



Highway 104 Sutherlands River to Antigonish Twinning Project

Project Development Report

August 5, 2020



TABLE OF CONTENTS

Executive Summary.....	1
Glossary.....	3
List of Acronyms.....	4
1 Project Overview.....	5
1.1 The Project.....	5
1.2 The Need.....	6
1.3 Highway Twinning Feasibility Study.....	6
1.4 The Business Case.....	7
1.4.1 Market Sounding.....	8
1.4.2 Qualitative Analysis.....	10
1.4.3 Quantitative Analysis.....	11
1.4.4 Selected Approach.....	11
1.5 Federal Funding.....	11
2 Project Procurement.....	13
2.1 Procurement Process.....	13
2.1.1 Request for Qualifications.....	13
2.1.2 Request for Proposals.....	14
2.2 Preferred Proponent.....	14
3 Final Project Structure.....	16
3.1 Key Terms of the Project Agreement.....	16
3.1.1 Project Governance Structure.....	16
3.1.2 Operation and Maintenance of Existing Highway Infrastructure During Construction.....	17
3.1.3 Scheduled Substantial Completion Date.....	17
3.1.4 Project Risk Allocation Framework.....	17
3.1.5 Project Output Specifications.....	18
3.1.6 Performance Monitoring Framework.....	18
3.1.7 Payment Mechanism.....	18
3.1.8 Ownership and Handback.....	19
3.2 Contract Costs.....	19
3.3 Final Value for Money Assessment.....	19
3.4 Key Advantages of the Project Approach.....	20

Project Development Report
Highway 104 Sutherlands River to Antigonish Twinning Project

3.4.1 Expedited Highway Construction..... 20

3.4.2 Cost Certainty..... 21

3.4.3 Clear Accountability 21

Appendices..... 22

A. Financial Advisors’ Letter 23

B. Fairness Monitor’s Summary Report and Opinion of Assurance..... 25

EXECUTIVE SUMMARY

Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR) recently completed the procurement of a private sector partner to design, build, finance and subsequently operate, maintain and rehabilitate Highway 104, from Sutherlands River to Antigonish, through a public-private partnership. Four consortia participated in the procurement process and, after careful evaluation of submissions received in accordance with a pre-established evaluation framework, Dexter Nova Alliance (DNA) was selected. DNA was selected given that it submitted the highest-scoring proposal, based on technical approach as well as financing and overall cost.

Through a Project Agreement established between NSTIR and DNA, DNA will be responsible for designing, building and financing capital costs associated with the twinning of the highway section. Upon completion of construction, DNA will be responsible for the operations, maintenance and rehabilitation (OM&R) of the highway section over a 20-year concession period. Over the project term, DNA will also be responsible for OM&R of certain adjoining highway sections, extending to New Glasgow to the west and Lower South River to the east.

The Province of Nova Scotia (the Province) will maintain ownership of the new and existing highway sections throughout the project term and will assume OM&R responsibility at the end of the project term. It is DNA's contractual obligation to ensure the highway section is in good operating condition upon handover of OM&R responsibility.

The completion of the procurement is a key step towards the twinning of a highway section that has been identified as a high priority, given the high volume of traffic that traverses the roadway and the recent history of accidents, many resulting in fatalities. The design and construction phase will begin immediately after the procurement phase and is expected to be complete by the end of 2023.

Upon completion of construction, NSTIR will make a payment to DNA to cover 50% of the associated capital costs. Over the concession period, NSTIR will make monthly payments for the OM&R services to be delivered as well as the remaining capital costs and DNA's required return on equity invested in the project. Payment will be funded through NSTIR's budget and through federal funding. There will be no tolls applied along the highway sections included in the project.

Aside from addressing urgent safety concerns along Highway 104, the project structure has allowed the Province to realize key advantages, including:

- Expedited project completion – delivery through a traditional approach typically results in longer timelines from procurement through to construction. Under this project structure, no payments will be made until construction is completed; DNA is therefore incentivized to finish on time.
- Cost certainty – the construction contract is a fixed-price, turnkey contract and OM&R payments have been pre-established.
- Clear accountability – project roles and responsibilities are well defined, performance standards are clearly stipulated and enforceable financial deductions, coupled with escalating legal remedies, have been incorporated into the Project Agreement.

Project Development Report
Highway 104 Sutherlands River to Antigonish Twinning Project

The project structure encourages performance and facilitates the realization of the maximum benefits for all Nova Scotians.

