la Nation huronne-wendat

TransCanada stated that it met with the Conseil de la Nation huronne-wendat community and provided an overview of the Project and the geographic landscape of the Project including environmental features and water crossings, urban areas and public utility corridors.

TransCanada stated that monitors from the Conseil de la Nation huronne-wendat participated in the Stage 2 archaeology assessment field work for the Project lands. The company further stated that the Conseil de la Nation huronne-wendat's participation in TRCA-conducted archaeology studies was facilitated by TransCanada through a Letter of Agreement finalized with the Conseil de la Nation huronne-wendat on 7 October 2015. The company also stated that it would offer an opportunity for the Conseil de la Nation huronne-wendat to participate in the remaining Stage 2 archaeological investigation for the Project, scheduled for the spring of 2016, pending land access, ploughing and weathering of the property requiring assessment.

TransCanada stated that on 18 February 2016, the company provided the Conseil de la Nation huronne-wendat with shape files for the Project area, as requested.

Views of Participants

The Conseil de la Nation huronne-wendat

The Conseil de la Nation huronne-wendat Chief stated that there has not been any consultation about the Project between the Conseil de la Nation huronne-wendat and TransCanada, the NEB, or the Canadian or Ontario governments. In addition, the Conseil de la Nation huronne-wendat stated that while Huron-Wendat monitors participated during the Stage 2 archaeological field work, they were not asked to provide input into how that field work might be carried out.

TransCanada's Reply

TransCanada stated it has engaged extensively with the Conseil de la Nation huronne-wendat about the Project since November 2014 to share information and participate in meetings, and to discuss their interest in the Project and capacity funding. The company noted that it has continued to engage with the Conseil de la Nation huronne-wendat, including three recent meetings in May and June 2016. TransCanada stated that it remains committed to continuing to engage with the Conseil de la Nation huronne-wendat regarding all aspects of the Project, including the Heritage Resource Discovery Contingency Plan. The company submitted that if ongoing consultation with the Conseil de la Nation huronne-wendat results in the need for further modifications to the Heritage Resource Discovery Contingency Plan, these changes will be included in the final Environmental Protection Plan (EPP) submitted to the Board prior to construction.

5.4 Impacts of the Project on Aboriginal groups

Views of TransCanada

TransCanada stated that the Project, located within the historical boundary of the Upper Canada Treaties, 1764–1836, does not cross any lands defined as reserve lands or lands designated for reserve status under the *Indian Act*. The company submitted that the Project is located on privately held freehold land and Crown land in the municipality of Vaughan. TransCanada further submitted that the Project traverses the asserted traditional territories of the MNCFN and the Six Nations of the Grand River, and is also in the asserted traditional harvesting territory of the Métis Nation of Ontario. The company stated that there is no known traditional land use currently practiced in the area: the Project area is predominately privately-owned land which is urbanized or used for agricultural purposes.

TransCanada stated that the Conseil de la Nation huronne-wendat provided a map of known Huron-Wendat archaeological sites in relation to the Project area. TransCanada further stated that monitors from the Conseil de la Nation huronne-wendat, MNCFN, and Six Nations of the Grand River participated in Stage 2 archaeology assessment field work for the Project lands, and that these studies did not reveal any sites of First Nation origin that required additional archaeological assessment.

Views of Participants

Le Conseil de la Nation huronne-wendat

The Conseil de la Nation huronne-wendat indicated that within the approximate western portion of Vaughan there are twelve recognized Huron-Wendat archaeological sites and that there is extensive Huron-Wendat archaeological heritage within the pipeline area proposed by TransCanada. The Conseil de la Nation huronne-wendat stated they believe that there is a strong possibility that new Huron-Wendat sites and possibly burial sites will be discovered, given their intensive historical occupation of this region and the scope of the Project. The Conseil de la Nation huronne-wendat stated that where a Huron-Wendat village site is located there is often an ossuary within a 1,000-metre radius. The Conseil de la Nation huronne-wendat expressed concern that the current laws governing archaeological assessments are insufficient to protect Huron-Wendat archaeological sites. The Conseil de la Nation huronne-wendat also expressed concern about potential Project impacts on ossuaries. The Conseil de la Nation huronne-wendat submitted that ossuaries can be located at depths starting at anywhere from 20 to 130 centimetres below subsoil and that their total depth can range from anywhere between one to two metres, whereas in Ontario a Stage 2 archaeological assessment requires an archaeologist to go only five centimetres into the subsoil. The Conseil de la Nation huronne-wendat stated that to ensure an effective consultation process and to take into account all of the concerns pertaining to archaeological resources, they need to be notified immediately upon discovery of an archaeological site.

The Conseil de la Nation huronne-wendat recommended two conditions related to the Project's construction activity. The first condition is that an archaeologist be present to monitor construction and immediately halt construction upon the discovery of an archaeological site. The second condition is that an Aboriginal monitor from their community be present during construction both

to assist in detecting cultural archaeological features that are unique to the Conseil de la Nation huronne-wendat and to ensure that they are able to meet their own sacred responsibility to guard and protect their ancestors. The Conseil de la Nation huronne-wendat further stated that if the Board is going to allow TransCanada to rely on its Heritage Resource Discovery Contingency Plan, that TransCanada be required to increase its buffer zone to 50 metres.

TransCanada's Reply

TransCanada stated that it adheres to applicable provincial legislation, regulations, standards and guidelines governing the conduct of archaeological assessments for all its projects; in Ontario, this involves following the standards and guidelines set out by the Ministry of Tourism, Culture and Sport (MTCS) in its Standards and Guidelines for Consultant Archaeologists (2011), and Engaging Aboriginal Communities in Archaeology: A Draft Technical Bulletin for Consultant Archaeologists in Ontario (2011b). TransCanada submitted that these standards and guidelines meet the requirements of the *Ontario Heritage Act* regarding the identification and protection of archaeological and heritage resources.

TransCanada stated it met with the Conseil de la Nation huronne-wendat to outline its position regarding archaeology, which included: protection of archaeological sites, particularly with respect to ossuaries and human remains; conservation of artifacts; notification of the Conseil de la Nation huronne-wendat should archaeological sites be discovered during construction; a request to conduct Stage 3 and Stage 4 archaeological assessments across the entirety of the Project route prior to construction; having a monitor on site during construction of the Project; and, an opportunity, along with funding, to review archaeological reports produced for the Project.

TransCanada stated that in response to the Conseil de la Nation huronne-wendat's concerns about potential Project impacts on ossuaries, it provided an amended Heritage Resource Discovery Contingency Plan for the Project. The company stated that where a discovery is made and deemed to be of First Nation origin, the amended Heritage Resources Discovery Contingency Plan measures include notifying the appropriate Aboriginal group(s) and working with them and the responsible provincial authorities on mitigation measures.

TransCanada stated that it committed to working with the Conseil de la Nation huronne-wendat, in conjunction with applicable regulatory agencies, on appropriate mitigation measures should an archaeological site be determined to be of Huron-Wendat origin. The company also stated that on 7 June 2016 it provided the Conseil de la Nation huronne-wendat with a copy of the Stage 1, Stage 2 and Stage 3 archaeological assessment reports submitted by the TRCA to the MTCS, as well as the April 2016 confirmation letter sent from the MTCS to the TRCA. TransCanada stated that it is of the view that the MTCS's standards and guidelines, in combination with TransCanada's Heritage Resource Discovery Contingency Plan, are reasonable and sufficient for identifying and protecting First Nation archaeological resources in Ontario.

TransCanada stated that archaeological monitors are not required during Project construction for a number of reasons, including that the findings of the completed archaeological assessments have not yielded any sites of First Nation cultural heritage value or interest and the Project is located primarily on fee simple lands that have largely been previously disturbed. Furthermore, construction personnel are provided an environmental orientation which includes discussion of

heritage resources potential and the Heritage Resources Discovery Contingency Plan and Environmental Inspectors are provided additional heritage resources field awareness and “chance find” training to assist in the identification of potential archaeological resources. TransCanada also noted the commitment made under the Heritage Resources Discovery Contingency Plan that, should archaeological resources and/or human remains of First Nation origin/ancestry be found during construction, Aboriginal groups will be contacted and consulted to determine appropriate next steps, as guided by the provincial ministry responsible for heritage resources. TransCanada reiterated that it has and will continue to follow the recommendations of the archaeologist licenced according to provincial requirements, and noted the Board’s requirements in Condition 9. TransCanada stated it is willing to explore whether the Conseil de la Nation huronne-wendat has individuals qualified to be considered during the hiring of an Environmental Inspector for the Project to facilitate their participation during construction. TransCanada stated that it committed to sending information about the role and qualifications needed to be an Environmental Inspector for the Project to the Conseil de la Nation huronne-wendat and that the parties agreed to further explore this issue.

TransCanada stated that the presence of an Aboriginal monitor during construction is not required. TransCanada submitted that the Environmental Inspector will have the training to identify cultural features, and that there is no evidence that this is insufficient. TransCanada submitted that imposing a 50-metre buffer at the moment an archaeological site is found is inconsistent with the provincial guidelines, and that the contingency plan that TransCanada has proposed is appropriate. TransCanada noted that under its Heritage Resource Discovery Contingency Plan the ultimate size of the buffer is dependent on a number of factors. TransCanada stated that the imposition of a blanket 50-metre buffer is unreasonable.

TransCanada stated that in the unlikely event of a heritage discovery during construction, it will suspend work immediately and impose a 10 m buffer around the location of the discovery, consistent with the avoidance and protection strategies found in the MTCS, 2011 Standards and Guidelines for Licensed Archaeologists. The company submitted that a 10 m buffer is a minimum and would be expanded if recommended by the Heritage Resources Specialist or the applicable regulatory authorities. TransCanada stated that construction activities will not commence in that area until the decision on the appropriate buffer has been made.

Views of the Board

The Project footprint and study area are located within the historical boundary of the Upper Canada Treaties, 1764–1836 and have the potential to affect eight different Aboriginal groups. The Board granted Pre-decided standing to all Aboriginal groups affected by the Project, provided that they register as an Intervenor or Commenter during the ATP process, at their choice. No other Aboriginal group applied to participate. The Board notes that the Project is located on privately held freehold land and Crown land in the municipality of Vaughan, and the Project area is predominately privately-owned land which is urbanized or used for agricultural purposes.

Based on the archaeological studies conducted to date, the lack of any known archaeological sites along the Project route, the existing provincial approval process for heritage resources, the mitigation measures that TransCanada has committed to implementing in the event an

archaeological site is identified during construction, and the conditions imposed by the Board (for example Condition 6, Condition 9 and Condition 10), the Board is of the view that the Project is not likely to result in any significant adverse effects on heritage resources. Additional details about the Board's views regarding the Project's potential impacts on heritage resources, including archaeological resources, are in the Environmental and Socio-Economic Matters chapter (Chapter 9).

The Board acknowledges that the Conseil de la Nation huronne-wendat proposed conditions regarding the presence of a qualified archaeologist, as well as an Aboriginal monitor from the Huron-Wendat community during construction. The Board's view regarding the presence of a qualified archaeologist is in section 9.5.4.5 of Chapter 9. To address potential issues of concern to the Conseil de la Nation huronne-wendat and other Aboriginal groups which may arise during construction of the Project, the Board has imposed Condition 10 (Appendix II), requiring TransCanada to file a plan for Aboriginal participation in monitoring construction activities. The Board expects this plan to set out further opportunity for the Conseil de la Nation huronne-wendat to identify any specific adverse effects of the Project, including those on archaeological resources, and to address mitigation measures as necessary.

The Board notes TransCanada's commitment to engage with potentially affected Aboriginal groups throughout the life of the Project. The Board expects TransCanada to do so in a meaningful way, and to address concerns brought forward by Aboriginal groups to the extent possible.

The Board is of the view that all potentially affected Aboriginal groups were provided with sufficient information about the hearing process and the Project, and had the opportunity to make their views about the Project known to TransCanada and to the Board. The Board is of the view that potential Project impacts on the rights and interests of Aboriginal groups would be appropriately mitigated given the nature and scope of the Project and the implementation of TransCanada's commitments and proposed mitigation measures, as well as the fulfilment of regulatory requirements and the conditions imposed by the Board for the Project.

Chapter 6

Infrastructure and Economy

The Board's expectations for an applicant regarding direct socio-economic impacts caused by the existence of the project are set out in the Board's *Filing Manual*. Applicants are expected to identify and consider the impacts a project may have on infrastructure, services, employment and economy. Applicants are also expected to provide mitigation of negative impacts and the enhancement of positive impacts of the project.

Potential socio-economic effects that are caused by changes to the environment are included in the Environment and Socio-Economic Matters. Direct socio-economic effects caused by the existence of the Project itself are discussed below.

6.1 Infrastructure

Views of TransCanada

TransCanada stated that four roads, one highway, and one railway segment belonging to Canadian Pacific Railway are transected by the Project footprint, and that no public transit uses the roadways transected by the Project. The company also stated that immediately north and west of the Project, the Ontario Ministry of Transportation GTA West Project is being undertaken, consisting of a four to six lane highway with freeway-to-freeway connections.

TransCanada submitted that a temporary increase in Project-related vehicle traffic on local access roads leading to the Project footprint may be noticeable during construction, although no road closures are anticipated as part of Project activities. To avoid or minimize potential effects on local traffic and transportation during the project construction phase, the company stated that all Project staff will adhere to the Project's Traffic Control Management Plan. TransCanada also submitted that it will use trenchless methods to cross all highway, road and rail crossings, consequently minimizing disturbances to this above-ground transportation infrastructure.

6.2 Economy

Views of TransCanada

The Project is located in the City of Vaughan, in the Regional Municipality of York, in southern Ontario.

TransCanada submitted that Project construction has the potential to generate demand for goods, services and skilled construction workers, with an estimated 250 workers employed during peak construction, resulting in a growth of 0.2% in the number of available local positions. The company further submitted that Project construction has the potential to result in a limited increase in the demand for workers, goods, and services in Vaughan, which would consequently have the potential to generate indirect business and employment income as a result of the Project. TransCanada stated

that this potential increase in direct and indirect economic activity in Vaughan has the potential to result in increases in municipal revenues, generated from Project-related taxes, paid both by TransCanada and Project suppliers.

Views of the Board

The Board is of the view that TransCanada has identified and considered the relevant socio-economic impacts on infrastructure and the economy, and has proposed suitable mitigation to address the Project's potential effects.

Chapter 7

Economic Feasibility

When making a determination regarding the economic feasibility of a project, the Board assesses the need for the proposed facility and the likelihood of it being used at a reasonable level over its economic life. To make this determination, the Board considers the supply of natural gas that will be available to be shipped on the pipeline, any transportation contracts underpinning a pipeline, the availability of adequate markets to receive natural gas delivered by a pipeline and the likelihood of tolls being paid. The Board also considers other commercial impacts of the proposed facilities and the applicant's ability to finance the construction and ongoing operation and maintenance of the proposed pipeline.

7.1 Natural Gas Supply

Views of TransCanada

TransCanada submitted that the Project will facilitate greater access to the Marcellus and Utica basins, which are located in the northeast United States and are close to eastern Canadian markets. The Marcellus basin is estimated to contain 400 Tcf of recoverable resources, while the emerging Utica basin could contain 200 to 300 Tcf. Production from these plays are forecasted to grow from approximately 14 Bcf/d in 2014 to approximately 34 Bcf/d in 2025.

Gas from the Marcellus and Utica basins enters the Mainline system at points such as Niagara and Chippawa. TransCanada stated that its forecast of imports on its system at Niagara and Chippawa is anticipated to increase from 0.42 Bcf/d to 1.1 Bcf/d during the next decade. The availability of this United States supply is a key factor motivating TransCanada's Mainline shippers to contract short-haul service and de-contract long-haul service. TransCanada stated that given the modest size of the Project, compared with the productive potential of the Marcellus and Utica region, there is more than adequate supply to support the applied-for facilities.

Views of Participants

No participants expressed concern regarding the available supply of natural gas for the Project.

Views of the Board

The Board finds that the natural gas resource in the Marcellus and Utica basins represents adequate supply to support the Project.

7.2 Markets

Views of TransCanada

TransCanada submitted that the Project is driven by incremental market requirements and a desire for supply diversity from existing Eastern markets. The Project will serve existing markets that are expected to grow modestly over time. TransCanada stated that it expects domestic residential, commercial and industrial markets in Ontario and Québec to remain essentially flat, with these sectors forecasted to grow from approximately 3.1 Bcf/d in 2014 to approximately 3.2 Bcf/d in 2030. Gas demand for power-generation in Ontario and Québec is forecasted to grow in Ontario and Québec from approximately 0.3 Bcf/d to approximately 0.7 Bcf/d.

