

All questions and responses will be made available to all proponents 1 (one) week before the closing date, through the issuance of an amendment/addendum. Further questions may not be accepted after August 20, 2019

All other information obtained from alternate sources cannot be considered official and/or accurate.

6.0 BACKGROUND INFORMATION

Climate Change is increasing sea levels and the frequency and intensity of storm events. The Chignecto Isthmus, containing critical transportation and utility infrastructure linking the Provinces of New Brunswick and Nova Scotia, is particularly vulnerable to Climate Change impacts. This vulnerability results from the fact that the Isthmus of Chignecto is only slightly above sea level. Indeed, in some places, without protective dykes some areas of the Isthmus would already be inundated by existing sea levels.

Various studies on the impacts of climate change and rising sea levels have been completed but a detailed engineering analysis and feasibility assessment of potential solutions is required.

The New Brunswick Department of Transportation and Infrastructure (NB DTI), in partnership with the Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR), applied to Transport Canada for funding assistance from the National Trade and Corridors Fund Funding. Approval for this study is in the amount of **\$700,000**, and is not to be exceeded.

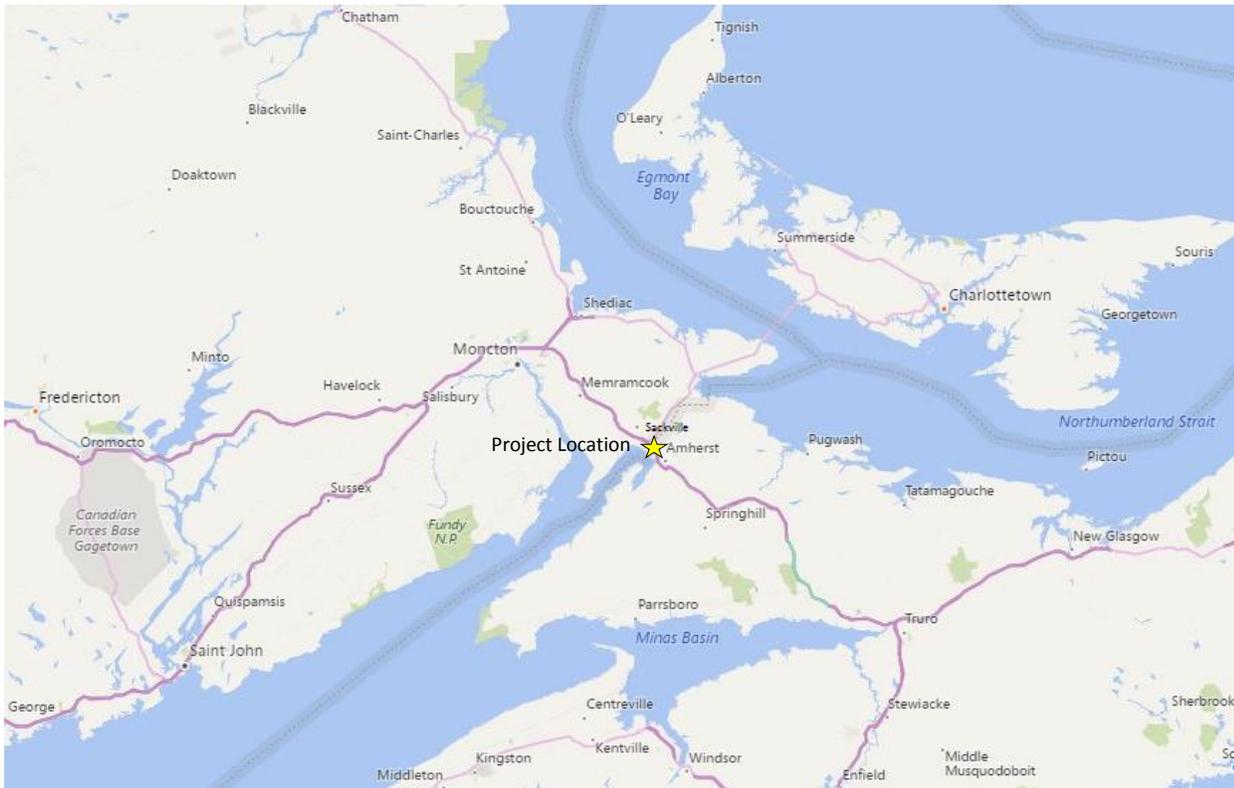
A Project Steering Committee will be formed by representatives from both NB DTI and NSTIR to provide governance for the Study. The purpose of this RFP is to select a Successful Proponent to complete a comprehensive Engineering and Feasibility Study for the protection of the trade corridor located in the Chignecto Isthmus connecting New Brunswick and Nova Scotia.