GLOSSARY

100 Series highways	Nova Scotia's primary arterial road network. These highways are all-weather highways that traverse the Province, east and west, north and south, and connect at provincial borders and gateways to the other Atlantic provinces.
Business case	An analysis of the benefits and costs associated with a proposed undertaking to determine the viability of a project. The analysis would typically consider all information necessary to make an informed decision, including the benefits, costs, risks and associated time frames, as well as a comparative analysis of all viable options.
Design-Bid-Build model	A traditional procurement approach whereby the public sector separately tenders the design and construction of the asset. After construction, all operations, maintenance and rehabilitation activities are undertaken by the public sector.
DBFOM model	An integrated project delivery approach that combines the design, construction, financing, operations, maintenance and rehabilitation of infrastructure into a single contract.
Dexter Nova Alliance	A general partnership owned by BBGI SICAV S.A., Municipal Enterprises Limited and Nova Construction Co. Ltd.
Infrastructure Ontario	The procurement and commercial lead for all major public infrastructure projects in the province of Ontario.
Market sounding	Interactions with potential investors or service providers to gauge interest in a transaction or project prior to formally launching the transaction or project.
National Trade Corridors Fund	A dedicated source of funding that helps infrastructure owners and users to invest in the critical assets that support economic activity and the physical movement of goods and people in Canada.
Nova Scotia Department of Transportation and Infrastructure Renewal	A department of the Government of Nova Scotia with responsibility for building and maintaining 90% of all public roads in the province, as well as the design and construction of new government buildings.
PPP Canada	A corporation created by the Government of Canada to promote the adoption of public-private partnerships across Canada. The corporation was dissolved effective March 31, 2018 as it was determined that it had successfully fulfilled its mandate.
Project Agreement	A document that, in respect of projects, governs the relationship between parties to the agreement, including roles and responsibilities of each, over the project term.
Public-private partnership	A partnership between governments and the private sector to build public infrastructure.

Substantial completion	The point at which construction of a project has been completed in accordance with the associated Project Agreement and all requirements, other than minor deficiencies where provided for in the Project Agreement, have been satisfied.
Twinning	The construction of a similar parallel roadway to increase capacity by doubling the number of lanes in either direction and provide a physical separation of traffic travelling in opposite directions.

LIST OF ACRONYMS

CCMs	Commercially Confidential Meetings
DBB	Design-Bid-Build
DBFOM	Design-Build-Finance-Operate-Maintain
DNA	Dexter Nova Alliance
NTCF	National Trade Corridors Fund
NSTIR	Nova Scotia Department of Transportation and Infrastructure Renewal
OM&R	Operations, maintenance and rehabilitation
PPP	Public-Private Partnership
RFP	Request for Proposals
RFQ	Request for Qualification
VFM	Value for Money

1 PROJECT OVERVIEW

1.1 THE PROJECT

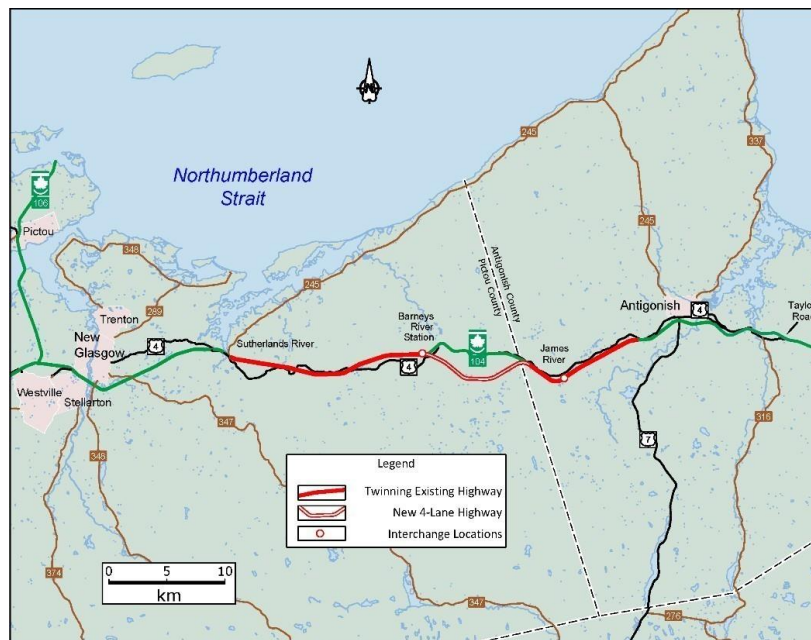
The Highway 104 Sutherlands River to Antigonish Twinning Project (the Project) consists of the construction, financing and operations, maintenance and rehabilitation (OM&R) of a four-lane divided highway corridor beginning at the end of the existing divided highway, east of New Glasgow near Exit 27 at Sutherlands River, and running for a distance of approximately 38 km to the existing divided highway just west of the Addington Forks Interchange (Exit 31) at Antigonish.

The Project is being delivered by the Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR) and includes the construction of:

- Two new lanes adjacent to the existing highway from Exit 27 to a location near the community of Barneys River Station (approximately 17 km)
- Approximately 10 km of new four-lane divided highway through a wooded area to bypass the existing highway through Marshy Hope
- Two new lanes adjacent to existing highway from the new four-lane section near James River to Antigonish (approximately 11 km)
- Associated land access roads
- Two new interchanges

A plan of the highway section from Sutherlands River to Antigonish is shown in Figure 1.

Figure 1: Highway 104 Sutherlands River to Antigonish



The project also includes ongoing OM&R responsibilities for the newly constructed roadway, as well as for certain existing sections of Highway 104 (the Existing Highway Infrastructure). The Existing Highway

Infrastructure comprises the 9.3 km of existing divided highway between East River Road New Glasgow and Exit 27 and the recently completed 16 km section from Addington Forks Interchange to approximately three kilometres east of Exit 34 in Lower South River.