Views of Participants

No participants expressed concern regarding adequate market demand for the natural gas to be transported through the Project.

Union stated that the Project is a key component in providing consumers more supply choice. Eastern consumers and utilities are shifting their natural gas supply portfolio to purchase the commodity at locations closer to their markets. The facilities are required to provide the transportation services necessary for Ontario customers to realize the benefits of diversity of supply and access to competitively priced supply which lowers the overall landed cost of natural gas in Ontario.

Enbridge Gas stated that the Project will facilitate incremental access for eastern Canadian and United States markets to the abundant and lower cost natural gas reserves in the Marcellus and Utica basins. Enbridge Gas submitted that it recognizes the significant opportunity that access to these natural gas resources represents for customers in terms of improved supply diversity and reliability, and at lower cost than Western Canadian Sedimentary Basin supplies. Enbridge Gas emphasized that the need for expanded market access is real and pressing.

Gaz Métro stated that the Project will benefit several thousand natural gas consumers in Eastern Ontario and Québec by providing access at Dawn. Gaz Métro noted that the Project will allow it to access gas supply closer to its territory.

TransCanada Energy Ltd. (TCE) stated that the Project is essential to the delivery of fuel from Parkway to the Napanee Generating Station that is needed to generate electricity to meet Ontario's electricity demand and to satisfy TCE's contractual obligations under its Clean Energy Supply Contract with the Independent Electricity System Operator of Ontario.

Views of the Board

The Board is satisfied that there is sufficient market demand to underpin the construction and operation of the Project. The Board finds that consumers' demand for increased supply diversity and for access to supply sources located closer to markets provide sufficient support for the Project.

7.3 Transportation, Throughput and Contracting Process

Views of TransCanada

TransCanada stated that the Project is required to transport 425,081 GJ/d of firm 15-year transportation service commitments on the Mainline system starting 1 November 2017.

TransCanada noted that the service commitments underpinning the Project have a receipt point of Union Parkway Belt, which is a point of interconnection between TransCanada's Mainline system and the Union system. Gas from the Marcellus and Utica basins is able to travel to the Union system, where it can make its way to Union Parkway Belt receipt point and enter the Mainline.

According to TransCanada, new service requests, in combination with expiring contracts, results in a winter 2017/2018 throughput requirement of 3,165 TJ/d at the Maple Compressor Station (Station 130). Current capability at Station 130 is 2,803 TJ/d. Without the applied-for facilities, there would be a design day shortfall of 362 TJ/d. Once the Project is constructed, the system capability will equal the contractual requirements.

TransCanada stated that an additional 105 TJ/d of Transportation by Others (TBO) on Enbridge Gas' Albion Pipeline is required, in addition to the proposed facilities, to meet the new firm requirements. Together, the Albion Pipeline and the Project act as a partial loop of the Mainline between Union Parkway Belt and Station 130.

TransCanada submitted that Union had recently applied to the Ontario Energy Board (OEB) for a facility expansion on its Dawn Parkway system to be placed in-service for November 2017. TransCanada anticipates the development of Union's facilities to increase the gas available to the Project and align with the new Parkway receipt requests that underpin the Project.

A New Capacity Open Season (NCOS) was held that started on 12 December 2014 and closed on 30 January 2015. It resulted in executed precedent agreements from 12 shippers for a total of 425,081 GJ/d. To determine the appropriate amount of capacity required to meet those requests, TransCanada stated that it held a Capacity Management Open Season (CMOS), which closed on 13 March 2015. TransCanada received 90,000 GJ/d of acceptable turnback bids, reducing the incremental facilities required as a result of the NCOS.

TransCanada stated that it also initiated a term up process, as approved by the Board in its RH-001-2014 Decision. TransCanada submitted term up notices to those customers whose contract paths had an impact on the requirement for the new facilities. Customers had in excess of the minimum 60 days to elect to extend the term of their existing contracts so that the new termination date was no less than five years from the requested in-service date of 1 November 2017. TransCanada explained that as a result of this process, some customers did not term up their contracts, which reduced the overall contract requirement by an additional 39,414 GJ/d.

Views of Participants

No participants expressed concern regarding the Project's capability to transport the contracted volumes or the contracting process.

Enbridge Gas stated that it executed precedent agreements to convert 97,845 GJ/d of long haul capacity to short capacity, in addition to 73,221 GJ/d of new short haul capacity effective 1 November 2017 as part of TransCanada's 2017 NCOS. The Project is part of a short haul transportation expansion in the geographic area which includes its Albion Pipeline. The Project will serve to further relieve the existing bottleneck on the Parkway to Maple path for 2017 service as another critical piece of infrastructure to facilitate short haul services on the Mainline. Enbridge Gas submitted that without the incremental transportation that the Project provides, certain customers will have to remain on other transportation services.

Union submitted that it has executed agreements with TransCanada for new 15 year firm short-haul transportation capacity for a total of 7,000 GJ/d, with an expected 1 November 2017 in-service date. In addition, Union has requested long-haul to short-haul conversion in the amount of 887 GJ/d. These contracts are part of the long-term commitments underpinning the Project. Union stated that the OEB has approved \$623 million in expansion facilities on Union's Dawn Parkway System proposed for 1 November 2017 in-service. TransCanada's Project and the new Dawn Parkway facilities are required to transport natural gas to downstream markets from the Dawn Hub and other eastern receipt points that access the Appalachian Basin.

Alberta Northeast Gas Limited submitted that without the Project's capacity, Northern Utilities, Inc., one of the shippers underpinning the Project, would have stranded capacity upstream on Union and faces a risk to the reliability of supply on its utility system.

Gaz Métro noted that it signed two precedent agreements for firm transportation with TransCanada, for a total of 36,200 GJ/d. Gaz Métro submitted that it supports the Project because it will eliminate the bottleneck on TransCanada's Mainline between Parkway and Maple. The Project will benefit several thousand natural gas consumers in Eastern Ontario and Quebec by providing access at Dawn, and that all of Gaz Métro's customers will benefit from lower transportation costs.

St. Lawrence Gas Company Inc. (SLG) submitted that the Project is required to provide the Short-haul Firm Transportation (SHFT) for which it has contracted. SLG has committed to 14,000 GJ/d of natural gas SHFT for the next 15 years. This commitment allows SLG to service its customers beyond the expiry of its current Non-Renewable Firm Transportation (FTNR) capacity. It also improves SLG's diversity and security of supply and access to storage services. SLG explained that the shift from FTNR to SHFT will result in reduced transportation costs, which will be passed on to its customers.

Views of the Board

The Board finds that there is sufficient commercial support for the Project in the form of executed precedent agreements for long-term 15-year firm contracts. The Project alleviates an existing bottleneck and will improve access to competitive sources of natural gas for consumers. The Board also finds that the capacity of the proposed pipeline is appropriate to transport the contracted volumes. The Board is satisfied that the NCOS and CMOS processes were conducted in a fair and transparent matter. In addition, the Board finds that the term-up process was conducted consistently with the Settlement Agreement and the RH-001-2014 Reasons for Decision.

7.4 Alternatives and Sizing

Views of TransCanada

TransCanada stated that it evaluated options for transporting the requested volumes and considered both a facility alternative and a pipe size alternative.

The facility alternative considered by TransCanada was the addition of three new 15 MW units at Station 130. This alternative was eliminated due to higher capital cost, fuel and operating expenses, and operational inefficiencies. As an alternative to the NPS 42 pipeline, TransCanada considered an NPS 36 pipeline. However, TransCanada stated that this alternative pipe size would result in an unacceptably large pressure drop that would subsequently reduce the suction pressure at Station 130 to the extent that there would be insufficient power to meet the requested volumes. In addition, using a smaller pipe size would increase the likelihood that the pipeline may need to be looped in the future, thereby increasing land disturbance.

Views of Participants

No participants expressed concern regarding pipeline design alternatives and sizing.

Views of the Board

The Board finds that the rationale for the chosen design and for eliminating alternative designs has been adequately justified.

7.5 Project Costs, Financing and Impact to Tolls

Views of TransCanada

TransCanada estimated the cost of the Project to be \$221 million. The Project will be funded through cash flow generated from operations and new senior debt. TransCanada stated that it will also consider a combination of other funding options, such as subordinated capital in the form of additional preferred shares and hybrid securities, issuance of common shares and portfolio management. TransCanada noted that as of 30 September 2015, it had approximately \$750 million cash on hand, \$5.6 billion undrawn committed credit facilities and two well supported commercial paper programs. TransCanada and TransCanada Corporation have been assigned “A” level investment grade ratings by Moody’s Investor Service, Inc. and Standard and Poor’s in the United States, and by DBRS Limited in Canada.

TransCanada noted that it is not seeking, in this application, approvals pursuant to Part IV of the NEB Act, relating to the recovery of the Project’s cost through tolls. TransCanada stated that the tolling treatment will be consistent with the Board’s RH-001-2014 Decision. The 2018-2020 annual cost of service is estimated by TransCanada to increase by approximately \$23 million with the addition of an annual cost of \$22 million for the Project and an estimated annual cost of \$0.7 million for the TBO arrangement.

On 9 September 2015, TransCanada provided a presentation to its Mainline Tolls Task Force outlining the firm service commitments that underpin the Project and provided detail on the location and type of expansion required. No comments or concerns were received.

Views of Participants

No participants expressed concern regarding Project costs, financing or the impact to tolls.

Enbridge Gas stated that the approved tolling structure resulting from the RH-001-2014 Decision supports new infrastructure investments which provides for increased transportation capacity in the eastern triangle. A 2016 Mainline Expansion Project was included in TransCanada's proposed revenue requirement.

SLG noted that TransCanada's current toll structure, approved by the NEB through its RH-001-2014 Decision, includes costs associated with the Project in its proposed revenue requirement.

Views of the Board

The Board is satisfied that TransCanada has sufficient capacity to finance the Project's costs. The Board recognizes that financial risk is mitigated by the long-term executed precedent agreements for the full capacity of the pipeline. The tolls for the Project have been established in the 2015-2030 Settlement Agreement approved by the Board in the RH-001-2014 Reasons for Decision. The Board notes that no shippers have expressed concerns regarding costs or impacts to tolls.

Chapter 8

Safety, Security and Emergency Response

8.1 TransCanada's Emergency Preparedness and Response Planning

The NEB expects pipeline companies to operate in a systematic, comprehensive and proactive manner that anticipates and manages risks. The Board also expects that companies have fully-developed and implemented management systems and protection programs that provide for continuous improvement. A carefully-designed and well-implemented management system supports a strong culture of safety and is fundamental to keeping people safe and protecting the environment. Such management systems must also take account of the roles and involvement of third parties, where appropriate, and are further described below.

The NEB requires all of its regulated pipeline companies to anticipate, prevent, manage and mitigate potentially dangerous conditions associated with their facilities. With respect to emergency response, the Board notes that TransCanada must fulfill sections 33 to 35 of the NEB Onshore Pipeline Regulations (OPR) for continued liaison with agencies and persons that may be involved in an emergency response and for the ongoing implementation of a Continuing Education Program for emergency response.

In order to fully comply with the OPR, and meet the Board's expectations, a complete emergency management program must include response plans, means of training personnel to execute those plans, means of conducting exercises to practice and test the implementation of those plans, means of evaluating the plans when carried out during training exercises or true incidents, and the identification, location, and maintenance of suitable equipment to carry out the plans. An emergency management program requires that all these elements be appropriate, and effective, throughout the lifecycle and operation of a project and the changing conditions both within and outside of a pipeline.

In order to determine compliance with the emergency management program requirements of the OPR, the Board conducts compliance verification activities on every aspect of this program. These activities include reviews of manuals, compliance screening meetings, implementation assessment meetings, information exchange meetings, inspections, and audits. The Board also participates in emergency response exercises as required by the scale of the exercise. During the course of its compliance verification activities, the Board assesses the adequacy, effectiveness and implementation of a company's emergency management system, program and emergency procedure manual(s). The Board's compliance activities are risk-informed and adaptable to take into account changes in a company's facilities or performance.

Views of TransCanada

TransCanada said that the Project facilities will be incorporated into TransCanada's existing emergency management system for the Mainline system and any related operating procedures. Prior to placing the Project facilities into operation, TransCanada stated it would work with external emergency response personnel to establish appropriate communication protocols, awareness of the

operations related to buried high pressure gas pipeline systems and characteristics of natural gas and providing an understanding of TransCanada's emergency response procedures, of which these steps will help to coordinate TransCanada's emergency plans with the emergency plans of other affected parties. During operation, TransCanada stated that the company would implement its Emergency Management Program, which is consistent with the OPR and CSA Z731 (Emergency Preparedness and Response) and governs all aspects of emergency preparedness and response.

TransCanada said that once the Project is in service, the company will use its emergency management system to manage emergency events associated with the facilities. The company also indicated that it would utilize the incident command system and address an incident in a unified command approach with local emergency services.

TransCanada said that its public awareness program identified emergency responders and other stakeholders and that this program is intended to educate and engage all stakeholders and Aboriginal groups in pipeline safety to protect the public, the environment and company facilities. This program executes engagement activities, to all stakeholders along the pipeline route covering important pipeline safety information and dedicated community relations specialists develop and implement annual plan specific to their area that assess individual regional risks and define supplemental engagement activity to mitigate any risks. The company said that the Public Awareness Program will identify and engage all stakeholders and Aboriginal groups prior to and during construction and continued awareness once the pipeline is placed into operation. TransCanada said that ongoing contact with all stakeholders and Aboriginal groups provides the company with the opportunity to obtain information concerning safety, security, and/or potential threats relating to its operations, changes to contact information, and enables all relevant interested persons to be informed and work together to achieve safety.

TransCanada said that it monitors its pipeline 24 hours a day, 365 days a year and uses satellite technology to send data to a monitoring centre every five seconds. If a drop in pressure is detected, the problem area is immediately identified and that section of the pipe is remotely isolated, closing the valves that control the flow of gas. Trained crews are dispatched by land or helicopter, depending on the location of the leak, and work closely with the authorities, emergency responders, and the media to ensure residents in the area are aware of the situation and are safe.

TransCanada submitted the baseline conditions for key indicators within the Socio-Economic Study Area for the Project, such as full service emergency and protective services (fire, police, medical) for the City of Vaughn and the Region of York, which includes fire incidents, sudden medical emergencies, technical rescues, hazard materials, and chemical, biological, radiological and nuclear incident response. TransCanada also listed the resources available (i.e. pumpers, cruisers, ambulances and staff, etc.).

TransCanada stated that the company will develop an emergency response plan to be implemented in the event of sediment releases or spills of deleterious substances during the construction of the trenchless crossings.

TransCanada said that as the Project transitions from construction to operation, the company will continue to build and maintain relationships through consistent and ongoing communication with First Nations and Métis communities and organizations, and stakeholders (including municipalities

and emergency responders). TransCanada said that it will continue to, among other tasks, provide information on emergency response activities and pipeline integrity and address and resolve topics as required.

TransCanada said that the Project has been designed, and will be constructed and operated, using applicable standards and industry best practices and Project-specific mitigation identified in the Environmental and Socio-Economic Assessment (ESA) report and the Environmental Protection Plan (EPP). These measures are expected to limit the potential occurrence of an accident or malfunction related to the Project. In the case of an accident or malfunction, TransCanada's Spill Contingency Plan and Emergency Response Plan will be followed.

Views of Participants

Landowners Ms. LaRocca and 1595758 Ontario Limited (the Nessim Family) expressed concern with contingency plans for spills, accidents or malfunctions during construction and operation of the Project, particularly in regard to the river crossings contained on or in close proximity to their respective properties. Similarly, the Ussia Family also expressed concern with contingency plans for spills, accidents and malfunctions that could occur on their property during construction and operation of the Project.

Ontario's Ministry of Transportation (MTO) said that it was concerned that placing a high-pressure gas pipeline within or adjacent to its Right of Way (RoW) for the Greater Toronto Area (GTA) West Project could compromise the safety of the travelling public, which is of paramount concern to the Province. Specifically the MTO questioned whether TransCanada will provide an Emergency Response Plan to the Ministry clearly detailing the steps to be taken to address any malfunction or carry out any maintenance or repair activity of the pipeline, what exactly the Emergency Response Plan will contain, and if the Ministry will be listed as an emergency contact in the EPP.