The following RFP will provide greater elaboration on Study requirements, bidding procedures and evaluation methodology.

6.1 PROJECT OVERVIEW

The Chignecto Isthmus forms the relatively narrow land bridge which physically connects the Province of Nova Scotia with the Province of New Brunswick (see Figure 6.1 below for Project Location).

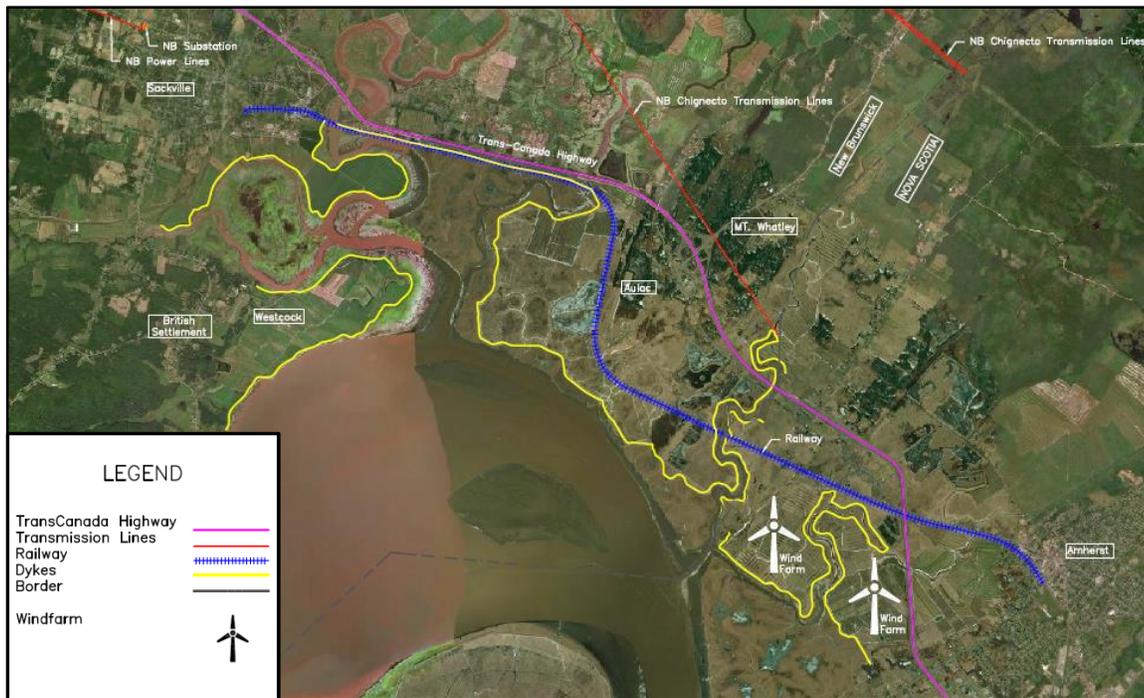
Figure 6.1 – Location Map



(Bing Maps, 2019)

Figure 6.2 shown below, depicts the general project area and some of the important infrastructure in the Sackville-Amherst Corridor, but is not completely exhaustive; missing infrastructure for example include telecommunication lines, NS Power infrastructure and natural gas transmission lines.