The total OM&R responsibility, including newly constructed and existing highway sections, is approximately 63 km. The OM&R period of the Project is 20 years.

1.2 THE NEED

NSTIR is responsible for the construction and maintenance of the Nova Scotia Provincial Road Network comprising over 23,000 km of highways and local roads as well as 4,100 bridges and structures. The primary arterial road network, often referred to as the 100 Series highways but containing additional arterial roads as well, is the backbone of the entire network, capable of transporting heavy volumes at high speeds, throughout the Province. These highways are all-weather highways, which traverse the Province east and west, north and south, and connect at provincial borders and gateways to the other Atlantic provinces and points beyond.

Many of these highways were developed in the 1960s through the 1990s as two-lane two-way highways, with truck climbing lanes and passing lanes at certain locations. As traffic volumes began to grow on some of these sections, especially in proximity to urban growth centres around the Province, sections of these highways were twinned, to provide additional capacity, reduce congestion and improve safety.

Nova Scotians, who are well aware of the efficiency and safety of twinned versus non-twinned highways, have become more vocal over the last 20 years and have urged government to speed up the rate at which missing gaps are twinned. These appeals have re-emerged from time to time, particularly when there are high-profile accidents that result in fatalities.

In-service safety reviews were completed on sections of Highways 101, 103, 104 and 105, in 2015 and 2016. Based on the review, short-, medium-, and long-term measures to improve safety were recommended. In all cases, the best — albeit the most expensive — solution was twinning.

1.3 HIGHWAY TWINNING FEASIBILITY STUDY

NSTIR's traditional approach has been to twin sections of the 100 Series highways as quickly as funding allows once traffic volumes approach 10,000 vehicles per day. Historically, this approach to twinning has often resulted in projects being deferred until capital funding becomes available.

In December 2015, NSTIR engaged CBCL Limited (CBCL) and their sub-consultants HDR Corporation (HDR), Ernst & Young Orenda Corporate Finance Inc. (EY) and R.A Malatest & Associates Limited to undertake a Highway Twinning Feasibility Study (the Feasibility Study). The Feasibility Study was initiated to assess the cost to design, construct, operate, maintain and finance eight sections of the 100 Series highways within the Province and to determine viable options to fund these projects, through either tolls, PPP Canada funding models and/or government subsidies.

The eight highway sections identified as part of the Feasibility Study were:

- Corridor 1: Highway 101 – Three Mile Plains to Falmouth (10.8 km)
- Corridor 2: Highway 101 – Hortonville to Coldbrook (23.7 km)

- Corridor 3: Highway 103 – Exit 5 at Tantallon to Exit 12 Bridgewater (68.1 km)
- Corridor 4: Highway 104 – Sutherlands River to Antigonish (37.8 km)
- Corridor 5: Highway 104 – Taylor’s Road to Auld’s Cove (39.5 km)
- Corridor 6: Highway 104 – Port Hastings to Port Hawkesbury (7.0 km)
- Corridor 7: Highway 104 – St. Peter’s to Sydney (94.9 km)
- Corridor 8: Highway 107 – Porter’s Lake to Duke Street, Bedford (33.3 km)

As part of the Feasibility Study, Class C cost estimates were developed for the eight highway sections identified. The construction cost estimates as well as estimates for land costs, wetland compensation and engineering totalled approximately \$2 billion. This figure included a high-level construction cost estimate for Corridor 4, Sutherlands River to Antigonish, of \$275 million.

The Feasibility Study also assessed current economic conditions of communities throughout the proposed corridors and the trends to determine whether twinning, upgrading or new construction of the highway sections was indicatively financially feasible. A preliminary screening/assessment was conducted, which involved a concentrated review of available information, additional data collection and a comparison of the eight highway corridors against specific criteria. These criteria were developed to identify the sections of highway that provide the best overall value for NSTIR and the road users.

In the spring of 2017, following completion of the Feasibility Study, NSTIR conducted a series of public consultation sessions to solicit feedback on plans for the proposed twinning of the highway sections. It was found that while there was support for the twinning of the highway segments identified, there was not a strong degree of public support for funding the twinning through tolls.

It was acknowledged that without the benefit of funding through tolls, NSTIR would not be able to immediately proceed with the twinning of all of the highway sections identified. The public did, however, appear to be generally willing to accept a smaller scope, i.e., fewer sections of the highway being twinned, such that tolling would not be required.

In view of the feedback received, it was decided that the Province would proceed with the procurement of works for three of the eight sections through a traditional procurement method. The Province also decided to explore the twinning of Corridor 4, Highway 104 – Sutherlands River to Antigonish, through an alternative procurement method with the goal of having it constructed sooner than would be possible with a traditional procurement approach.

1.4 THE BUSINESS CASE

A business case was prepared to assess the cost to design, build, finance, operate and maintain the Project. It was prepared by CBCL and EY on behalf of NSTIR and considered the feasibility of delivering the Project through an alternative procurement method to allow for the completion of construction faster than NSTIR’s traditional project delivery methods, while ensuring a focus on quality and cost control.