Reply of TransCanada

In its response to Ms. LaRocca, TransCanada stated that the majority of the pipeline on the LaRocca property will be installed by Horizontal Directional Drilling (HDD) and the depth of cover will vary between 1.2 and 80 m, With respect to the concerns raised by the Nessim Family, TransCanada stated that the Project does not cross the East Humber River on the Nessim Property.

In response to the Ussia Family concerns, TransCanada said that the potential for pipeline incidents and the possibility for a leak is very low due to the materials, coatings and construction techniques applied on the Project, along with the TransCanada integrity management plan. In the unlikely event of a leak or failure, TransCanada will implement its Emergency Response Plan as outlined in the application, and also has an extensive public awareness program to prevent third party damage to the pipeline that could result in a leak or failure.

In addition, TransCanada's response stated that Appendix 1E of the Project specific EPP (ESA Appendix A) provides the Spill Contingency Plan that would be implemented for the Project if there are spills during construction. The EPP applies to all employees, contractors and consultants who conduct work on behalf of TransCanada during construction of the Project. All employees, contractors and consultants will also abide by all federal and provincial requirements for the storage, handling, transport and disposal of hazardous materials and spill reporting requirements.

TransCanada said that in the event of an accident or malfunction, TransCanada's Contingency Plans and Emergency Management System Manual will be followed as required. This manual addresses any incidents that can occur during construction and operation of their projects and infrastructure. The Prime Contractor will also be developing a Project-specific Emergency Response Plan for use, when required, during construction.

In response to the MTO's concerns, TransCanada stated that its Emergency Response Plans contain confidential information but that it is open, on a case-by-case basis, to collaborative planning with relevant emergency responders or potentially affected stakeholders. TransCanada has committed to meeting with MTO representatives to ensure that safety and/or security clarifications of either party are addressed efficiently and effectively. Additionally TransCanada noted that the Board recently issued Order MO-006-2016 (Compelling Publication of Emergency Procedures Manuals) and directed all NEB-regulated pipeline companies to publish this information online for public viewing by 30 September 2016, with some exceptions, such as for personal information that could compromise the security of a pipeline and information related to sensitive areas. TransCanada further stated that MTO contact information will be included in the EPP and the emergency phone directory during construction and operation of the Project.

Views of the Board

The Board is of the view that the measures proposed by TransCanada to address emergency preparedness and response are appropriate. In addition, the Board has included Conditions 2 and 12 to address emergency preparedness and response. As an NEB-regulated company, TransCanada must meet the requirements of the OPR described above. By meeting these requirements, TransCanada would be able to effectively respond to an incident, helping to minimize impacts to the environment and to property as well as to the safety of workers and the public. Condition 12 requires TransCanada to submit a Field Emergency Preparedness and Response Plan that it would implement in the event an emergency occurs during construction activities.

Sections 32 to 35 of the OPR address emergency management liaison, continuing education, and consultation requirements with affected and potentially impacted parties. The Board expects that TransCanada will consult with the appropriate parties, including the MTO, and make available to them the relevant information that is consistent with what is specified in the emergency procedures manual. The Board also expects TransCanada's consultation and communication with impacted parties to be ongoing and collaborative. This includes, but is not limited to, a discussion on the necessary procedures to be implemented if emergency work is to be carried out by the MTO in the vicinity of the Project during pipeline construction activities.

8.2 TransCanada's Safety and Security Matters

In accordance with the OPR, NEB-regulated companies are required to implement mitigative and preventative measures for all risk posed by hazard and threats to the integrity of pipeline systems, the public and workers, and to the environment. The Board monitors a company's compliance with the conditions of approval and with legislation during all stages of the construction and operation of a project. The Board evaluates the need for specific compliance verification activities and

determines whether an on-site inspection or review of the company's management systems (audit) is necessary. This includes an evaluation of company programs to address safety and security.

Views of TransCanada

TransCanada stated that its corporate security policy and the TransCanada Operating Procedures will govern security management during construction and operations which adhere to CSA Z246.1 for security management.

In its application, TransCanada indicated that all activities associated with the Project, including health, safety and environmental performance, will meet or exceed applicable laws and regulations. TransCanada also indicated that its Health, Safety and Environment Management System (HSE MS) conforms to industry standard and is aligned with the management system requirements outlined in the OPR. Furthermore, the HSE MS Framework will apply to the complete lifecycle of the Project, from design and construction, through to operations and either sale or ultimate abandonment.

Views of Participants

The Ussia Family expressed concerns in regard to TransCanada staff and contractors on parcel VME2039, where there is a commercial tenant. The commercial tenant has requested that the Ussia Family not disclose the nature of the operation but expressed concern with the security of their assets. TransCanada asked the Ussia Family to provide further information in order for TransCanada to address the tenant's concern about security during pipeline construction. In their response to TransCanada, the Ussia Family stated their tenant is concerned with the security of their assets being stolen, destroyed, or otherwise harmed and damage caused through pipeline construction. Further the tenant is concerned that Project staff entering the property could be injured due to the nature of the operations, which include the operation of heavy equipment.

The Ussia Family requested that conditions be placed on the Project in regard to monitoring construction for compliance to conditions, orders, etc and that TransCanada be required to file manuals in regard to Construction Safety, Field Emergency Preparedness, Security Management and a Field Pressure Testing Program, prior to construction taking place.

The MTO expressed concerns about potential restrictions that TransCanada might implement on its construction activities within 30 metres of the pipeline if the TransCanada pipeline route is within the RoW for GTA West Corridor Project. The MTO also expressed concern on any requirements for MTO to work around the TransCanada pipeline in a timely manner and whether TransCanada will provide the Ministry with a detailed list of construction/maintenance activities that will or will not trigger the 30 metre safety zone area notification requirements.

TransCanada Reply

In its response to the Ussia Family concerns with TransCanada employees and contractors on parcel VME2039, TransCanada stated that its contractors and employees will stay within the boundaries of the Temporary Workspace (TWS) and the RoW. TransCanada committed that during construction, all contractors working on behalf of TransCanada will remain within the construction footprint, being the TWS and RoW.

In its response to the Ussia Family proposed condition for the appointment of an independent construction monitor, TransCanada stated that this is covered in the EPP for the Project. In addition, the construction monitor has been adequately captured by the Board's Construction Progress Report Condition (Condition 15) and an additional condition is not necessary.

Another condition proposed by the Ussia Family was in regard to the filing of manuals prior to construction, such as a Construction Safety Manual, Field Emergency Preparedness and Response Plan, Security Management Plan, and a Field Pressure Testing Program. TransCanada responded that this additional condition was not required as it is a requirement under the Board's condition on Manuals and Programs (Condition 12).

In its response to the MTO, TransCanada stated that the requirements and obligations relating to the safety zone are set out in the National Energy Board Pipeline Crossing Regulations, Parts I and II. In addition, TransCanada committed to collaborating with the MTO through ongoing dialogue related to its potential construction activities within the safety zone and to provide guidance on the types of conditions that could potentially be required, if any, to ensure the safe operation and integrity of the pipeline.

Views of the Board

The safety of Canadians and protection of the environment in the construction, operation and abandonment of pipelines are the Board's top priorities. The NEB works to inform Canadians living and working around pipeline to promote their continued safety, and to make sure they understand their rights and responsibilities.

The Board requires companies to address safety and security considerations, including emergency response planning and third-party damage prevention in their applications for facilities. The Board notes that the Project will become part of a much larger system which is already in place and has been operating for a number of years. The Board is satisfied that the Project will be incorporated into, and form an element of, TransCanada's existing Health, Safety and Environment Management System Framework addressing legislative requirements for Project related health, safety and environmental activities. To facilitate the ongoing review by the NEB of TransCanada's safety plans and performance, the Board finds that TransCanada must file the following manual and reports with the Board:

- Construction Safety Manual – 14 days prior to commencing construction (Condition 12);
- Twice Monthly construction progress reports which include information on environmental, safety and security issues; issues of non-compliance, and measures undertaken for their resolution (Condition 15).

The Board has also included a condition requiring TransCanada to confirm that a Project specific Security Management Plan has been developed (Condition 12). The Security Management Plan would facilitate the Board's review of TransCanada security management approach with respect to the Project. The Board has determined that no Field Pressure Testing Program is required to be filed in regard to this Project given that TransCanada has extensive

experience in building and operating pipelines. Nonetheless TransCanada must comply with all requirements regarding field pressure testing.

Effective 19 June 2016, the National Energy Board's *Pipeline Crossing Regulations, Parts I and II* have been repealed and are replaced by the National Energy Board, *Damage Prevention Regulations – Authorizations*, and National Energy Board, *Damage Prevention Regulations – Obligations of Pipeline Companies*. The Board reminds TransCanada that it must inform its stakeholders through its Public Awareness program of these requirements under the new legislation. Lastly, the Board accepts TransCanada's commitment to continue its efforts to engage in and maintain effective and timely consultation activities with the MTO and other stakeholders as appropriate throughout the lifecycle of the Project.

Chapter 9

Environmental and Socio-Economic Matters

Under the NEB Act, the Board considers environmental protection as a component of the public interest. When making its decision, the Board assesses the environmental and socio-economic effects of the Project throughout the life of the Project.

The Board is of the view that, with the implementation of TransCanada's environmental protection procedures and mitigation and the Board's conditions, the Project is not likely to cause significant adverse environmental effects.

This chapter represents the NEB's environmental assessment (EA).

9.1 The NEB's EA Methodology

In assessing the environmental and socio-economic effects of the Project, the NEB used an issue-based approach as set out in the NEB's *Filing Manual* for applicants.

This assessment begins with: (a) a description of the Project (subsection 9.2), (b) a description of the setting and the environmental and socio-economic elements within that setting (subsection 9.3), and (c) a summary of those environmental and socio-economic concerns raised by the public (subsection 9.4). Based on these, the NEB identified Project-environment interactions expected to occur (subsection 9.5; Table 9-3). If there were no expected Project-environment interactions or interactions would be positive or neutral then no further examination was deemed necessary.

The NEB then assessed the potential adverse environmental and socio-economic effects, as well as the adequacy of the applicant's proposed environmental protection strategies and mitigation measures (subsection 9.5). Subsection 9.5.3 describes the extent to which standard mitigation is relied on to mitigate potential adverse effects. In subsection 9.5.4, the NEB provides detailed analysis for issues that are of public concern or of environmental consequence, and that may require additional mitigation. For each issue considered in detail, views of the Board are provided and the Board determines whether further mitigation is required by way of condition on any potential Project authorization, in order to ensure any potential environmental and socio-economic effects would not be significant. Where there are any residual effects remaining after proposed mitigation, cumulative effects are considered in the following subsection (9.6). The NEB's conclusion on significance is given in subsection 9.7.

9.2 Project Details

Chapter 1 of these Reasons for Decision provides a general description of the Project. In addition, the following table provides further details on Project components and activities relevant to the EA.

Table 9-1: Project Components and/or Activities

Project Components and/or Activities
<i>Construction Phase – Timeframe (October 2016 - Spring/Summer 2018)</i>
<ul style="list-style-type: none"> • Construction of approximately 11.7 kilometres (km) of new buried pipeline [1067 millimetres (mm) Nominal Pipe Size (NPS) 42 - parallels existing disturbances for 3.9 km or 35% of the route: power transmission lines (3.0 km), a rail line (0.2 km), existing roads (0.7 km)]
<ul style="list-style-type: none"> • A new block valve to tie in to TransCanada’s approved King’s North Connection project and TransCanada’s existing Line 200-2, northwest of the intersection of Major MacKenzie Drive and Huntington Road • A tie-in to TransCanada’s existing Line 200-3, near the existing Mainline valve (MLV) 201A crossover valve site, SE of the intersection of Kirby Road and Kipling Avenue. The existing crossover valve MLV 201A and associated piping will be removed. • Associated facilities: Receiver barrel and associated piping installed at TransCanada Maple Compressor Station (Station 130) approx. 3.2 km east
<ul style="list-style-type: none"> • 9.1 km of pipe constructed using a trenched method and 2.6 km using trenchless methods
<ul style="list-style-type: none"> • Horizontal Directional Drilling (HDD) used to drill under major infrastructure and environmentally sensitive features: Kilometre post (KP) 1.8 – KP 2.3 (Nashville Road and woodlot), KP 5.4-KP 6.5 (Main Humber River + surrounding areas), KP 8.8-KP 9.9 (East Humber River + surrounding areas) • Horizontal boring of major roads: Highway 27, Kirby Road, Huntington Road and Kipling Avenue
<ul style="list-style-type: none"> • Total of 38 watercourse crossings: 33 pipeline crossings (10 using a trenchless method and 23 using trenched methods (open cut if dry or frozen, isolation if flowing)); 4 temporary road crossings (temporary bridge or culvert) and one crossing related to temporary workspace for an HDD pullback area
<ul style="list-style-type: none"> • No new permanent access required
<ul style="list-style-type: none"> • RoW clearing and preparation - 18 m wide permanent Right of Way (RoW), 32 m wide construction RoW and Temporary Work Space (TWS); total Project footprint of about 52 hectares (ha) (20.8 ha permanent RoW and 30.9 ha TWS)
<ul style="list-style-type: none"> • Topsoil salvage, grading, stringing, welding, trenching, pipe lowering, backfilling
<ul style="list-style-type: none"> • Hydrostatic pressure testing, water likely to be sourced from municipal sources but may be taken from surface water source
<ul style="list-style-type: none"> • Cleanup and reclamation
<ul style="list-style-type: none"> • Waste disposal in accordance with TransCanada’s Chemical and Waste Management Plan
<i>Operation Phase – Timeframe: Service life of the Project (estimated in-service date: 1 November 2017) – the Project is expected to be in service for at least 30 years.</i>
<ul style="list-style-type: none"> • Vegetation and weed management as required

Project Components and/or Activities
• Regular aerial patrols throughout the life of the Project (approx. twice a month)
• Post construction monitoring of environmental reclamation
• Maintenance integrity digs as required
• Cathodic protection to prevent pipeline corrosion over the service life of the pipeline
• Facility inspections, valves inspected every 12-18 months
<i>Abandonment Phase – Timeframe: At the end of the service life of the Project</i>
• Pursuant to the NEB Act, an application would be required to abandon the facility, at which time the environmental effects would be assessed by the NEB.

9.3 Environmental Setting

The following description of the environmental setting is based on the following four spatial scales:

- The Project footprint – defined as the physical area required for Project construction and operation. This includes the permanent RoW plus the additional TWS required during construction, including the areas where trenchless crossings will occur.
- The Local Study Area (LSA) – the area within which mainly direct effects of the Project on the local environment are expected to occur. The LSA varies by Valued Component (VC). For example, the Terrestrial LSA is defined as a 1 km wide corridor centered on the pipeline.
- The Regional Study Area (RSA) – the area within which most indirect and cumulative effects of the Project are expected to occur. The RSA varies by VC. For example, the Archaeological Resources RSA is defined as a 2 km wide corridor centred on the pipeline.
- The Socio-Economic Study Area (SSA) – defined as the city of Vaughan. This is the area in which socio-economic effects (human occupancy, social and cultural well-being, human health and aesthetics, infrastructure and services, and employment and economy) are expected to occur.

Details of the spatial scales can be found in TransCanada’s Environmental and Socio-Economic Assessment for the Project.

Land Use (and Designations)

- The Project is located in the Greater Toronto Area (GTA), in the city of Vaughan, within the regional Municipality of York, in southern Ontario.
- Majority of the land use is agricultural, with agricultural systems covering 45.7 ha (89.4%) of the Project footprint.
- The Project footprint overlaps 7.2 ha of unnamed conservation area lands managed by the Toronto and Region Conservation Authority (TRCA).

- According to the City of Vaughan Official Plan, the majority of the land within the terrestrial LSA and RSA is identified as Natural Areas and Countryside, and as Community Areas. The Project footprint would cross areas classified in the Official Plan as Infrastructure and Utilities, Agricultural Areas, Natural Areas and Greenbelt Plan Areas, including Core Features (e.g., wetlands, woodlands, valley and stream corridors) of the Natural Heritage Network.
- Ecological Land Classification identified the majority of the proposed Project footprint (about 52.8 ha in total) as Agricultural (33.4 ha), followed by Terrestrial (14.8 ha), Wetland (3.1 ha) and Anthropogenic (1.5 ha).
- The land within the LSA and RSA is predominantly privately-owned.
- The proposed Project is not located on any federal lands.