Figure 6.2 – General Project Area



The Chignecto Isthmus has had large dyke areas since 1671. In the Study area, about 35 kilometers of dykes protect these areas and now contain critical transportation and utility infrastructure including (but not yet limited) to:

- Approximately 20 km of the Trans-Canada Highway (Route 2 and Route 104);
- Approximately 20 km of the Canadian National Railway main line also used by passenger trains operator Via Rail (a 3.6 km portion serves as part of Tantramar dyke system);
- Approximately 35 km of electrical transmission lines owned by both NB Power and NS Power;
- Communication and other utilities (to be determined through Study; e.g., high speed internet fibre-op) that involve inter-provincial trade.

The strategic importance of this infrastructure to all Atlantic Canada and indeed to the nation as a whole cannot be over stated. As an integral component of the Atlantic Canada Gateway and Trade Corridor (a federal/provincial designated system of major ports, marine terminals, international airports, key border crossings, and road and rail connections) it is the principal routing for all land based trade and passenger travel between Nova Scotia and New Brunswick and points west. The high voltage transmission lines are the primary connection to share and balance electrical generation between New Brunswick and Nova Scotia. Loss of the electrical transmission connection could produce significant economic and social impacts. As well, electrical

exports from the Muskrat Falls hydro-electric facility in Labrador will be carried on these lines when they commence operations in 2019/20.

The transportation linkages are also critical to the Provinces of Prince Edward Island and Newfoundland and Labrador. In Prince Edward Island's case, the TCH through the Chignecto Isthmus is the principal year-round route for trade and passenger travel to Nova Scotia. Similarly, for the Province of Newfoundland and Labrador all land based freight traffic must cross the Chignecto Isthmus for access to the Marine Atlantic ferry service or to the Oceanex direct water service from the Port of Halifax to St. John's.

Previous studies have estimated the value of trade passing through the Chignecto Corridor at \$50 million per day. Traffic counts at the NBDTI permanent counter near Aulac indicate annual average daily traffic (AADT) of 15,500 vehicles in 2016 with annual average daily truck traffic (AADTT) of 2,490 vehicles. There is also significant rail car traffic between NS and NB.

A combination of climatological induced sea level rise (1 to 5 metres) and coastal subsidence is forecast to threaten most coastal infrastructure in Atlantic Canada before the year 2100. The Chignecto Isthmus dykes and the infrastructure they protect are also at risk.

Figure 6.3 below illustrates the role played by portions of the rail line bed and the threats faced from high tide events.

Figure 6.3 – High Tide Event at Aulac Dyke, October 2015 (Johnson, M, EMO)



Information on the condition of highways and railroad track beds is currently maintained by respective provincial departments and by CN Rail. It is anticipated that such information will be provided to the successful proponent. While the location and elevation of the current network of dykes is well known there is less information available on the structural integrity of the dykes and aboiteaux and their ability to withstand remedial, or improvement, actions.

The project goal is to perform a comprehensive engineering assessment of existing infrastructure and to identify viable options to protect and sustain the Chignecto Isthmus Trade Corridor. The proponent is to use an elevation of 10.6 meters for the purposes of this Project as per CGCD2013 (or as 11.2 meters as per CGVD28).

6.2 PROJECT BACKGROUND INFORMATION

Information related to the Project that may be beneficial to Proponents is available as attachments to the tender on the New Brunswick Opportunities Network website (NBON) or as otherwise indicated below.

Please note: Neither NBDTI nor the Province make any representation or warranty or offer any assurance whatsoever as to whether such information is accurate, complete or appropriate. It is the responsibility of the Proponent to become familiar with the existing site conditions and the information that is being made available.