The analysis involved conducting a market sounding and a qualitative assessment of a range of project delivery models, followed by detailed quantitative analysis, supported by cost estimates, as described below.

1.4.1 Market Sounding

A market sounding was conducted to gauge market interest in the Project. Thirteen companies, with relevant experience in designing, building, financing, operating and maintaining infrastructure assets, within the Province, across Canada and globally, participated in individual market sounding interviews.

The interviews were conducted by EY with participation from CBCL and the Province. The feedback received was generally positive and indicated there was likely to be adequate interest in the Project. This was expected to allow for a competitive procurement process.

Project Delivery Method

Most participants indicated that they felt the Project was best delivered through a Design-Build-Finance-Operate-Maintain (DBFOM) model, as this would allow for the most appropriate allocation of risk and would encourage innovation. Larger players indicated that given the reduced project scope, relative to the initially contemplated eight-section project, they would not have as much interest without the inclusion of the additional OM&R responsibility for the Existing Highway Infrastructure as proposed. While there was some reticence around the inclusion of the rehabilitation responsibilities for sections of the highway that were constructed in the 1960s through to the 1990s, it was felt that the Project risks could be effectively managed and appropriately allocated. A few respondents, primarily constructors, indicated an indifference to the delivery model selected, though it was acknowledged that a DBFOM model would allow for better long-term planning.

Alignment Options

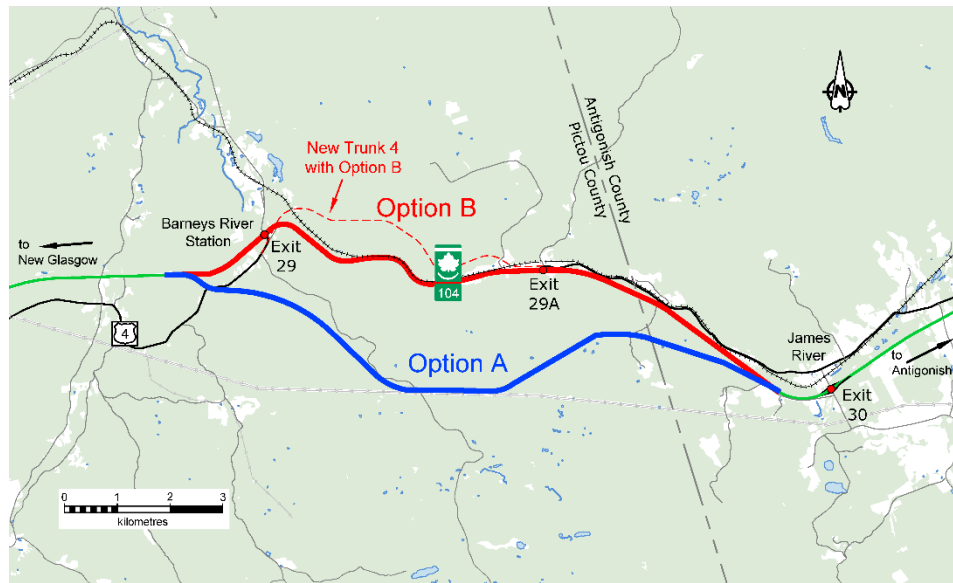
At the time of the market sounding, there were two alignment options under consideration for the highway section from Barney's River to James River (approximately 12–13 km):

- Alignment A: a new four-lane alignment up and over the hills to the south of the existing highway
- Alignment B: twinning the existing lanes through the valley at Marshy Hope and the construction of a 6 km section to allow a continuous highway alignment

Both alignment options are depicted in Figure 2.

Project Development Report
Highway 104 Sutherlands River to Antigonish Twinning Project

Figure 2: Alignment Options



The total estimated costs were comparable for each option. The distinguishing advantages and disadvantages of each alignment are presented in Table 1.

Table 1: Comparison of Alignments

Features	Option A	Option B
Length	12.4 km	12.8 km
Speed	110 km/h	100 km/h
Type	Freeway Open Median (4-Lane)	Narrow Median with Barrier (Twinning)
Advantages	<ul style="list-style-type: none"> • Constructability • Less traffic disruption • Fewer land owners and considerably fewer homes impacted • Lower risk to operator • Safer highway alignment 	<ul style="list-style-type: none"> • Flatter grades (fewer hills) • Less likely to trigger requirements for an Environmental Assessment • Scenic route • Less overall highway to maintain
Disadvantages	<ul style="list-style-type: none"> • Weather/climate • Steeper grades (more hills) • More overall highway to maintain 	<ul style="list-style-type: none"> • Constructability • Traffic management • Emergency access (barrier) • Construction phasing/sequencing • Disruption to railway • Environmental impact to Barneys River • More land owners and homes impacted

Market sounding participants indicated that they were open to either option. It was, however, generally acknowledged that Option A appeared to be easier to construct and that this would likely involve less risk for users (e.g., traffic control, scheduling, safety) and contractors during construction.