Physical Environment and Soils

- Located within the physiographic regions of the Peel Plain and the South Slope. The section of the Project west of the Humber River valley is located in the Peel Plain and the remainder to the east is within the South Slope.
- The Peel Plain is a broad plain of level to gently undulating glacial deposits which gradually slope towards Lake Ontario basin. Surficial overburden materials are comprised mainly of fine grained tills and glacio-lacustrine deposits.
- The South Slope rises northward from the Peel Plain to the base of the Oak Ridge Moraine. Overburden materials are of similar composition to the Peel Plain, consisting of fine grain tills. The land surface of the South Slope region is more rolling than the Peel Plains due to the higher gradients which allow smaller watercourses to erode valleys.
- The Project is located in an area of low to moderate seismic activity, no permafrost, and moderate forest fire risk.
- No geohazard and/or slope stability concerns were identified in a Phase 1 Geologic Hazards Assessment completed for the Project.
- Wind erosion risk is considered low for the majority of the LSA; two soil map units (Brighton and Alberton) that make up 6.6% of the LSA have a high wind erosion risk. Water erosion risk is considered low to moderate (except where slopes are greater than 10%) and the risk of compaction and rutting is considered high.
- Seven sites within the soils RSA were identified as potential sources of soil contamination based on historical land use. None overlapped the Project footprint, and all were considered to have no or low risk of contributing to soil or sediment contamination and subsequent loss of soil quality.

Vegetation

- Woodland comprises 222.25 ha of the terrestrial LSA and 443.36 ha of the terrestrial RSA.

- There is 0.30 ha of deciduous forest and no interior forest (i.e., forest that is greater than 100 m from the forest edge) within the Project footprint.
- A total of 2.86 ha of significant forests, as mapped by the Regional Municipality of York, is located within the Project footprint; 1.09 ha would be cleared for construction. The woodlands associated with the Humber River and the East Humber River have been identified as significant woodlands and wildlife habitat by the City of Vaughan.
- A total of 7.71 ha of grassland and cultural meadow is within the Project footprint; 6.22 ha would be cleared for the Project.
- Nine non-native, invasive species and noxious weeds were identified within the terrestrial LSA (European buckthorn, dog-strangling vine, bull thistle, Canada thistle, colt's foot, knapweed, poison ivy, ragweed, and sow thistle). The baseline level of non-native, invasive species and noxious weeds is rated moderate to high in the terrestrial LSA, particularly in areas of the Project footprint that have existing disturbance.
- Based on desktop studies, four provincially and/or federally listed plant species at risk were deemed to have potential to occur in the vicinity of the Project (American ginseng, Butternut, Eastern prairie fringed-orchid and Purple twayblade). None of these species, or any other plant species with a designated conservation status, was found during the field studies.

Surface and Ground Water

- The Project lies within the Humber River Watershed, which drains into Lake Ontario.
- The Project includes 38 watercourse crossings: the Main Humber River and East Humber River; multiple crossings of various tributaries, including unnamed tributaries to the Main Humber River (8), East Humber River (6), Purpleville Creek (4), Robinson Creek (3) and Rainbow Creek (12); and three field drains.
- The Humber watershed and its rivers have historically been, and continue to be, affected by uncontrolled agricultural and urban surface water runoff, limited riparian cover and vegetation and stormwater discharges. Water quality in the East and Upper Main Humber River sub-watersheds is generally better than others within the Humber River watershed, largely due to less urbanization in this area, higher groundwater inputs, and higher overall vegetation cover. Results from monitoring stations located upstream and downstream of the Project provide information on total suspended solids, chloride, phosphorus and nitrate levels.
- Provincial water well records indicate that static groundwater levels are variable across the groundwater LSA, with most levels between 1 and 30 m below ground surface.
- Private well owners are the principal groundwater users in the groundwater LSA.

Fish and Fish Habitat

- Urban development has resulted in significant deterioration of the water quantity and quality, as well as negative effects on fish populations and fish habitat in watercourses in the

aquatic LSA. The watercourses potentially affected by the Project are located within two major catchment areas: the Main Humber River, including the Rainbow Creek drainage sub-watershed, and the East Humber River, including the Purpleville drainage sub-watershed.

- Of the 38 watercourse crossings within the Project footprint, 28 were determined to provide fish habitat or are likely to provide fish habitat. They generally support a variety of tolerant, common forage and bait fish species. Typical species include White Sucker and darter species.
- A total of 10 pipeline watercourse crossings would be constructed using a trenchless crossing method. Seven of these are at crossings containing fish or fish habitat, including the Main Humber and the East Humber Rivers.
- Fish habitat quality and sensitivity to disturbance was rated high at 5 watercourse crossings. The remaining crossings were rated in approximately equal numbers as low or moderate.
- According to the Humber River Fisheries Management Plan, fish habitat in the Main Humber River and East Humber River is characterized as intermediate size, riverine, and cold water. Target species for management include Brown Trout and Redside Dace, as well as Rainbow Trout for the East Humber River. Purpleville Creek is characterized as small size, riverine and cold water; Brook Trout and Redside Dace are the fish species targeted for management.
- Rainbow Creek is important at the landscape level as it is one of the few remaining watercourses with a relatively high amount of natural riparian cover, has permanent flow and supports a number of warm water fish species. Fish habitat in Rainbow and Robinson Creeks is characterized as small size, riverine, and warm water. Darter species are targeted for management.
- Redside Dace is listed as Endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and under the Ontario *Endangered Species Act*. The Ontario Ministry of Natural Resources and Forestry (MNR) has identified the East Humber River as occupied Redside Dace habitat. The Project includes additional crossings which may provide contributing habitat, according to MNR.

Wetlands

- There are about 3.1 ha of wetlands within the Project footprint.
- The Project footprint intersects or comes within 30 m of 10 wetland areas, most of which are broadly characterized as swamps. Four of these wetland areas (totalling 0.91 ha) are part of the East Humber River Wetland Complex Provincially Significant Wetland, and include areas of meadow marsh. Within the terrestrial LSA, this wetland complex includes a variety of diverse wetlands (deciduous thicket swamps, broad leaf sedge and graminoid meadow marshes, mixed swamps and seepage forests and shallow emergent marshes), which provide an important refuge for unique and diverse flora and fauna.

- Trenchless (HDD) construction methods will be used to cross all or part of four wetlands, totalling about 1 ha. About 60% (0.54 of 0.91 ha) of the Provincially Significant Wetland area within the Project footprint (all deciduous swamp) would be crossed using HDD methods.
- There are no known Ramsar international wetlands or federal wetlands within the RSA of the Project.

Wildlife and Wildlife Habitat

- The Project is located in an area where there is considerable ongoing development and planned future development. The wildlife habitat found within the Project RSA is associated with multiple types of riparian habitats, wetlands, woodlands and grasslands. The wildlife communities in the area are generally characterized by species that have adapted to the fragmented anthropogenic landscape and associated urban and agricultural disturbances.
- Based on desktop studies 70 bird species, 6 mammals, 3 reptiles, 9 amphibians and one crustacean have been observed in the terrestrial RSA.
- Consultations with MNRF and Environment and Climate Change Canada (ECCC) initially identified 12 potential wildlife species at risk or species of special conservation status (i.e., listed provincially, federally or both) that may occur in the terrestrial LSA. Field verification of habitat characteristics and species presence surveys found that there is likely habitat within the Project footprint that supports: Bobolink, Barn Swallow, Bank Swallow, Eastern Meadowlark, Eastern Wood-pewee, Little Brown Myotis, Western Chorus Frog, Rapid's Clubtail, Milksnake and Monarch butterfly. Trenchless construction methods would avoid potential habitat identified for Barn Swallow, Bank Swallow, Eastern Wood-pewee and Rapid's Clubtail.
- Surveys identified 4.11 ha of potential bat maternity roosting habitat within the Project footprint, but there are no suitable bat hibernation areas within the Terrestrial LSA. Although Little Brown Myotis was documented within the Terrestrial LSA, snag/cavity surveys did not reveal any suitable habitat within the woodland areas proposed to be cleared for the Project.
- The Project footprint occurs in an area broadly identified as containing critical habitat for the Western Chorus Frog (Great Lakes/St. Lawrence – Canadian Shield population), designated Threatened on SARA Schedule 1. The exact location of critical habitat and the extent to which it may overlap with the Project has not yet been determined.

Atmospheric and Acoustic Environment

- Air quality was characterized using background air concentrations from literature and monitoring data from three air quality monitoring stations: Toronto West, Brampton and Toronto North.
- The average monitoring values for fine particulate matter (PM_{2.5}) are below the Canada-Wide Standard, as are the average 98th percentile values; however, there have been exceedances of the 24-hour and the annual National Ambient Air Quality Standards at all

three monitoring stations prior to 2006. The reported air quality values are below Ontario Ambient Air Quality Objectives for nitrogen dioxide (NO₂), sulphur dioxide (SO₂) and carbon monoxide (CO) in the air emissions LSA.

- The primary sources of criteria air contaminants (CACs) and Greenhouse Gas (GHG) emissions during the construction phase of the Project are off-road and on-road equipment and vehicles. During the operations phase of the Project, fugitive emissions, site-specific maintenance activities, such as venting for pressure release, and aerial patrols will contribute to CACs and GHG emissions.
- Ambient noise in the Project area is primarily caused by transportation sources, mainly vehicle traffic, and natural sounds. TransCanada's noise assessment identified the closest residential point of reception as being 42 m from the Project centreline, while another 12 residential points of reception are between 197 to 697 m away.

Human Occupancy and Resources Use

- In 2011, the total population of the City of Vaughan was 288,301.
- There are no Aboriginal reserves located in the Project area.
- There are no national or provincial parks in the Project footprint, however there are eight King Township municipal park properties and one Richmond Hill municipal park property in the resource use RSA, covering a combined 62.8 ha.
- The Project study areas overlap a range of recreational trails. A segment of the Humber Valley Heritage Trail is located within the resource use LSA, adjacent to the Project footprint, connecting with Kirby Road at both its eastern and western terminus. This trail is a public hiking trail maintained for recreational and educational use, and bird and wildlife viewing in the Humber River Valley by the Humber Valley Heritage Trail Association.
- The Humber River (East and Main branches) is designated as a Canadian Heritage River System and runs through the Project footprint.
- While few fishing opportunities exist in the resource use LSA given the local landscape compared to other areas of the Province, the Main and East Humber rivers are both navigable and are used by crafts for canoeing and angling activities. The Humber River is a key location for fishing in the resource use LSA.
- The Project would cross two navigable watercourses: the Main Humber River and the East Humber River. Both watercourses would be crossed using trenchless crossing methods, HDD, as a result no in-stream work would be required.
- The Project footprint overlaps one Aggregate Designated Area.
- The Project footprint crosses 20 active agricultural systems, including hay, corn, mixed and grain crop systems, as well as grazing and pasture systems, and specialty agricultural systems (i.e., market gardens and a sod farm).

Heritage Resources

- Based on the Stage 2 archaeological assessments conducted to date, no First Nation archaeological resources of cultural heritage value or interest requiring further work were identified within the Project area. As of 8 June 2016, it has been the professional opinion of the archaeologists working on the Project on TRCA and non-TRCA lands that none of the finds of First Nation origin warranted a Stage 3 archaeological assessment.
- No municipally-designated heritage properties are located within the heritage resources LSA.

Traditional Land and Resource Use

- The Project footprint overlaps Treaty Area 13 lands.
- Based on desktop review and engagement with the First Nation and Métis communities and organizations as of 30 September 2015, there is no known Traditional Land Resource Use currently practiced in the resource use LSA or RSA.

9.4 Environmental Issues of Public Concern

The NEB received several submissions from participants that raised particular concerns related to environmental issues. The table below summarizes the topics of concern.

Table 9-2: Environmental Issues Raised By Participants

Participant	Environmental Issue(s) Raised	Addressed in Section
The City of Vaughan	<ul style="list-style-type: none"> • Loss of woodlands within the Vaughan Natural Heritage Network 	Standard Mitigation (9.5.3) 9.5.4.3 Cumulative Effects (9.6)
Conseil de la Nation hurrone-wendat	<ul style="list-style-type: none"> • Impacts to archaeological resources within traditional territory 	Aboriginal Matters (Chapter 5) Standard Mitigation (9.5.3) 9.5.4.5
Environment and Climate Change Canada (ECCC)	<ul style="list-style-type: none"> • Air quality and GHGs • Migratory birds • Western Chorus Frog 	Standard Mitigation (9.5.3) 9.5.4.4

9.5 Environmental Effects Analysis

9.5.1 Interactions and Potential Adverse Environmental Effects

The table below identifies the expected interactions between the Project and the environment, and the potential adverse environmental effects resulting from those interactions.

Table 9-2: Project-Environment Interactions

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation Discussed in:
Bio-Physical	Physical Environment	<ul style="list-style-type: none"> Grading of slopes, trench backfilling, and reclamation activities during construction 	<ul style="list-style-type: none"> Trench instability Terrain instability Altered topography 	Standard Mitigation (9.5.3)
	Soil and Soil Productivity	<ul style="list-style-type: none"> Clearing, topsoil salvage, stripping, grading, trenching and backfilling Road, rail and water crossing construction HDD pull back areas Cleanup and reclamation during construction Integrity digs, if required during operation 	<ul style="list-style-type: none"> Trench instability Trench subsidence Reduction in trench stability at watercourse crossings Less productive soil due to wind and water erosion, topsoil-subsoil admixing, compaction and rutting 	Standard Mitigation (9.5.3)
	Vegetation	<ul style="list-style-type: none"> Clearing during construction Reclamation during construction RoW weed and vegetation control during operation 	<ul style="list-style-type: none"> Loss or alternation of deciduous forest Loss of grassland and cultural meadows Loss of terrestrial ecological land classification (ELC) units Alteration of native species composition Introduction and/or spread of noxious, invasive or non-native plant species 	Standard Mitigation (9.5.3) 9.5.4.3 Cumulative Effects (9.6)

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation Discussed in:
Bio-Physical	Water Quality and Quantity	<ul style="list-style-type: none"> • No interaction with surface water for watercourse crossings constructed by trenchless methods • Trenched watercourse crossing construction where flow is isolated • Construction of temporary vehicle crossings at watercourses • Clearing, trenching, excavation of HDD entry/exit pits, backfilling and dewatering • Water withdrawals for construction activities (hydrostatic testing, dust control) if water not taken from municipal source • Pipe maintenance during operation, including integrity digs 	<ul style="list-style-type: none"> • Alteration of streamflow or natural drainage patterns • Reduction of lateral and/or vertical stability of watercourses • Reduction in surface water quality due to increase in suspended sediment load and sediment deposition • Localized, temporary alteration of groundwater flow during trench construction and dewatering of HDD entry/exit pits 	Standard Mitigation (9.5.3)
	Fish and Fish Habitat	<ul style="list-style-type: none"> • No interaction for watercourse crossings constructed by trenchless methods • Construction of trenched watercourse crossings and temporary vehicle crossings • Clearing, topsoil salvage, stripping, trenching and backfilling • Hydrostatic testing, if water not from municipal source • Integrity digs during operation 	<ul style="list-style-type: none"> • Loss of instream and/or riparian habitat • Reduction in the amount or quality of habitat from increased suspended sediment load and deposition • Fish mortality or injury • Effects as listed above on Redside Dace and its habitat 	Standard Mitigation (9.5.3) 9.5.4.1 9.5.4.2

	Environmental Element	Description of Interaction (or Why No Interaction is Expected)	Potential Adverse Environmental Effect	Mitigation Discussed in:
Bio-Physical	Wetlands	<ul style="list-style-type: none"> • No interaction where wetlands crossed using HDD construction methods • Clearing, topsoil salvage, stripping, grading, trenching, backfilling • Integrity digs, if required during operations 	<ul style="list-style-type: none"> • Loss or alteration of wetland habitat • Introduction of noxious, invasive or non-native plant species • Reduction of wetland hydrological function 	Standard Mitigation (9.5.3)
	Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> • Clearing, topsoil salvage, stripping, trenching and backfilling during construction • Construction vehicle and equipment traffic • vegetation maintenance or integrity digs during operation 	<ul style="list-style-type: none"> • Loss or alteration of wildlife habitat • Reduction in habitat effectiveness as a result of fragmentation, creation of edges, or sensory disturbance • Reduction in abundance and distribution due to harm, harassment, injury or death • Effects as listed above on Western Chorus Frog and its habitat 	Standard Mitigation (9.5.3) 9.5.4.4
	Species at Risk or Species of Special Status and related habitat	<ul style="list-style-type: none"> • Refer to interactions for Fish and Fish Habitat, and Wildlife and Wildlife Habitat 	<ul style="list-style-type: none"> • As listed above under Fish and Fish Habitat, and Wildlife and Wildlife Habitat 	Standard Mitigation (9.5.3) 9.5.4.2 9.5.4.4