The following information is available as an attachment to the tender in NBON or as otherwise indicated:

- An Evaluation of Flood Risk to Infrastructure across the Chignecto Isthmus by Webster, T., Kongwongthai, M., and Cromwell, N., 2012;
<https://research.fit.edu/media/site-specific/researchfitedu/coast-climate-adaptation-library/canada-amp-arctic/canada---atlantic/Webster-et-al.--2012.-An-Evaluation-of-Flood-Risk-to-Infrastructure-Across-the-Chignecto-Isthmus.pdf>
- Forecasting Economic Damages from Storm Surge Flooding: A Case Study in the Tantramar Region of New Brunswick by Wilson, J., Trenholm, R., and Bornemann, J., 2012;
<http://arcgis.mta.ca/docs/ForecastingEconomicDamagesfromTantramarStormSurgeFlooding.pdf>
- Economic Evaluation of Climate Change Impacts on New Brunswick-Nova Scotia Transport Corridor by Yevdokimov, Y., 2012;
<https://atlanticadaptation.ca/en/islandora/object/acasa%253A721>

- Cost-benefit Analysis of Climate Change Adaptation Options for the Chignecto Transportation Corridor prepared on behalf of the Atlantic Climate Adaptation Solutions Association (ACASA) and the New Brunswick Department of Environment and Local Government (NBDELG), 2015; <https://atlanticadaptation.ca/en/islandora/object/acasa:779>
- Guidelines for Safety of Coastal and Estuarine Dykes and Aboiteaux in New Brunswick and Nova Scotia, 2018 (see attached PDF) -Note: Not yet adopted by PNB.
- Guidelines for the Design, Construction, and Rehabilitation of Coastal and Estuarine Dykes in New Brunswick and Nova Scotia, 2018 (see attached PDF) -Note: Not yet adopted by PNB.
- NBDTI 2019 Standard Specifications v https://www2.gnb.ca/content/dam/gnb/Departments/trans/pdf/en/Publications/2019_Standard_Specs-e.pdf
- NBELG – Coastal Areas Protection Policy <https://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/Water-Eau/CoastalAreasProtectionPolicy.pdf>
- Duty to Consult (NB) <https://www2.gnb.ca/content/dam/gnb/Departments/aas-saa/pdf/en/DutytoConsultPolicy.pdf>
- Duty to Consult (NS) https://novascotia.ca/abor/docs/April%202015_GNS%20Mi'kmaq%20Consultation%20Policy%20and%20Guidelines%20FINAL.pdf
- The NBELG Guide to Environmental Impact Assessment in New Brunswick, available on the Province of New Brunswick website at: <http://www2.gnb.ca/content/dam/gnb/Departments/env/pdf/EIA-EIE/GuideEnvironmentalImpactAssessment.pdf>
- Guidance for environmental assessment in NS is available at: <https://novascotia.ca/nse/ea/pubs.asp>

6.3 SERVICES REQUIRED BY NBDTI

The purpose of this Request for Proposal is to identify a qualified Successful Proponent to provide all necessary services to complete a comprehensive engineering and feasibility study to consider the impacts of Climate Change on the Chignecto Isthmus

Trade Corridor. The feasibility study should provide viable and resilient engineered solutions, using a climate change adaptation lens. The Successful Proponent should provide three viable solutions to protect and sustain the Chignecto Trade Corridor. The anticipated Study area is in the general vicinity between Sackville, New Brunswick and Amherst, Nova Scotia.

Part A- Study Parameters

- The Proponent is advised that the overall project budget is restricted to **\$700,000** plus HST, as per the funding agreement;
- The Study must be completed by February 12, 2021; and

Part B- Work Requirements/Expected Deliverables

- Following a thorough review of all available background reports and data, the successful Proponent will prepare a detailed Project Management Plan (PMP) and Statement of Work (SOW). It will be agreed upon by the proponent and the Project Steering Committee. This Plan will affirm at a minimum;
 - Project Overview;
 - Approach;
 - Scope/ Requirement Management Plan;
 - Cost Management Plan;
 - Communication Plan;
 - Risk Management Plan;
 - Rights Holder's Consultation and Engagement Plan;
 - Stakeholder Management Plan;
 - Organization and Governance;
 - Project Baseline (cost and schedule); and
 - Schedule Management Plan.