1.4.2 Qualitative Analysis

A qualitative assessment was conducted to evaluate various methods of project delivery. A range of options across the spectrum of traditional and public-private partnership (PPP) models were considered, including:

- Design-Bid-Build
- Design-Build
- Design-Build-Finance
- Design-Build-Finance-Maintain
- Design-Build-Finance-Operate-Maintain

The assessment determined that while different models could be implemented with varying levels of success, the DBFOM model best fit project requirements. The DBFOM model is an integrated approach that combines the design, construction, financing and OM&R of infrastructure into a single contract. Payments to the contractor are linked to performance measures stipulated in the contract, and the procuring authority maintains ownership of the asset.

The key factors driving the selection of the DBFOM model were:

- The financing component, which drives rigour on the part of the private sector partner around cost and on-time delivery; and
- The transfer of the operating and maintenance responsibilities for an extended contract term of 20 years, which was expected to incent the private sector partner to construct to high standards of quality, as they would have to operate and maintain the project at a fixed cost over the long term.

Accordingly, it was recommended that the DBFOM option proceed for quantitative analysis. It was also recommended that, in line with best practice for the evaluation of project delivery models, a traditional procurement method also be carried forward for comparative analysis.

The Design-Bid-Build (DBB) model was considered to be the best comparator as, if the Project were to be delivered through a traditional model, this would most likely be the procurement approach employed. This approach is most frequently adopted by NSTIR for projects similar to the one under consideration.

The DBB model involves splitting projects into a number of sections in order to make the procurement exercise more manageable. Under this traditional approach, the public sector is fully responsible for the engineering and design of the asset. NSTIR would first either complete in-house or tender the design of sections of the project and, on completion of the final designs, separately tender for construction. All OM&R activities would be undertaken by NSTIR. In most instances, NSTIR would procure third parties to separately undertake major rehabilitation requirements at the time such rehabilitation is required. This piecemeal approach would therefore result in a significantly longer implementation timeline.

1.4.3 Quantitative Analysis

A comprehensive risk assessment was undertaken to determine and quantify the risks of the DBFOM procurement and of the base case traditional DBB approach. These quantified risks were incorporated into a financial model developed to confirm the financial viability of the Project and to determine whether positive value for money¹ (VFM) would be realized by delivery through the DBFOM model. A positive VFM indicates that, relative to a DBB procurement, a DBFOM procurement is more cost-effective on a risk-adjusted basis over the life of the project. The risk and financial modelling were based on an estimated total project cost, including construction, operation and all rehabilitation work required to keep the highway in good condition for 20 years.

The results indicated that over the Project term, delivery of the Project through a DBFOM model is expected to result in VFM of over 10% as compared to delivery through a DBB model.² On the basis of the foregoing, it would be cost-effective to procure the Project using a DBFOM model. The assessment also indicated that this model would allow for the transfer of many of the risks related to Project cost, schedule and quality to the private sector:

- Transferring design responsibility ensures seamless design and construction, increasing speed of delivery.
- Transferring financing risk increases the probability of on-time delivery.
- The transfer of the long-term operating responsibility increases the onus on the private sector to employ high-quality materials and technology in construction.

1.4.4 Selected Approach

Based on the objective of having the safety benefits of a twinned highway realized as soon as possible and with the need for quality, competitively priced infrastructure, a decision was made to proceed with twinning Highway 104 from Sutherlands River to Antigonish along alignment A, using a DBFOM approach. The decision considered NSTIR's analysis of the respective benefits of the two alignment options, the positive results of the market sounding, qualitative analysis and quantitative analysis, and the inherent characteristics of the DBFOM approach.

It was also decided that the procurement process would follow and build on best practice for PPP projects, particularly for roads and highway infrastructure, already established in various jurisdictions across Canada. By following such precedent, it was expected that the Project would be relatively seamlessly delivered, given that the procurement process would be tested and well understood by the market.

1.5 FEDERAL FUNDING

Concurrently with the business case analysis, NSTIR separately examined viable options to fund the Project through available federal government funding programs. The National Trade Corridors Fund (NTCF) was identified as a potential source of funding.

¹ Further information on the value for money concept may be obtained at <https://www.infrastructureontario.ca/WorkArea/DownloadAsset.aspx?id=2147492776>

² Please see section 3.3 for final VFM results.

Project Development Report
Highway 104 Sutherlands River to Antigonish Twinning Project

As defined by the federal government, the NTCF is a dedicated source of funding that will help infrastructure owners and users to invest in the critical assets that support economic activity and the physical movement of goods and people in Canada. It represents a long-term commitment by the federal government to work with shareholders on strategic infrastructure projects that help to address transportation bottlenecks, vulnerabilities and congestion.

NSTIR pursued funding through the NTCF as, based on its assessment, the Project satisfied the NTCF requirements under the category of Highways and Major Roads. Under this category, the NTCF considers the investment in highways and major roads that are nationally significant, have broad public benefits and contribute to long-term economic growth and prosperity.