Bio-Physical	Atmospheric Environment	<ul style="list-style-type: none"> • Operation of construction equipment for site clearing, stripping, grading, trenching, backfilling and HDD/boring • On-site office trailer heaters • Pipeline inspection and maintenance activities (venting for pressure release; aerial patrols) • Fugitive emissions during operation 	<ul style="list-style-type: none"> • Increase in ambient concentrations of criteria air contaminants (including oxides of nitrogen, sulphur dioxide, carbon monoxide, particulate matter, suspended particulate matter) • Increase in GHG emissions 	Standard Mitigation (9.5.3)
	Acoustic Environment	<ul style="list-style-type: none"> • Ground clearing, grading, trenching, HDD/boring and pipe lowering activities • Large off-road equipment • Smaller construction equipment • Aerial surveys, vehicle and equipment use during operations or maintenance activities 	<ul style="list-style-type: none"> • Increase in noise levels during construction and during pipeline maintenance and inspection activities 	Standard Mitigation (9.5.3)
Socio-Economic	Human Occupancy/Resource Use (including Fisheries)	<ul style="list-style-type: none"> • Site clearing; stripping; grading; trenching; boring road, rail, and water crossings; backfilling; and associated human activity during construction • Pipeline inspection and maintenance during operations 	<ul style="list-style-type: none"> • Change in availability of lands for future development • Change in recreational land use in the TRCA conservation lands and along the Humber Valley Heritage Trail • Temporary change in agricultural activities and land use • Interference with existing power infrastructure 	Standard Mitigation (9.5.3)

Socio-Economic	Heritage Resources	<ul style="list-style-type: none"> • Trenching during construction 	<ul style="list-style-type: none"> • Damage to or loss of previously unidentified archaeological resources or sites. 	Standard Mitigation (9.5.3) 9.5.4.5 Aboriginal Matters (Chapter 5)
	Navigation and Navigation Safety	<ul style="list-style-type: none"> • Pipeline and temporary bridge construction 	<ul style="list-style-type: none"> • Temporary change in access to and along navigable water bodies and in navigation safety 	Standard Mitigation (9.5.3)
	Social and Cultural Well-being	<ul style="list-style-type: none"> • Site clearing, stripping, grading, trenching, road and water crossings and backfilling during construction • Pipeline inspection and maintenance during operation 	<ul style="list-style-type: none"> • Increase in the level of disturbance due to increased traffic and associated increased noise levels • Decrease in social and cultural well-being due to a perceived reduction in water quality and quantity • Decrease in social and cultural well-being due to change in air quality 	Standard Mitigation (9.5.3)
	Human Health/Aesthetics	<ul style="list-style-type: none"> • Site clearing, stripping, grading, trenching, road and water crossings and backfilling during construction • Pipeline inspection and maintenance during operation 	<ul style="list-style-type: none"> • Change in human health due to an increase in traffic accidents resulting from increased traffic • Alteration of visual aesthetics due to construction activities and clearing of RoW 	Standard Mitigation (9.5.3)

Other	Accidents/Malfunctions	<ul style="list-style-type: none"> • Spill or leak of a deleterious substance during construction or operation • Release of drilling fluid during HDD • Pipeline rupture including due to a third-party 	<ul style="list-style-type: none"> • Loss or alteration of soil quality and productivity; vegetation; ground or surface water quality; wetland habitat and wetland function; fish and fish habitat; and wildlife and wildlife habitat. • Increased CAC and GHG emissions 	Standard Mitigation (9.5.3)
	Effects of the Environment on the Project	<ul style="list-style-type: none"> • Severe weather events during construction and operation • Contaminated soils may be encountered and mobilized during construction 	<ul style="list-style-type: none"> • Severe weather events during construction could result in construction delays with further resulting environmental impacts (e.g., on timing windows) • Decrease in pipeline integrity • Reduction in soil quality • Damage to infrastructure 	Standard Mitigation (9.5.3)

9.5.2 Mitigation of Potential Adverse Environmental Effects

In its application, TransCanada has identified routine design and standard mitigation to mitigate most of the potential adverse environmental effects identified in Table 9-3. The details are set out in TransCanada's application and supporting documentation, related submissions, and EPP.

Where there are outstanding issues regarding key environmental elements, or the applicant's proposed mitigation may not be sufficient and additional mitigation may be necessary, then a detailed analysis is presented in subsection 9.5.4.

9.5.3 Standard Mitigation

The NEB recognizes that many adverse environmental effects are resolved through standard mitigation. Standard mitigation refers to a specification or practice that has been developed by industry, or prescribed by a government authority, that has been previously employed successfully and is now considered sufficiently common or routine that it is integrated into the company's management systems and meets the expectations of the NEB.

Views of TransCanada

Among the mitigation strategies to avoid or minimize the effects of the Project, TransCanada is relying in part on selecting a route that parallels existing disturbances to the extent possible, using construction methods that avoid surface disturbance, and scheduling activities to avoid sensitive periods. As examples, TransCanada noted that:

- the Project parallels existing linear disturbances, including transmission lines, a rail line and existing roads, for about 35% of its length.
- by using trenchless construction methods (e.g., HDD) where feasible, effects at watercourse crossings and environmentally sensitive areas will be avoided or minimized. About 2.6 km of the total 11.7 km of pipeline will be constructed using trenchless crossing methods, including at the East Humber River, the Main Humber River, a number of additional watercourse crossings, as well as some wetlands and woodlands.
- construction activities will be scheduled to avoid sensitive timing windows for migratory birds, fish and fish habitat, and species at risk. Where this is not possible, TransCanada has identified additional mitigation measures which it has committed to implement.

TransCanada has proposed standard mitigation to avoid or minimize potential adverse environmental effects on the terrain and topography of the area, soils, native vegetation, water quality and quantity, fish and fish habitat, wetlands, wildlife and wildlife habitat, species at risk and species of special status, atmospheric and acoustic environments, navigation and navigation safety, and human receptors (as identified in Table 9-3).

TransCanada will construct watercourse crossings in accordance with the applicable Department of Fisheries and Oceans Canada *Measures to Avoid Causing Harm to Fish and Fish Habitat* along with other Project-specific mitigation measures as recommended by the MNRF and TRCA.

TransCanada will implement the management and contingency plans included in its EPP. This includes management plans for chemicals and waste; traffic control; and hydrovac slurry handling. Contingency plans include plans for spills; adverse weather; flood and excessive flow; wet soils; fire suppression; soil handling; soil erosion; directional drilling procedures and instream drilling mud release; and discovery contingency plans for plant and ecological communities of concern, wildlife species of concern, heritage resources, and traditional land use sites.

Views of the Board

The Board is of the view that TransCanada has committed to sufficient and appropriate routine design and standard mitigation measures to mitigate most of the potential adverse environmental effects identified.

To confirm that all general and site-specific mitigation measures are appropriate and will be implemented according to their intent, the Board includes the conditions below. The Board notes that some Participants proposed additional conditions for the Project; all comments received were considered by the Board before finalizing and setting out the terms and conditions of its approval.

EPP

The Board notes that TransCanada provided a Project-specific draft EPP and alignment sheets with its application, subsequently filed updates of them in TransCanada's additional written evidence, and committed to providing the Board with final and updated versions prior to construction.

The Board has decided to impose Condition 6, requiring TransCanada to file an updated, Project-specific EPP to ensure that any additional mitigation, as agreed to through consultation or as a result of permits issued by other agencies, is included in the EPP, and to communicate all environmental protection procedures and mitigation measures to employees, contractors and regulators. Updated Environmental Alignment Sheets are to be included with the EPP, along with updated construction drawings, or evidence that the drawings have been reviewed or show current construction practices. The EPP will also include an updated Heritage Resources Discovery Contingency Plan reflecting the archaeological commitments made during the hearing process, including the commitment to continue working with an independent, qualified archaeologist, and any additional commitments made during ongoing engagement with Aboriginal groups. TransCanada must file the updated EPP 30 days prior to commencement of construction, including clearing, in order to allow sufficient time for an effective review.

Post-Construction Monitoring Reports

The Board notes that TransCanada proposes to begin post-construction environmental monitoring during the first full growing season after final clean-up, and to prepare post-construction monitoring reports after the first, third and fifth years of monitoring.

TransCanada would inspect RoW conditions to assess the effects of construction and the effectiveness of mitigation and reclamation measures. TransCanada would monitor potential environmental issues related to reclamation, revegetation, erosion, watercourse crossings and wetland functions. The reports would document all environmental issues identified during inspections, and construction and post-construction monitoring, their status and any need for further monitoring or corrective action measures to resolve outstanding issues.

Where remedial measures are required, TransCanada stated that further consultation with landowners and appropriate regulatory agencies may be warranted.

To be satisfied that monitoring is thorough and effective, and that reports are prepared and submitted, the Board imposes Condition 17.

9.5.4 Detailed Analysis of Key Environmental Issues

This sub-section provides a more detailed analysis of five issues that were either raised by Participants or are of environmental consequence, and which may require additional mitigation by way of Board conditions. Table 9-4 specifies the definitions for criteria used in evaluating the significance of residual effects.

Table 9-3: Criteria, Ratings and Definitions Used in Evaluating the Likelihood of Significant Effects

Criteria	Rating	Definition
All criteria	Uncertain	When no other criteria rating descriptor is applicable due to either lack of information or inability to predict.
Temporal Extent	Short-term	An effect, either resulting from a single project interaction or from infrequent multiple ones, whose total duration is usually relatively short-term and limited to or less than the duration of construction, or one that usually recovers immediately after construction. An effect usually lasting in the order of weeks or months.
	Medium-term	An effect, either resulting from a single or infrequent project interaction or from multiple project interactions each of short duration and whose total duration may not be long-term but for which the resulting effect may last in the order of months or years.

Criteria	Rating	Definition
	Long-term	An effect, either resulting from a single project interaction of long lasting effect; or from multiple project interactions each of short duration but whose total results in a long lasting effect; or from continuous interaction throughout the life of the project. An effect usually lasting in the order of years or decades.
Reversibility	Reversible	An effect expected to, at a minimum, return to baseline conditions within the lifecycle of the Project.
	Permanent	An effect that would persist beyond the lifecycle of the Project, or last in the order of decades or generations. Some social or cultural effects that persist beyond a single generation may become permanent.
Geographic Extent	Project footprint	Effect would be limited to the area directly disturbed by the Project development, including the width of the RoW and the TWS.
	Local Study Area (LSA)	Effect would generally be limited to the area in relation to the Project where direct interaction with the biophysical and human environment could occur as a result of construction or reclamation activities. This area varies relative to the receptor being considered (e.g. Wildlife and wildlife habitat LSA - 1 km wide corridor centred on the pipeline.)
	Regional Study Area (RSA)	Effect would be recognized in the area beyond the LSA that might be affected on the landscape level. This area also varies relative to the receptor being considered (e.g. Aquatic RSA - fully encompasses the aquatic resources LSA, the Humber River watershed, Mimico Creek watershed, and the northwest portion of the Etobicoke Creek watershed, which includes the Etobicoke Headwaters, Spring Creek and Etobicoke West Branch sub-watersheds).
Magnitude	Low	Effect is negligible, if any; restricted to a few individuals/species or only slightly affects the resource or parties involved; and would impact quality of life for some, but individuals commonly adapt or become habituated, and the effect is widely accepted by society.

Criteria	Rating	Definition
	Moderate	Effect would impact many individuals/species or noticeably affect the resource or parties involved; is detectable but below environmental, regulatory or social standards or tolerance; and would impact quality of life but the effect is normally accepted by society.
	High	Effect would affect numerous individuals or affect the resource or parties involved in a substantial manner; is beyond environmental, regulatory or social standards or tolerance; and would impact quality of life, result in lasting stress and is generally not accepted by society.
Evaluation of Significance	Likely to be significant	Effects that are either: (1) of high magnitude; or (2) long-term, permanent, and of regional geographic extent.
	Not likely to be significant	Any adverse effect that does not meet the above criteria for “significant”.

9.5.4.1 Watercourse Crossings

Background/Issues	<p>Construction and operation of the Project at watercourse crossings may result in potential adverse effects to surface water and fish and fish habitat, as described in Table 9-3.</p> <p>The Project will include 38 watercourse crossings, of which 28 are either confirmed or are likely to provide fish habitat. Trenchless pipeline crossing methods (HDD) would be used at seven of the watercourses with fish habitat. This includes the Main Humber and East Humber rivers, and an unnamed tributary to the Main Humber River (all identified as high quality fish habitat), and four unnamed tributaries to Rainbow Creek (identified as moderate quality fish habitat). The remaining pipeline watercourse crossings containing fish habitat would be constructed using an open cut method (if dry or frozen) or an isolated method (if flowing water present). Five watercourse crossings where fish or fish habitat is present would be bridge crossings for access.</p> <p>TransCanada has not identified contingency watercourse crossing methods, but stated that prior to construction, a detailed watercourse crossing and contingency plan for each proposed HDD installation site will be prepared to address the possibility that the HDD installations are unsuccessful.</p>
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	<p>Pursuant to the Memorandum of Understanding between the Board and Department of Fisheries and Oceans (DFO), the Board reviews Project activities and refers to DFO any works that will likely result in serious harm to fish or fish habitat, and therefore require authorization under paragraph 35(2)(b) of the <i>Fisheries Act</i>. TransCanada used DFO’s Self-Assessment Process and determined that all watercourse crossings would avoid serious harm, and authorizations under the <i>Fisheries Act</i> would not be required.</p> <p>There are multiple restricted activity periods (RAPs) for the watercourses crossed by the Project, depending on whether the fish species present are spring or fall spawners. RAPs are one of the applicable DFO <i>Measures to Avoid Causing Harm to Fish and Fish Habitat</i>. (DFO <i>Measures</i>)</p>
<p>Proposed Mitigation</p>	<p>TransCanada determined watercourse crossing methods following the guidance provided in the Canadian Association of Petroleum Producers’ <i>Pipeline Associated Water Crossings</i>. TransCanada has proposed standard mitigation to mitigate potential impacts that may result at watercourse crossings, including from trenchless and isolated crossing construction, temporary equipment crossings, clearing, restoration of riparian habitat, bank stabilization, and sedimentation. TransCanada also committed to obtaining applicable permits from the MNRF and TRCA and following conditions of those permits.</p> <p>TransCanada stated that it would implement applicable DFO <i>Measures</i> along with other Project-specific mitigation measures as a means of minimizing Project-related impacts to fish and fish habitat. Such measures will include those identified for the protection of fish and fish habitat through consultation with the MNRF and the TRCA through the TRCA’s permitting process. Where isolated or open cut crossings will be constructed, TransCanada committed to working outside of RAPs identified by the MNRF, unless approval for an extension or exemption is obtained.</p>
<p>Proposed Monitoring</p>	<p>TransCanada stated that it will develop and implement water quality monitoring plans to monitor for sediment events during instream construction activities, where required by applicable regulatory approvals. TransCanada will monitor for sediment events during HDD activities.</p> <p>TransCanada also stated that it will undertake post-construction inspection and monitoring at watercourse crossings. The riparian area, banks and approach slopes at watercourse crossings will be inspected for stability, erosion, vegetation establishment and presence of invasive species.</p>

<p>Views of the Board</p>	<p>In the event that there are any changes to the proposed crossing sites, site-specific crossing methods or timing, and to ensure that mitigation measures are appropriate for each site, the Board imposes Condition 4 requiring TransCanada to finalize watercourse crossing site-specific information prior to construction. Where applicable DFO <i>Measures</i> will not be implemented for the proposed primary crossing method, the condition specifies additional information that must be provided, to enable the Board to assess the need for a <i>Fisheries Act</i> authorization.</p> <p>Where TransCanada would employ a contingency crossing method instead of its proposed primary method, the Board imposes Condition 8, requiring TransCanada to file additional information with the Board prior to commencing construction of the contingency crossing. Where applicable DFO <i>Measures</i> will not be implemented, the Board will assess the need for a <i>Fisheries Act</i> authorization.</p> <p>Finally, the Board imposes Condition 13 requiring TransCanada to file a copy of any Authorizations issued by DFO under paragraph 35(2)(b) of the <i>Fisheries Act</i>. The Board notes that, where a <i>Fisheries Act</i> authorization is required, TransCanada will be required to offset serious harm.</p> <p>With the addition of these conditions, the Board is of the view that serious harm to fish and fish habitat is not likely to occur, and adverse effects to the environment from construction and operation of the pipeline at watercourse crossings are not likely to be significant.</p>																
<p>Evaluation of Significance of Residual Effects</p>	<table border="1"> <thead> <tr> <th data-bbox="477 1136 716 1245">Temporal Extent</th> <th data-bbox="716 1136 943 1245">Reversibility</th> <th data-bbox="943 1136 1203 1245">Geographical Extent</th> <th data-bbox="1203 1136 1424 1245">Magnitude</th> </tr> </thead> <tbody> <tr> <td data-bbox="477 1245 716 1314">Short-term</td> <td data-bbox="716 1245 943 1314">Reversible</td> <td data-bbox="943 1245 1203 1314">LSA</td> <td data-bbox="1203 1245 1424 1314">Low</td> </tr> <tr> <td colspan="4" data-bbox="477 1314 1424 1383">Adverse Effect</td> </tr> <tr> <td colspan="4" data-bbox="477 1383 1424 1442">Not likely to be significant</td> </tr> </tbody> </table>	Temporal Extent	Reversibility	Geographical Extent	Magnitude	Short-term	Reversible	LSA	Low	Adverse Effect				Not likely to be significant			
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9.5.4.2 Aquatic Species at Risk – Redside Dace