All expenditures of this work form part of the overall project budget. Upon steering committee approval of the SOW and PMP, the afore mentioned PMP will be signed. It is expected that the PMP will be updated as required during the progression of the Study. An estimated effort of \$25,000 for the SOW and PMP preparation is suggested. Any changes to SOW will be agreed to by the proponent and the NBDTI Project Manager prior to implementation.

- A vulnerability assessment of the existing transportation, utility and communication infrastructure within the Study Area including the protective dykes/aboiteaux is required. It is anticipated that a representative geotechnical sampling program for the proposed solutions will form part of this Study. It is also anticipated that the dyke and aboiteaux concept, in part or in whole, will form part of one or all solutions.

- Review of Federal and Provincial environmental legislation to determine regulatory requirements for each of the solutions identified.
- The Stakeholder Management Plan, that includes, as a minimum, all appropriate levels of government, municipalities, CN Rail, NB Power, NS Marsh Bodies and directly affected Property Owners. Communication capability in both official languages must be demonstrated;
- The Successful Proponent is to facilitate meetings as required
- A Benefit-Cost analysis and a financial analysis that captures the economic and financial impacts of the three possible options;
- A Communications Plan that outlines the frequency and nature of all communications with the Steering Committee, Stakeholders etc.
- Obtain all required permissions and permitting required for any investigations from the Authority having Jurisdiction (i.e. land access). Proponent to identify affected landowners to NBDTI and NSTIR and prepare required correspondence.
- A Comparative Environmental Review (CER) will be conducted for each option. It will describe the environmental impacts, risks and benefits of each option. It will aid in the decision-making process by showing a comparison between Project options and how these options will affect the environment and society. It will also aid in the preparation for the completion of an EIA for the preferred option when selected if required. The Valued Environmental Components (VEC) to be studied, and factors to be considered, will be determined based upon the Consultants experience, Rights Holder consultation and stakeholder consultation.
- The Archeological Assessment should be based on desktop research and initial walkover of the project areas associated with the proposed solutions. The Archeological Assessment will identify potential areas for future investigations.
- A Draft Client Report will be submitted for approval prior to the Final Client Report issuance. It is expected that this will take up to three iterations. In addition, all presentation material should also be shared among the Team Members. Six (6) hard copies and two (2) digital copies of the Draft Client Report will be submitted. The Draft Client Report will be also accompanied by a presentation to the Team Members.
- A Final Client Report will be generated and contain at a minimum: an executive summary, summary of risks and benefits, CER, Cost Benefit Analysis, rough order of magnitude cost estimates (+/- 25%) and preliminary Design drawings and mapping for all proposed options will be provided to the Project Owners. Six (6)

hard copies and two (2) digital copies of the Final Client Report will be submitted. The Final Client Report will be also accompanied by a presentation to the Team Members. The Executive Summary will be in both official languages.

6.4 REPORTING

The Successful Proponent will report to the designated NBDTI Project Manager or his/her designate.

Monthly project meetings will be scheduled with the Project Steering Committee to determine the final PMP and the final SOW, updating the PMP as required. Each additional monthly meeting should be accompanied with presentation material. The project proponent should share any meeting material (i.e. briefings, presentations, etc.) three working days in advance of any scheduled meeting

The Successful Proponent will be required to provide, at a minimum, monthly progress reports to the Department's Project Manager summarizing the overall project progress until the successful completion of all requirements of this RFP.

NBDTI will typically respond to the Successful Proponent within two (2) weeks of receipt of a request for information.

NBDTI must be included in all correspondence with stakeholders and Rights Holders, federal and/or provincial regulatory departments and agencies, including notification of scheduled meetings or discussions and copies of any documentation provided.

6.5 PROJECT ACCESS

Property owners impacted by the work must be identified to NBDTI and NSTIR by the Proponent. The Successful Proponent will be required to prepare notification letters for NBDTI's and NSTIR's signature prior to accessing private land, as per legislative requirements.

6.6 Insurance

Insurance requirements for the project are detailed in **Appendix A - Insurance** of this RFP.