The NTCF is guided by a number of program objectives that serve as principles in the evaluation and selection of projects, including leveraging investments from multiple partners. Proposals are evaluated based on overall proposal assessment criteria, as well as the degree to which the proposed project aligns with the program objectives of the NTCF.

The selection criteria relevant to the program objective of leveraging investments from multiple partners suggested that the NTCF would support critical trade-enhancing projects that align with the NTCF's priorities and receive the financial backing of other public or private entities. In assessing and evaluating projects, consideration would be given to the number of organizations sharing in project costs and risks, the apportionment of project costs by stakeholder and alignment with other capital works by public or private sectors. The NTCF indicated that strong proposals demonstrate commitments from public and/or private sector organizations to either share in project costs or align with other projects that help to achieve high leveraging of federal and other stakeholder investments and greater capacity for trade.

The Project met this criterion given that it was proposed to be delivered through a DBFOM model. As such, the expertise of the private sector would be leveraged to deliver the Project and maintain the asset over the long term, thereby further promoting asset management efficiency. The private consortium would also be required to invest capital that NSTIR will, subject to satisfactory contractual performance, repay through availability payments over the operating period. In addition, should the project be procured via the traditional DBB approach, there is no guarantee that the program would be eligible for federal funding during the prolonged construction period.

In November 2017, NSTIR submitted a funding proposal to the NTCF for the upgrading and construction of Highway 104 between Sutherlands River and Antigonish. In July 2018, the federal government confirmed the award of \$90 million in NTCF funding for the Project.

2 PROJECT PROCUREMENT

2.1 PROCUREMENT PROCESS

The procurement of a private sector partner for the delivery of the Project through a DBFOM model was undertaken using a two-stage procurement process, modelled on Infrastructure Ontario (IO) processes and templates. The IO template was followed as it was considered to be well tested and understood, as confirmed through the market sounding process.

The two-stage process consisted of a Request for Qualification (RFQ) stage followed by a Request for Proposals (RFP) stage. The procurement process was overseen by RFP Solutions who, in their role as Fairness Monitor, monitored the process for procedural fairness.

The IO template was applied in the development of the RFQ and RFP documentation as well as the Project Agreement. Where there were deviations from the template, these were primarily to allow for Project- or Province-specific features or requirements. The terms and conditions of the procurement documents and the Project Agreement were therefore largely consistent with Canadian best practices for the delivery of the projects through PPP arrangements.

2.1.1 Request for Qualifications

An RFQ stage was undertaken in order to shortlist qualified bidders to advance to the RFP stage. The RFQ document, which formally communicated project details, invited interested parties to respond by making submissions in accordance with the stipulated submission requirements. The submission requirements were developed to enable determination as to whether respondents had the experience and expertise, as well as a commercial and financial structure, that would allow for successful financing and delivery of the Project.

The release of the RFQ on July 23, 2018 officially opened the procurement phase of the Project. A strong level of market interest was confirmed as four consortia, comprising local, national and international developers as well as design, construction, operation and maintenance companies, responded to the RFQ, namely:

- Atlantic Safelink Partners
- Dexter Nova Alliance
- Highway 104 Connectors
- Osprey Transportation Solutions

An evaluation process was established by NSTIR and reviewed by the Fairness Monitor. Submissions received were evaluated against the evaluation criteria, in accordance with established evaluation procedures. The top three respondents (the Proponents) shortlisted to advance to the RFP stage were:

- Atlantic Safelink Partners
- Dexter Nova Alliance
- Osprey Transportation Solutions

2.1.2 Request for Proposals

The RFP set out NSTIR’s detailed requirements of Proponents and, ultimately, the Preferred Proponent, including the content and format of proposals. The RFP provided a basis on which to maintain consistency and compare proposals. It was accompanied by the full contractual terms proposed for the procurement and represented a starting position for negotiation with Proponents.

The RFP also set out the basis on which proposals would be evaluated. A detailed evaluation methodology was developed, which, along with an evaluation matrix consistent with this methodology, was incorporated into an evaluation manual that was reviewed by the Fairness Monitor.

The RFP was released to Proponents on February 15, 2019.

Throughout the RFP stage, NSTIR held rounds of Commercially Confidential Meetings (CCMs) with Proponents. The CCMs allowed for discussion on, amongst other things, technical and operational specifications as well as the payment mechanism. They also allowed for the negotiation of terms of the RFP and draft Project Agreement while Proponents were under competitive tension. The CCMs had a positive impact on the quality and attractiveness of the proposals received and helped to mitigate the risk of receiving proposals that were either unfeasible or undesirable.

Technical Submissions were received on October 16, 2019 and financial submissions were received on November 13, 2019. This two-stage submission process was implemented to allow for a determination of technical compliance and the evaluation of the technical submissions in accordance with the technical evaluation criteria, before any consideration of the cost of the proposed technical solutions.

On January 30, 2020, Dexter Nova Alliance, a consortium with a strong Nova Scotia presence, was named as the Preferred Proponent. The consortium was selected given that it submitted the highest-scoring proposal, based on technical approach as well as financing and overall cost.