<p>Background/Issues</p>	<p>Redside Dace is a coolwater fish species that occurs primarily in headwaters streams with slow-moving, clear water. Redside Dace is designated Endangered in Ontario and by COSEWIC, and activities that cause removal of riparian vegetation or that increase siltation into the stream are a threat to species survival.</p> <p>MNRF has identified only the East Humber River as occupied Redside Dace habitat, but indicated that several other watercourses between KP 9 and KP 11.7 may provide contributing habitat. Areas of contributing habitat have not been confirmed by MNRF.</p> <p>The MNRF has a specific Restricted Activity Period (RAP) for Redside Dace of September 15 through June 30, which would apply to both occupied and contributing habitat. An application to amend the prescribed RAPs (e.g., extend the period during which in-water work is permitted) may be granted by the MNRF under specific circumstances. The TRCA may alter a prescribed RAP during application for permitting under Ontario Regulation 166/06, in consultation with the MNRF.</p>
<p>Proposed Mitigation</p>	<p>A trenchless crossing method would be used at the East Humber River.</p> <p>TransCanada stated that construction will be scheduled to avoid the designated RAP for Redside Dace (September 15th to June 30th), where possible. If construction is planned to occur within the RAP for Redside Dace, MNRF will require additional information related to timing, duration and restoration in order to provide further guidance for reducing impacts. TransCanada will work with MNRF to develop appropriate mitigation strategies in areas considered contributing habitat for Redside Dace</p> <p>TransCanada stated that it will continue to consult with the MNRF and update the EPP as appropriate prior to construction if additional mitigation measures are identified.</p>
<p>Proposed Monitoring</p>	<p>TransCanada will develop and implement water quality monitoring plans to monitor for sediment events during instream construction activities, where required by applicable regulatory approvals. TransCanada will monitor for sediment events during HDD activities.</p> <p>TransCanada will undertake post-construction inspection and monitoring at watercourse crossings. The riparian area, banks and approach slopes at watercourse crossings will be inspected for stability, erosion, vegetation establishment and presence of invasive species.</p>

<p>Views of the Board</p>	<p>The Board notes that TransCanada indicated that, when construction details have been determined, MNRF would like to meet with TransCanada to further discuss specific watercourse crossing methodologies and mitigation measures for species at risk. The Board expects TransCanada to fulfill this responsibility.</p> <p>With the mitigation proposed by TransCanada, the Board’s Conditions 4, 8 and 13 as described in 9.5.4.1, and the oversight of the MNRF and TRCA, including any permits or authorizations issued by those agencies with respect to watercourses containing Redside Dace or its habitat, the Board is of the view that serious harm to Redside Dace or its habitat is not likely to occur, and that any adverse effects to Redside Dace are not likely to be significant.</p>																
<p>Evaluation of Significance of Residual Effects</p>	<table border="1"> <thead> <tr> <th data-bbox="475 705 716 814">Temporal Extent</th> <th data-bbox="716 705 943 814">Reversibility</th> <th data-bbox="943 705 1203 814">Geographical Extent</th> <th data-bbox="1203 705 1432 814">Magnitude</th> </tr> </thead> <tbody> <tr> <td data-bbox="475 814 716 877">Short-term</td> <td data-bbox="716 814 943 877">Reversible</td> <td data-bbox="943 814 1203 877">LSA</td> <td data-bbox="1203 814 1432 877">Low</td> </tr> <tr> <td colspan="4" data-bbox="475 877 1432 951">Adverse Effect</td> </tr> <tr> <td colspan="4" data-bbox="475 951 1432 999">Not likely to be significant</td> </tr> </tbody> </table>	Temporal Extent	Reversibility	Geographical Extent	Magnitude	Short-term	Reversible	LSA	Low	Adverse Effect				Not likely to be significant			
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9.5.4.3 Woodlands - City of Vaughan Natural Heritage Network

<p>Background/Issues and Views of the Parties</p>	<p>The City of Vaughan expressed concern for the loss of woodlands within the Vaughan Natural Heritage Network. The City of Vaughan’s Official Plan (2010) reflects its natural heritage protection policies, which include protecting woodlands by maintaining woodland cover and reversing the trend of woodland loss that has occurred in the past.</p> <p><i>Views of City of Vaughan</i></p> <p>The City of Vaughan requested that TransCanada quantify the disturbance and provide habitat replacement or compensation for any permanent loss of woodlands.</p> <p>While the City of Vaughan indicated in its Final Written Argument that it did not consider the issue resolved, it stated that TransCanada, Vaughan and the TRCA are collaborating to identify the appropriate compensation for impacts to woodlands including the protection zones around woodlands as defined in the Official Plan. The City of Vaughan further stated that it anticipates that the parties will reach agreement for negative impacts to the Natural Heritage Network by the Project well before construction commences. The City of Vaughan requested that the Board</p>
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	<p>impose a condition that TransCanada notify the Board that the parties have reached an agreement within 10 business days of such agreement.</p> <p><i>TransCanada Reply</i></p> <p>In response to the City of Vaughan’s request, TransCanada provided it with quantitative data, including the areas of woodland and associated protection zone that would be removed. TransCanada continued to consult with the City of Vaughan in late May and early June 2016 on the compensation approach. Once site specific details become available (i.e., tree inventories), the appropriate site specific compensation details will be discussed with the City of Vaughan and TRCA.</p> <p>TransCanada has committed to restoring the trees removed from the four woodlands identified by the City of Vaughan. TransCanada stated that it is taking tree inventories and valuations on both TRCA and private lands and has committed to continue consulting with the City of Vaughan and the TRCA to determine the final requirements for tree compensation for the Project. TransCanada submitted that the condition requested by the City of Vaughan is not necessary.</p>
<p>Proposed Mitigation</p>	<p>TransCanada noted that some woodland areas are avoided by the use of trenchless construction methods. TransCanada has committed to restoring or compensating for woodland habitat that would otherwise be permanently lost due to the Project. TransCanada proposed that where woodland compensation (i.e., tree replanting) is not addressed through existing TRCA permitting processes, TransCanada will work with the landowner to identify appropriate compensation measures. Where the landowner does not want compensation in the form of tree restoration on that property, TransCanada will work with the TRCA to identify appropriate areas(s) to accept compatible tree replanting.</p>
<p>Views of the Board</p>	<p>The Board is encouraged by the progress being made on the issue of restoration of, or compensation for, lost woodland habitat, and is satisfied that the parties are collaborating in good faith, and will come to an agreement in a timely manner. As the Board generally also finds it best to let parties come to their own agreements whenever possible, the Board therefore does not find it appropriate to impose a condition requiring TransCanada to provide notification that an agreement has been reached. However, the Board does expect all mitigation measures related to potential woodland loss, including any compensatory measures, to be included by TransCanada in its final EPP to be filed with the Board for approval as set out in Condition 6.</p> <p>With the successful completion of the restoration or compensation agreement, the Board is of the view that there would be no permanent loss</p>

	of woodland habitat within the City of Vaughan's Natural Heritage Network as a result of the Project.			
Evaluation of Significance of Residual Effects	Temporal Extent	Reversibility	Geographical Extent	Magnitude
	Medium- to Long-term	Reversible	Project footprint	Low
	Adverse Effect			
	Not likely to be significant			

9.5.4.4 Wildlife Species at Risk - Western Chorus Frog

Background/Issues	<p>The Project occurs in an area which the December 2015 Recovery Strategy broadly identifies as containing critical habitat for Western Chorus Frog. Critical habitat is the habitat necessary for the survival or recovery of the species. TransCanada's Project-specific field surveys confirmed the presence of Western Chorus Frog in the LSA and the presence of suitable habitat within the Project footprint. The exact location of critical habitat in relation to the Project footprint has not been confirmed.</p> <p>In response to a request from ECCC, TransCanada provided ECCC with GIS files on 6 June 2016, identifying areas of species occurrence as well as areas of suitable habitat based on biophysical attributes identified in TransCanada's field surveys. ECCC will use this data to confirm specific areas of suitable habitat, and then identify any areas of critical habitat based on habitat occupancy and habitat suitability criteria.</p> <p>Once it has determined the exact location of suitable and critical habitat, ECCC recommended that TransCanada consult with ECCC for additional advice, which TransCanada committed to do. Any additional mitigation identified through consultation with ECCC will be incorporated into the final EPP that will be filed with the Board prior to construction.</p> <p>Sensitive periods for the Western Chorus Frog are the hibernation period (October 1 to March 15) and the breeding period (March 15 to June 7); however, individuals may be present within suitable habitat year-round.</p>
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	<p>Potential effects to Western Chorus Frog include:</p> <ul style="list-style-type: none"> • loss or alteration of available habitat as a result of vegetation clearing (direct impacts) and habitat avoidance or reduced effectiveness due to sensory disturbance (indirect impacts); • decreased abundance and distribution, as a result of direct mortality due to site clearing activities, vehicles and heavy equipment use; or as a result of reduced survival and reproductive success due to sensory disturbance.
<p>Proposed Mitigation</p>	<p>TransCanada stated that it has routed the pipeline to avoid and minimize potential interactions with wetlands and that it will avoid potential effects on amphibian habitat in all three areas of the pipeline route where trenchless construction methods will be employed.</p> <p>In its application and subsequent filings, TransCanada provided standard mitigation for wildlife species and wildlife species at risk as well as wetlands. TransCanada stated that it will continue to work with the TRCA regarding permitting requirements for working in wetlands. Any additional mitigation agreed upon through consultation with provincial and federal agencies will be incorporated into the final EPP which will be provided to the Board prior to construction.</p> <p>For areas where the pipeline cannot avoid potential Western Chorus Frog habitat, TransCanada proposed the following specific mitigation measures:</p> <ul style="list-style-type: none"> • Construction and clean-up activities in Western Chorus Frog habitat will occur outside of the breeding and hibernation periods, where feasible. • Where construction is scheduled between March 15 and June 7 (breeding period): <ul style="list-style-type: none"> ○ Pre-construction surveys will be conducted to look for any evidence of spawning including eggs, tadpoles or juveniles. ○ Exclusion fences and other acceptable methods (i.e., pitfall trap arrays) will be installed. Captured specimens will be transferred outside of the exclusion fence. • Where construction and clean-up activities occur during the October 1 to March 15 hibernation period and an individual is encountered during construction, the Wildlife Species of Concern Discovery Contingency Plan will be implemented.

	<ul style="list-style-type: none"> • Any activities within the remainder of the active season of June 7 to September 30 will involve frog exclusion and removal in advance of disturbance. <p>TransCanada noted that these mitigation measures may help to avoid impacts to potential critical habitat.</p>
<p>Proposed Monitoring</p>	<p>As part of the post-construction monitoring program for the Project, TransCanada will monitor the natural recovery of the wetlands. Wetland function observed along the reclaimed RoW will be compared to the wetland function determined for the baseline conditions or observed either adjacent to or in close proximity to the RoW. The comparison will be used to measure the effectiveness and efficiency of mitigation and remedial measures and provide support for the determination of loss or “no net loss” of wetland functions.</p> <p>TransCanada stated that the availability of Western Chorus Frog habitat will be re-established and monitored through the post-construction monitoring program, which is developed around the goal of reclaiming lands to equivalent land capability.</p>
<p>Views of the Parties</p>	<p>TransCanada stated that the Project is expected to result in the alteration of 3.32 ha of wetland habitat suitable for use by Western Chorus Frog, about 1.92% of the habitat available in the terrestrial LSA. TransCanada said that wetland habitat disturbed by the Project will be quickly re-established following construction. TransCanada does not expect that there will be overall net loss of habitat available for Western Chorus Frog as a result of the Project.</p> <p>In its Letter of Comment, ECCC expressed concern for the Western Chorus Frog, and provided several recommendations.</p> <p><u>Effects on Critical Habitat</u></p> <p>ECCC noted that as a result of the variety of habitat types found within critical habitat, it will be difficult or impossible to recreate or restore the function of critical habitat, and therefore avoiding damage or destruction of critical habitat is the best approach to reducing the impact of the Project on Western Chorus Frog critical habitat.</p> <p>While TransCanada acknowledged that avoiding critical habitat is the best approach, given the current stage of Project planning, and the various routing constraints in the Project area, if critical habitat for Western Chorus Frog is identified by ECCC along the proposed route TransCanada stated that it may not be possible to completely avoid that habitat.</p>

Effects on Individuals and Residences

ECCC stated that TransCanada's proposed measures to detect and exclude individual frogs and their residences (i.e., breeding and hibernation sites) from areas where construction activities occur have been found to be harmful to more individuals and residences than are located or excluded. TransCanada stated that its proposed method for amphibian detection and exclusion is practiced industry-wide, and that the method is included in a MNRF best practices publication.

ECCC recommended that if work must be undertaken within areas where Western Chorus Frog individuals occur, rather than using a detection and exclusion approach, the activities should only occur outside a 300 m radius from any pond occupied by the species. ECCC further recommended that work should be conducted only *during the breeding period* while frogs are restricted to the pond and would therefore be avoided. TransCanada stated that it may not be feasible to avoid activities within 300 metres of all ponds occupied by Western Chorus Frog, due to the relatively short length of the pipeline route and the various routing constraints in the area. TransCanada noted that its proposed mitigation measures include scheduling construction activities *outside of the breeding period* where feasible, in contrast to ECCC's recommendation. TransCanada stated that limiting construction activities to the frog breeding period would provide for only about three months of construction per year, which could prevent the Project from meeting its in-service date and obligations to other stakeholders.

TransCanada further stated that it will continue to work with ECCC to better understand the application of ECCC's recommendations, and to identify and adopt the best solution amongst alternatives that would reduce potential impacts to the Western Chorus Frog and potential critical habitat.

Views of the Board

The Board notes that the Project is located in an area with considerable ongoing and planned future development, and that the current landscape is fragmented and dominated by agricultural land uses. Given this ecological context, the Western Chorus Frog's SARA Schedule 1 designation and the potential presence of critical habitat, the Board finds that the most appropriate context for discussion of effects to Western Chorus Frog is in terms of cumulative effects.

The Board is of the view that existing total cumulative effects to Western Chorus Frog are already of high magnitude, and therefore significant, as a result of past and present activities in the region. The Board finds that the Project as proposed may contribute additional residual adverse effects to the species or its habitat, and that there is potential for effects to critical habitat.

Due to the uncertainty around the exact location of critical habitat, and the extent to which it may overlap with the Project footprint, the Board imposes Condition 5, requiring TransCanada to submit a Western Chorus Frog Mitigation and Habitat Restoration Plan (Plan) prior to construction, where critical habitat has been confirmed. The condition specifies the information to be included in the Plan, including additional measures to avoid or reduce the amount of critical habitat encountered, and details of how mitigation and habitat restoration success will be measured through post-construction monitoring. The Board expects TransCanada to consider all possible alternatives that would avoid or reduce impacts to critical habitat (e.g., narrowing the RoW, micro-routing, use of trenchless construction methods).

The Board notes the evolving nature of this issue, given the relatively recent release of the Recovery Strategy for Western Chorus Frog in December 2015, and the uncertainty around the identification of critical habitat; the Board therefore expects TransCanada's filing for Condition 5 to be detailed and thorough.

Condition 6 specifies that TransCanada must incorporate all Project-specific mitigation for Western Chorus Frog in its updated EPP and environmental alignment sheets. This will ensure that any additional mitigation relevant to Western Chorus Frog or its habitat as a result of ongoing consultation and permitting is included. Where a Plan is filed under Condition 5, the EPP may reference this separate Plan but the environmental alignment sheets must be updated to include mitigation measures contained in the Plan.

The Board notes that ECCC has made recommendations for spatial as well as temporal avoidance of Western Chorus Frog and its habitat, regardless of whether the habitat has been determined to be critical

habitat, and that TransCanada stated it may not be able to implement ECCC's recommendations fully. However, once ECCC has confirmed the location of both suitable and critical habitat, and following further consultation with ECCC, the Board is of the view that TransCanada can elaborate on and specify the extent to which it can implement ECCC's recommendations. As part of its filing for Condition 5 or 6 (as appropriate), the Board requires TransCanada to include a detailed construction schedule that indicates the timing of construction for different stretches of the RoW, depending on land use and confirmed habitat status, and which demonstrates how TransCanada will avoid or minimize construction impacts during the breeding periods.

The Board notes the conflicting views of the parties on the effectiveness of exclusion fencing, and finds that it would be helpful if TransCanada could obtain relevant information (for example, references or evidence) from ECCC to help resolve this issue. The Board notes that, if implemented, TransCanada's proposed methods to detect and transfer individual frogs away from the construction zone would require monitoring during construction activities; the Board expects details of the method(s) used for detection and removal to be included in the filing for Condition 5 or 6, as appropriate.

Condition 17 requires TransCanada to include monitoring for Western Chorus Frog as part of its post-construction monitoring program for species at risk, and to report on any issues specific to this species.

With the addition of Condition 5, the Board is of the view that, should the Project interact with critical habitat for Western Chorus Frog, any impact to critical habitat will be reduced to the greatest extent feasible, by ensuring that all reasonable alternatives to Project activities have been considered and the best solution has been adopted, that all feasible measures will be taken to minimize impacts of the activities, and that monitoring will occur.

With the standard and site-specific mitigation committed to by TransCanada along with TransCanada's commitment to continued consultation with ECCC and provincial agencies, and the Board's Conditions 5, 6 and 17, the Board is of the view that potential impacts to Western Chorus Frog can be mitigated to the degree that existing cumulative effects are not likely to change as a result of the Project.

9.5.4.5 Heritage/Archaeological Resources

Background/Issues and Views of the Parties	<p>The Project area is predominately privately-owned land which is urbanized or used for agricultural purposes. TransCanada has completed a number of archaeological studies for the Project, all of which have followed provincial guidance and requirements. The archaeological potential within the Project area was assessed by TransCanada's consultant Golder as well as the Toronto and Region Conservation Authority (TRCA) first through Stage 1 archaeological assessments and then through Stage 2 archaeological surveys. TransCanada stated that monitors from the Conseil de la Nation huronne-wendat, MNCFN, and Six Nations of the Grand River participated in Stage 2 archaeology assessment field work for the Project lands.</p> <p>TransCanada further stated that Stage 2 archaeology assessment field work for the Project lands did not reveal any sites of First Nation origin that required additional archaeological assessment. Based on these results, it has been the professional opinion of the archaeologists working on the project for both TRCA and non-TRCA lands that none of the finds warrant a Stage 3 archaeological assessment. The Conseil de la Nation huronne-wendat indicated that within approximately the western portion of the Corporation of the City of Vaughan there are twelve recognized Huron-Wendat archaeological sites and that there is extensive Huron-Wendat archaeological heritage in proximity to the pipeline proposed by TransCanada. The Conseil de la Nation huronne-wendat stated they believe that there is a strong possibility that new Huron-Wendat sites and possibly burial sites will be discovered, given their intensive historical occupation of this region and the scope of the Project.</p> <p>The Conseil de la Nation huronne-wendat stated that where a Huron-Wendat village site is located there is often an ossuary within a 1,000-metre radius. The Conseil de la Nation huronne-wendat expressed concern that the current laws governing archaeological assessments are insufficient to protect Huron-Wendat archaeological sites. The Conseil de la Nation huronne-wendat also expressed concern about potential Project impacts on ossuaries. The Conseil de la Nation huronne-wendat submitted that ossuaries can be located at depths starting at anywhere from 20 to 130 centimetres below subsoil and that their total depth can range from anywhere between one to two metres, whereas in Ontario a Stage 2 archaeological assessment requires an archaeologist to go only five centimetres into the subsoil.</p>
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<p>Proposed Mitigation (by TransCanada)</p>	<p>TransCanada recognized the potential for previously unidentified archaeological as well as historical and palaeontological resources to be discovered during construction of the project. If new sites are discovered during construction, the sites will be assessed and appropriate mitigative measures will be applied pursuant to TransCanada’s Heritage Resource Discovery Contingency Plan, which is included in the EPP.</p> <p>TransCanada submitted that the Heritage Resource Discovery Contingency Plan provides appropriate guidance in the unlikely event of a heritage resource discovery during construction. TransCanada states that if archaeological, palaeontological, historical or traditional land use sites or resources are discovered during construction of the Project, the sites will be assessed and appropriate mitigative measures will be determined through the measures in the Heritage Resource Discovery Contingency Plan.</p> <p>TransCanada stated that in response to the Conseil de la Nation huronne-wendat’s concerns about potential Project impacts on ossuaries, it provided an amended Heritage Resource Discovery Contingency Plan for the Project. The company stated that where a discovery is made and deemed to be of First Nation origin, the amended Heritage Resources Discovery Contingency Plan measures include notifying the appropriate Aboriginal group(s) and working with them and the responsible provincial authorities on mitigation measures. TransCanada stated that it committed to working with the Conseil de la Nation huronne-wendat, in conjunction with applicable regulatory agencies, on appropriate mitigation measures should an archaeological site be determined to be of Huron-Wendat origin.</p> <p>If a potential heritage or archaeological resource is discovered TransCanada stated that it will suspend work immediately, impose a 10 metre buffer around the location of the discovery, and notify the Environmental Inspector who will provide an initial assessment of possible archaeological, palaeontological and historical remains. Work at the discovery location may not resume until the measures in the Heritage Resource Discovery Contingency Plan are undertaken. This is consistent with the avoidance and protection strategies found in the MTCS, 2011 Standards and Guidelines for Licensed Archaeologists The company submitted that a 10 metre buffer is a minimum and would be expanded if recommended by the Archaeological or Heritage Resources Specialist, or the applicable regulatory authorities. TransCanada emphasized that construction activities will not commence in that area until the decision on the appropriate buffer has been made.</p>
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	<p>TransCanada stated that on-site construction personnel will be provided an environmental orientation which includes discussion of heritage resources potential and the Heritage Resources Discovery Contingency Plan so that the construction personnel can recognize possible archaeological sites during construction. In addition, TransCanada’s Environmental Inspectors that will be on-site during construction will have the training necessary to be able to identify potential archaeological sites and will be there to assist in the identification of potential archaeological resources.</p> <p>TransCanada has been working with an independent, qualified archaeologist in accordance with provincial regulations, has followed archaeological recommendations, and has committed to continuing to do so in the future. TransCanada stated that the archaeological studies conducted in compliance with the Ministry of Tourism, Culture and Sport (MTCS) standards and guidelines, in combination with TransCanada’s Heritage Resource Discovery Contingency Plan, are reasonable and sufficient for identifying and protecting First Nation archaeological resources in Ontario.</p>
<p>Proposed Mitigation (by the Conseil de la Nation huronne-wendat</p>	<p>The Conseil de la Nation huronne-wendat recommended two conditions related to the Project’s construction activity. The first condition is that an archaeologist be present to monitor construction and immediately halt construction upon the discovery of an archaeological site. The second condition is that an Aboriginal monitor from their community be present during construction both to assist in detecting cultural archaeological features that are unique to the Huron-Wendat and to ensure that the Huron-Wendat are able to meet their own sacred responsibility to guard and protect their ancestors.</p> <p>The Conseil de la Nation huronne-wendat stated that if the Board is going to allow TransCanada to rely on its Heritage Resource Discovery Contingency Plan, that TransCanada be required to increase its buffer zone on potential archaeological resources to 50 metres.</p>
<p>Views of the Board</p>	<p>The Board imposes Condition 9, requiring TransCanada to file confirmation that TransCanada has obtained a compliance letter from the Ontario Ministry of Tourism, Culture and Sport confirming that all applicable provincial requirements have been met, at least 30 days prior to the commencement of construction on any particular parcel of land. TransCanada also must file a statement on how TransCanada intends to implement any comments or recommendations contained in the compliance letter.</p> <p>The Board notes the concerns from the Conseil de la Nation huronne-wendat. The Board has decided to require TransCanada to file a plan</p>

describing participation by Aboriginal groups in monitoring activities during construction for archaeological resources (see Aboriginal Matters Chapter for details).

The Board has also decided to require TransCanada to provide an updated Heritage Resources Discovery Contingency Plan that reflects all archaeology related commitments made during the hearing process and any additional commitments made during ongoing engagement with Aboriginal groups. The Board notes the participation of Aboriginal monitors from the Huron-Wendat Nation in the Stage 2 archaeological surveys and the modifications by TransCanada to the Heritage Resource Discovery Contingency Plan regarding discoveries of human remains. The Board further notes TransCanada's commitment to continuing to engage with the Conseil de la Nation huronne-wendat regarding all aspects of the Project, including the Heritage Resource Discovery Contingency Plan. If ongoing consultation results in the need for further modifications to the Heritage Resource Discovery Contingency Plan, these changes will be included in the final EPP submitted to the Board prior to construction.

The Board notes the request from the Conseil de la Nation huronne-wendat that TransCanada increase its buffer zone to 50 metres. The Board also notes that the 10 metre buffer would be expanded if recommended by an Archaeologist or Heritage Resources Specialist, or the applicable regulatory authorities. The Board is satisfied that the 10 metre buffer is appropriate.

The Board notes TransCanada's commitments for training staff on heritage resources, archaeological potential and the Heritage Resources Contingency Discovery Plan. The Board expects that any Aboriginal monitors would also be offered an opportunity to receive this training. The Board expects a qualified archaeologist to participate in the development and delivery of this training. The Board also expects that all commitments, including those pertaining to archaeology, be included in the Commitment Tracking Table, as required by Condition 7.

Based on the archaeological studies conducted to date, the lack of any known archaeological sites along the Project route, the existing provincial approval process for heritage resources, the mitigation measures that TransCanada has committed to implementing in the event an archaeological site is identified during construction, and the conditions imposed by the Board (for example, Condition 10 – Aboriginal Monitor, Condition 6 – EPP, Condition 9 – Heritage and Archaeological Resources), the Board is of the view that the Project is not likely to result in any significant adverse effects on heritage resources.

Evaluation of Significance of Residual Effects	Temporal Extent	Reversibility	Geographical Extent	Magnitude
	Short-term	Permanent	Project Footprint	Moderate
	Adverse Effect			
	Not likely to be significant			

9.6 Cumulative Effects Assessment

The assessment of cumulative effects considers the impact of the residual effects associated with the Project in combination with the residual effects from other projects and activities that have been or will be carried out, within the appropriate temporal and spatial boundaries and ecological context.

Residual effects from the Project are predicted for most VCs except for navigation and navigation safety, and traditional land and resource use.

The following existing and reasonably foreseeable Projects or activities are identified as having environmental effects that may interact with the residual effects from the Project:

- TransCanada’s King’s North Connection Pipeline Project, Canadian Mainline (Line 200-2), and Maple Compressor Station (Station 130)
- PowerStream Inc.’s Vaughan Transformer Station #4
- Castlepoint Investment Inc.’s Kleinburg Summit
- MTO’s GTA West Project
- Hydro One’s GTA West Power Transmission Corridor, and Existing Regional Power Transmission Network
- Regional Municipality of York’s Northeast Vaughan Water and Wastewater Services
- Region of Peel’s Highway 427 Extension

In addition there are a number of planning documents from different levels of government that may have bearing on future developments, notably the Government of Ontario’s Greenbelt Plan and Growth Plan for the Greater Golden Horseshoe, and the City of Vaughan’s Water and Wastewater Master Plan, Kleinburg-Nashville Transportation Plan, and North Kleinburg-Nashville Secondary Plan.

Based on this, incremental potential adverse cumulative effects are identified for the following VCs:

- Physical VCs including soil and soil productivity, surface water, air emissions, acoustic environment
- Biological VCs including vegetation, fish and fish habitat, wetlands, wildlife and wildlife habitat, species at risk; and
- Socio-economic VCs including human occupancy and resource use, heritage/archaeological resources, social and cultural well-being, and human health and aesthetics.

The Board is of the view that in assessing the cumulative effects in this area and associated with this Project it is important to consider the existing local and regional context. The Board notes that the Project is located in an environment that is substantially altered by past and ongoing human developments and activities. Development in the Project region is extensive and the pace of development has been and continues to be rapid.

With this in mind the Board finds that for most VCs, Project related cumulative effects would be minor in nature and limited to the construction period, or otherwise unlikely to be significant given the environmental context. Notwithstanding this, the Board recognizes that certain components can be all the more valuable when their occurrences may be few in a predominantly developed environment. Among these the Board notes the issues of invasive plants, wetlands, woodlands, and species at risk (notably the Western Chorus Frog).

The Board notes that the Project would occur in an area with a high degree of non-native, invasive plant species and noxious weeds, particularly associated with roads, rail lines and industrial sites. The Board is satisfied with TransCanada's proposed mitigation to control invasive weeds and is of the view that with the implementation of these measures, TransCanada's post-construction monitoring of vegetation issues, and the Board's oversight through Conditions 6 and 17, areas of the Project footprint that currently have a low degree of invasiveness should avoid becoming moderate or high. The Board reminds TransCanada to keep its weed management program up to date for the life of the Project, as required by the OPR.

Regarding wetlands, the Board notes that disturbance to wetlands will be limited and temporary during Project construction, and that TransCanada anticipates no net loss of wetland function. The Board therefore expects to see this outcome demonstrated through TransCanada's post-construction monitoring of wetlands and subsequent reporting.

With respect to the potential loss of woodlands and the City of Vaughan's concerns, this is addressed further in section 9.5.4.3. The Board notes that with implementation of TransCanada's compensation strategy for woodland habitat, no net loss of woodland habitat within the City of Vaughan's Natural Heritage Network is anticipated for the Project, and therefore the Project will not contribute to the total cumulative loss of woodland habitat in the region.

The Board's views with respect to cumulative effects on species at risk, and in particular the Western Chorus Frog, are addressed in more detail in section 9.5.4.4. The Board finds that, with

TransCanada's mitigation, and the Board's conditions, the Project's contribution to cumulative effects on Western Chorus Frog critical habitat, if identified, will be reduced to the extent feasible, after considering all alternatives, and that total cumulative effects on Western Chorus Frog and its habitat are not likely to change as a result of the Project.

The Board has imposed Condition 17, requiring TransCanada to monitor the effects of the Project on the environment in order to ensure the magnitude, duration and extent of any residual effects are minimized. Where monitoring identifies challenges in recovery for any particular valued component, the Board expects TransCanada to apply sufficient additional adaptive management measures to address any residual effects.

Finally, the Board acknowledges the multiple constraints inherent in a Project located within a highly altered environment. The Board notes the existence of various planning documents which often typically aim to both zone and guide future developments as well as protect certain areas. In this context the Board therefore requires TransCanada to honour its commitments to continue consulting with ECCC, MNRF and TRCA to reduce the Project's effects.

9.7 EA Conclusion

The NEB is of the view that overall, with the implementation of TransCanada's environmental protection procedures and mitigation and the NEB's conditions, the Project is not likely to cause significant adverse environmental effects.

Appendix I

List of Issues

The Board will consider the following issues in this hearing:

1. The need for the proposed Project.
2. The economic feasibility of the proposed Project.
3. The potential commercial impacts of the proposed Project.
4. The potential environmental and socio-economic effects of the proposed project, including any cumulative environmental effects that are likely to result from the project, including those required to be considered by the NEB's *Filing Manual*.
5. The appropriateness of the route and land requirements for the proposed Project.
6. The engineering design and integrity of the proposed Project.
7. Potential impacts of the proposed Project on Aboriginal interests.
8. Potential impacts of the proposed Project on landowners and land use.
9. Contingency planning for spills, accidents or malfunctions, during construction and operation of the Project.
10. The terms and conditions to be included in any approval or recommendation.

Appendix II

Exclusion Order

ORDER XG-T211-020-2016

IN THE MATTER OF the *National Energy Board Act* (NEB Act) and the regulations made thereunder; and

IN THE MATTER OF an application made by TransCanada PipeLines Limited (TransCanada), pursuant to section 58 of the NEB Act, dated 10 November 2015, filed with the National Energy Board (Board) under File OF-Fac-Gas-T211-2015-05 01.