2.2 PREFERRED PROPONENT

Dexter Nova Alliance (DNA or Project Co) is a general partnership owned by BBGI SICAV S.A. (BBGI), Municipal Enterprises Limited (Municipal) and Nova Construction Co. Ltd. (Nova). The partnership is further described in Table 2.

Table 2: DNA’s Equity Partners

Project Co Party	Description
BBGI SICAV S.A.	BBGI is a global infrastructure investment company that provides capital required to build and maintain the developed world’s transport and social infrastructure. Today, the portfolio consists of 48 globally diversified projects.
Municipal Enterprises Limited	Municipal Group is composed of numerous diversified business units and includes Dexter Construction, their road building division. The company’s service offerings also include construction, environmental, asphalt and quarry, utilities, emulsions, demolition, mining and disposal.

Project Development Report
Highway 104 Sutherlands River to Antigonish Twinning Project

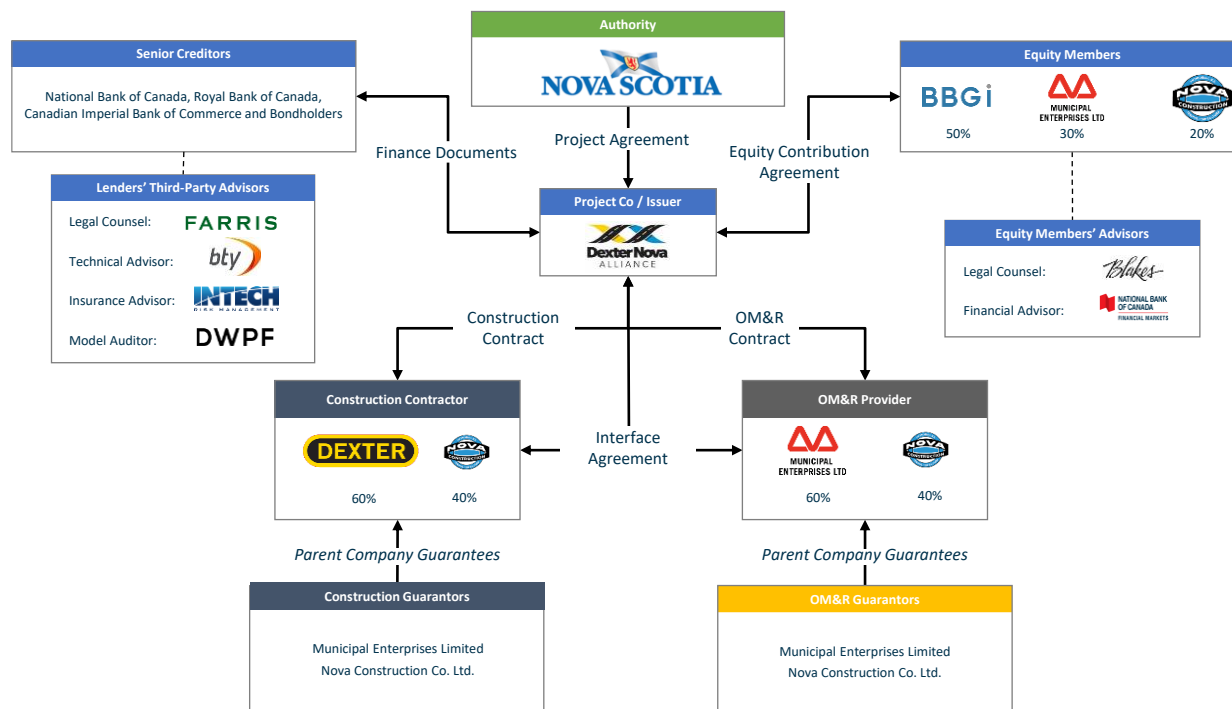
Project Co Party	Description
	In business in Nova Scotia for over 40 years, their presence now extends into New Brunswick, Newfoundland and Labrador, Northern Quebec and the Caribbean.
Nova Construction Co. Ltd.	<p>Nova has built, upgraded and/or paved more than 500 miles of highway in Newfoundland, New Brunswick and Nova Scotia for the provincial and federal governments.</p> <p>As a contractor to the Atlantic Highways Corporation Group, which built the Cobequid Toll Highway (the first privately funded highway in Atlantic Canada), Nova lent its experience to the construction of the 45 km, four-lane, divided Trans Canada Highway. The \$113-million-dollar project was completed two weeks ahead of schedule and on budget.</p>

Aside from providing equity for the Project, Municipal/Dexter and Nova will act as construction contractor and OM&R provider. The team is supported by legal advisors, financial advisors, senior creditors and third-party advisors.

3 FINAL PROJECT STRUCTURE

The Project Agreement was executed by NSTIR and DNA on May 4, 2020, at which time commercial close was achieved. Financial close was subsequently achieved on May 6, 2020. Figure 3 shows the key Project parties and the primary contractual agreements governing their relationships.