BEFORE the Board on 18 July 2016.

WHEREAS the Board received an application from TransCanada, pursuant to section 58 of the NEB Act, dated 10 November 2015, to construct and operate the Vaughan Mainline Expansion Project (Project) between TransCanada's approved 914.4 mm (NPS 36) King's North Connection (KNC) project (Board Order XG-T211-027-2015) and the existing TransCanada Line 200-2, 914.4 mm (NPS 36) pipeline, and the existing TransCanada Line 200-3, 1067 mm (NPS 42) pipeline near the existing mainline valve (MLV) 201A crossover valve site at in the Greater Toronto area of southern Ontario at an estimated cost of \$221 million;

AND WHEREAS TransCanada filed additional evidence on 14 March 2016, responses to information requests on 8 April 2016, 24 May 2016, 2 June 2016, submitted reply evidence on 8 June 2016 and made commitments in these filings;

AND WHEREAS TransCanada requested exemption from the provisions of paragraph 30(1)(a) and 31 of the NEB Act;

AND WHEREAS the Board held a public hearing, including written evidence, information requests, a community meeting to provide oral statements from participants to the Board, letters of comment, oral cross examination and oral and written argument in respect of the Project pursuant to Hearing Order GH-001-2016;

AND WHEREAS information about the Project is set out in Schedule A, attached to and forming part of this Order;

AND WHEREAS the Board has had regard to all considerations that are directly related to the Project and relevant, including environmental matters, pursuant to Part III of the NEB Act;

AND WHEREAS the Board has examined the application and related submissions and considers it to be in the public interest to grant the following relief;

IT IS ORDERED that, pursuant to section 58 of the NEB Act, the applied-for Project, as specified in Schedule A, is exempt from the provisions of paragraph 30(1)(a), and section 31 of

the NEB Act. The effect of this exemption order is to approve the Project subject to the following conditions:

General

1. Condition Compliance

TransCanada must comply with all of the conditions contained in this Order, unless the Board otherwise directs.

2. Project Design, Location, Construction, and Operation

TransCanada must cause the Project to be designed, located, constructed, installed, and operated in accordance with the specifications, standards and other information referred to in its application or as otherwise agreed to during the hearing or in its related submissions.

3. Implementation of Environmental Protection

TransCanada must implement or cause to be implemented all of the policies, practices, programs, mitigation measures, recommendations and procedures for the protection of the environment included in or referred to in its application or as otherwise agreed to during the hearing or in its related submissions.

Prior to Construction (Including Clearing or Ground-breaking Activities)

4. Finalized Watercourse Crossing Inventory

TransCanada must file with the Board, **at least 60 days prior to commencing any watercourse crossing construction activities**, the following:

- a) an updated inventory of all watercourses to be crossed, including, for each crossing:
 - i) the name of the watercourse being crossed and an identifier for the crossing;
 - ii) the location of the crossing;
 - iii) the primary and contingency crossing methods;
 - iv) planned construction timing;
 - v) information on the presence of fish and fish habitat;
 - vi) the restricted activity period;
 - vii) an indication of whether any of Fisheries and Oceans Canada's applicable "Measures to Avoid Causing Harm to Fish and Fish Habitat" cannot be implemented;
- b) detailed generic design drawings of trenchless, dry open-cut, frozen open-cut, and isolation crossings of various watercourse types;
- c) site-specific information for each watercourse crossing where any of Fisheries and Oceans Canada's applicable "Measures to Avoid Causing Harm to Fish and Fish Habitat" cannot be implemented for the primary watercourse construction method:

- i) detailed crossing-specific engineered design drawings;
- ii) photographs up-stream, down-stream, and at the crossing location;
- iii) a description of the fish species and habitat that is present at the crossing location, and if fish spawning is likely to occur within the immediate area;
- iv) a description of the composition of the riparian habitat at the crossing location and an indication if the riparian habitat has a limiting effect on the productive capacity of the watercourse, and if its removal or disturbance represents a potential influence on fish communities;
- v) the site-specific mitigation and habitat enhancement measures to be used to minimize impacts;
- vi) any potential residual effects;
- vii) proposed reclamation measures; and,
- viii) a discussion of the potential impacts to local fisheries resources within the immediate area as a result of the crossing's construction.

5. Western Chorus Frog Mitigation and Habitat Restoration Plan

Where critical habitat for Western Chorus Frog may be affected by the Project, TransCanada must file with the NEB for approval, **at least 30 days prior to commencing construction**, a Western Chorus Frog Mitigation and Habitat Restoration Plan. The plan must include:

- a) for each type of critical habitat: its location, total spatial area, and a description of the biophysical attributes with potential to be directly or indirectly affected by Project activities;
- b) a detailed description of alternative activities and/or measures that will be used to avoid critical habitat, or to reduce the amount of critical habitat encountered by the Project, and a quantification of the spatial area of critical habitat that cannot be avoided;
- c) where critical habitat cannot be avoided, identification and review of alternative mitigation and habitat restoration measures to reduce direct and indirect Project effects on critical habitat, and the rationale for the selected measure(s);
- d) a detailed description of mitigation and habitat restoration measures to be implemented, as identified in c), to reduce direct and indirect Project effects on critical habitat, including:
 - i) all relevant measures committed to throughout the GH-001-2016 proceeding;
 - ii) any new mitigation measures;
 - iii) detailed criteria using clear and unambiguous language that describes the circumstances under which each measure will be applied; and
 - iv) measurable goals for evaluating mitigation effectiveness and critical habitat restoration success.

- e) details on post-construction monitoring of the effectiveness of mitigation measures and critical habitat restoration measures, including survey methods, corrective measures, detailed criteria using clear and unambiguous language that describes the circumstances under which each corrective measure will be applied, and a proposed reporting schedule;
- f) a commitment to include the results of the monitoring in the post-construction monitoring reports filed under Condition No. 17;
- g) an update on all consultation undertaken with Environment and Climate Change Canada (ECCC) with respect to Western Chorus Frog. In its update, TransCanada must describe how it has incorporated the results of its consultation with ECCC, including any recommendations from ECCC, into the plan. TransCanada must provide an explanation why it cannot implement any specific recommendations from ECCC.
- h) confirmation that TransCanada has updated, or will update, its Environmental Protection Plan for the Project to include any relevant measures from the Western Chorus Frog Mitigation and Habitat Restoration Plan.

Where there is no critical habitat for Western Chorus Frog that is potentially affected by the Project, TransCanada must notify the Board to this effect, and provide evidence supporting this conclusion.

6. *Environmental Protection Plan (EPP)*

TransCanada must file with the Board for approval, **at least 30 days prior to commencing construction**, a final and updated Project-specific EPP, including Environmental Alignment Sheets. The EPP must describe all environmental protection procedures, and mitigation and monitoring commitments, as set out in TransCanada's application, subsequent filings, evidence collected during the hearing process, or as otherwise agreed to during the hearing and in its related submissions. The EPP must include:

- a) any environmental mitigation or monitoring committed to under conditions of permits issued by or agreements made with the Ontario Ministry of Natural Resources and Forestry, the Toronto and Region Conservation Authority, and the City of Vaughan;
- b) site-specific mitigation for provincially and federally listed species at risk including but not limited to: Western Chorus Frog, Little Brown Myotis, Monarch, Bobolink, Eastern Meadowlark and Redside Dace;
- c) updated Environmental Alignment Sheets;
- d) current drawings of construction practices; and,
- e) an updated Heritage Resources Discovery Contingency Plan that reflects all archaeology related commitments made during the hearing process and any additional commitments made during ongoing engagement with Aboriginal groups.

7. *Commitments Tracking Table*

TransCanada must file with the Board, **at least 30 days prior to commencing construction**, a Commitments Tracking Table listing all commitments made by TransCanada in its application or in its related submissions, or during the GH-001-2016 proceeding in relation to the Project, including reference to:

- a) The documentation in which reference to the commitment is made (for example: the application and subsequent filings; response to information requests; the transcript reference; any permit, authorization or approval requirements; condition filings);
- b) The accountability for implementing each commitment; and
- c) The timelines associated with the fulfillment of each commitment.

8. *Contingency Watercourse Crossings*

- a) For any watercourse crossing where TransCanada will employ a contingency crossing method instead of its proposed primary method, and where any of Fisheries and Oceans Canada's applicable "Measures to Avoid Causing Harm to Fish and Fish Habitat" cannot be implemented, TransCanada must file with the Board **at least 30 days prior to commencing construction of the contingency watercourse crossing**:
 - i) confirmation of the contingency watercourse crossing method that will be employed, the rationale for employing that method, and a summary of the differences between the primary and contingency watercourse crossing methods; and
 - ii) the following site-specific information:
 - i. detailed crossing-specific engineered design drawings;
 - ii. photographs upstream, downstream, and at the crossing location;
 - iii. a description of the fish species and habitat that is present at the crossing location, and if fish spawning is likely to occur within the immediate area;
 - iv. a description the composition of the riparian habitat at the crossing location and an indication if the riparian habitat has a limiting effect on the productive capacity of the watercourse, and if its removal or disturbance represents a potential influence on fish communities;
 - v. the site-specific mitigation and habitat enhancement measures to be used to minimize impacts;
 - vi. any potential residual effects;
 - vii. proposed reclamation measures; and
 - viii. a discussion of the potential impacts to local fisheries resources within the immediate area as a result of the crossing's construction.
- b) For all other instances where a contingency crossing method will be employed and all of Fisheries and Oceans Canada's applicable "Measures to Avoid Causing Harm to Fish and Fish Habitat" will be implemented, TransCanada must file with the Board a notification,

at least 15 days prior to commencing the contingency crossing, that the contingency method will be employed. With this notification, TransCanada must explain why the contingency method is being employed and provide a summary of the differences between the primary and contingency watercourse crossing methods.

TransCanada must confirm, **within 30 days after commencing operations**, that any contingency watercourse crossing(s) identified to the Board pursuant to a) and b) were the only contingency watercourse crossing(s) implemented for the construction of the pipeline.

9. Heritage and Archaeological Resources Condition

TransCanada must file with the Board, **at least 30 days prior to the commencement of construction on any particular parcel of land**:

- a) confirmation, signed by an officer of the company, that TransCanada has obtained a compliance letter from the Ontario Ministry of Tourism, Culture and Sport confirming that all applicable provincial requirements have been met for that parcel of land ; and
- b) a statement on how TransCanada intends to implement any comments or recommendations contained in the compliance letter referred to in a) above.

10. Aboriginal Monitor(s) during Construction Activities

TransCanada must file with the NEB, **at least 30 days prior to the commencement of construction activities**, a plan describing participation by Aboriginal groups in monitoring activities during construction for the archaeological resources. The plan must include:

- a) a summary of engagement activities undertaken with Aboriginal groups to determine opportunities for their participation in monitoring activities;
- b) a list of potentially affected Aboriginal groups, if any, that have reached agreement with TransCanada to participate in monitoring activities;
- c) the scope, methodology, and justification for monitoring activities to be undertaken by TransCanada and each participating Aboriginal group identified in b), including those elements of construction and geographic locations that will involve Aboriginal Monitor(s);
- d) a description of how TransCanada will use the information gathered through the participation of Aboriginal Monitor(s); and
- e) a description of how TransCanada will provide the information gathered through the participation of Aboriginal Monitor(s) to the participating Aboriginal group. TransCanada must provide a copy of the report to each potentially affected group identified in b) above at the same time that it is filed with the NEB.

11. Construction Schedule

TransCanada must file with the Board, **at least 14 days prior to commencing construction**, a detailed construction schedule(s) identifying major construction activities. TransCanada must notify the Board of any modifications to the schedule(s) as modifications occur.

12. Manuals and Programs

TransCanada must file with the Board, within the time specified for each manual, plan and program, the following:

- a) Construction Safety Manual – **14 days prior to commencing construction**;
- b) Field Emergency Preparedness and Response Plan – **14 days prior to commencing construction**; and,
- c) Confirmation that a Security Management Plan for the construction of the Section 58 Facilities, pursuant to the National Energy Board Onshore Pipeline Regulations and CSA Z246.1 has been developed – **14 days prior to commencing construction**.

13. Authorizations Under Paragraph 35(2)(b) of the Fisheries Act

For any watercourse crossings that will require Authorization under paragraph 35(2)(b) of the *Fisheries Act*, TransCanada must file with the Board, **at least 10 days prior to commencing the respective instream activities**, a copy of the Authorization under paragraph 35(2)(b) of the *Fisheries Act*.

During Construction

14. Complaint Tracking

From commencement of construction to five years following the commencement of operations, TransCanada must, for audit purposes, create and maintain records that chronologically track complaints by landowners, including municipal and regional governments, relating to the Project. The complaint tracking records must include:

- a) The date the complaint was received;
- b) The form in which the complaint was received (for example, telephone, mail, email, or other communication methods that may evolve over time);
- c) The date and summary of all subsequent telephone calls, visits, correspondence, site
- d) monitoring/inspections, follow-up reports and other related documentation;
- e) Updated contact information for all persons involved in the complaint;
- f) A detailed description of the complaint; and
- g) Any further actions to be taken or an explanation why no further action is required.

15. Construction Progress Report

TransCanada must file with the Board, **at the middle and end of each month**, construction progress reports for the Project. The reports must include the following: information on the activities carried out during the reporting period; any environmental, safety and security issues and issues of non-compliance; and the measures undertaken for the resolution of each issue and non-compliance.

Post-Construction and Operations

16. Conditions Compliance by a Company Officer

Within 30 days after the date that the Project is placed in service, TransCanada must file with the Board a confirmation, by an officer of the company, that the Project was completed and constructed in compliance with all applicable conditions of this Order.

If compliance with any of the applicable conditions cannot be confirmed, the officer of the company must file with the Board details as to why compliance cannot be confirmed. Any filing required by this condition must include a statement confirming that the signatory to the filing is an officer of the company.

17. Post-construction monitoring reports

On or before 31 January after each of the first, third and fifth complete growing seasons following completion of final cleanup of the Project, TransCanada must file with the Board, a post-construction environmental monitoring report that:

- a) Describes the methodology used for monitoring, the criteria established for evaluating success and the results found;
- b) Identifies the issues to be monitored, including but not limited to unexpected issues that arose during construction, and their locations (for example, on a map or diagram, or in a table);
- c) Describes the current status of the issues (resolved or unresolved), any deviations from plans and corrective actions undertaken;
- d) Assesses the effectiveness of the mitigation (planned and corrective) measures applied against the criteria for success;
- e) Provides proposed measures and the schedule that TransCanada would implement to address ongoing issues or concerns.

The report must address, but not be limited to, the issues pertaining to soils, weeds, watercourse crossings, wetlands, and species at risk.

18. Pipeline Geographic Information System (GIS) Data

TransCanada must provide the Board, **within one year of the date TransCanada files with the Board the confirmation letter required pursuant to Condition 16**, as-built GIS data in the form of an Esri® shape file that contains all pipeline segment centre lines. The datum must be North American Datum of 1983 (NAD83) and projection must be geographic (latitudes and longitudes). Each segment must have a pipeline name, outside diameter, wall thickness, maximum operating pressure, pipe material, pipe material standard, pipe grade, external coating, primary product, pipeline joint type, and operating stress level. If the above values of the pipeline change at any point along the length of the pipeline, the pipeline must be segmented at that point. TransCanada must also provide GIS locations and names of all meter stations, compressor stations and block valves, as applicable.

19. Sunset Clause

Unless the Board otherwise directs prior to 18 July 2018, this Order must expire on 18 July 2018, unless construction in respect of the Project has commenced by that date.

NATIONAL ENERGY BOARD

Sheri Young
Secretary of the Board

SCHEDULE A
National Energy Board Order XG-T211-020-2016
TransCanada PipeLines Limited
Application pursuant to section 58 of
the *National Energy Board Act*
Vaughan Mainline Expansion Project
File OF-Fac-Gas-T211-2015-05 01

Pipeline Specifications – Vaughan Mainline Expansion Project

Project Type	New construction
Location	Within Vaughan, ON Connecting KNC Project and Line 200-2 near northwest of the intersection of Major MacKenzie Drive and Huntington Road, to MLV 201A near Kirby Road and Kipling Avenue.
Approximate Length	12 km
Outside Diameter	1067 mm (NPS 42)
Minimum Wall Thickness	12.7 mm or greater
Pipe Material	Carbon steel
Pipe Material Standard	CSA Z245.1
Pipe Grade	Grade 483, X70
External Coating Type	Fusion-bond epoxy
Maximum Operating Pressure	6 450 kPa
Product	Non-Sour Natural Gas