Figure 3: Transaction Structure and Key Parties



3.1 KEY TERMS OF THE PROJECT AGREEMENT

The Project Agreement governs the relationship between NSTIR and DNA, including roles and responsibilities of each party over the Project term. The document describes, amongst other things, the project governance structure, operations and maintenance of the Existing Highway Infrastructure during construction, scheduled substantial completion date, project risk allocation framework, project output specifications, performance management framework, payment mechanism and ownership and handback, as further described below.

3.1.1 Project Governance Structure

The Project Agreement sets out the framework for Project governance. This includes requirements for the establishment of various committees to allow for oversight of Project activities during construction and into operations. It also specifies requirements as it relates to communication between NSTIR and Project Co, as well as between Project Co and the general public, in relation to Project construction and OM&R activities.

This governance framework allows NSTIR to monitor Project progress and compliance with the terms of the Project Agreement and requires Project Co to communicate with and remain accountable to NSTIR and the general public.

3.1.2 Operation and Maintenance of Existing Highway Infrastructure During Construction

Project Co will be responsible for operation and maintenance of the Existing Highway Infrastructure during the construction period. This will allow for more effective management of construction activities, while reducing interface issues and risks that could otherwise result.

The O&M Interim Services Agreement, which forms part of the Project Agreement, includes provisions for the handover of the Existing Highway Infrastructure to Project Co on June 1, 2021. It specifies requirements of Project Co in relation to the Existing Highway Infrastructure during the construction period, along with associated payments, performance monitoring and penalty provisions.

Project Co will also be responsible for OM&R activities on the Existing Highway Infrastructure during the operations phase of the Project, as also provided for in the Project Agreement.

3.1.3 Scheduled Substantial Completion Date

Substantial completion is scheduled to be achieved on August 31, 2023. By this date, all requirements for substantial completion described in Project Agreement, other than in respect of minor deficiencies, are expected to have been satisfied.

The construction contract is a fixed-price turnkey contract. Outside of scope changes requested or explicitly approved by NSTIR, there are no provisions for payments in excess of the contracted price. There will be no payments made to Project Co until substantial completion is achieved. This feature will incentivize Project Co to complete construction on time.

3.1.4 Project Risk Allocation Framework

The Project risk allocation framework, as reflected in the Project Agreement, is designed to allocate Project risks to the parties best suited to manage them. The key Project risks and their allocation between NSTIR and Project Co are outlined in Table 3.

Table 3: Key Project Risks

Key Project Risks	Responsible Party	
	Project Co	NSTIR
Land acquisition		✓
Design	✓	
Utilities relocation	✓	✓
Geotechnical	✓	
Site conditions	✓	✓
Contamination from construction & OM&R	✓	
Permitting	✓	✓
Construction	✓	
Financing	✓	
Operations	✓	
Maintenance	✓	

Key Project Risks	Responsible Party	
	Project Co	NSTIR
Scope changes by NSTIR		✓
Force majeure	✓	✓

3.1.5 Project Output Specifications

Following substantial completion and throughout the OM&R period, Project Co will be required to satisfy output specifications as outlined in the Project Agreement. Key performance measures are reflected in Table 4.

Table 4: Key Performance Measures

Key Performance Measures	
Plans, Reports, and Data Reporting	Corridor Features, e.g., Guide Rails, Barriers, Energy Absorbing Systems, Fences
Operational Communications	Incident and Emergency Response
Surface Maintenance	Structures Maintenance
Drainage	Asset Preservation
Winter Condition Service	Handback Condition
Traffic Control Features	Environmental Obligations

3.1.6 Performance Monitoring Framework

The Project Agreement sets out a framework for the monitoring of performance in accordance with the output specifications. Where DNA's performance does not satisfy the output specifications, the framework specifies the basis upon which penalties, including deductions from scheduled payments, may apply.

3.1.7 Payment Mechanism

Over the Project term, payments to DNA will comprise a substantial completion payment and monthly capital and OM&R payments, as described in Table 5.

Table 5: Payments to DNA

Substantial Completion Payment	Set at 50% of Project capital costs, representing a balanced approach to: <ul style="list-style-type: none"> • Incentivize DNA's performance, given capital at risk; and • Minimize Project financing costs.
Monthly Capital and OM&R Payments	Based on an established schedule of payments to: <ul style="list-style-type: none"> • Repay the remaining 50% of Project capital costs over the 20-year concession period; and • Compensate DNA for the delivery of OM&R services.

The payment mechanism establishes the structure by which monthly capital and OM&R payments will be paid and potentially adjusted to account for factors such as inflation and insurance costs. It also allows for the enforcement of financial deductions for failure to satisfy output specifications by establishing a mechanism for deductions from monthly capital and OM&R payments, consistent with the performance monitoring framework.

The Project Agreement is structured such that DNA has capital at risk over the Project term. The ability to enforce contractual requirements by making deductions from monthly capital and OM&R payments incentivizes DNA to deliver at the required standard where there is non-compliance.

3.1.8 Ownership and Handback

The existing and newly constructed highway will be a public highway, with ownership and control held and maintained by NSTIR. During the Project term, NSTIR has granted DNA certain non-exclusive licence rights of use and access to the highway and certain lands as required to allow DNA to perform its obligations under the Project Agreement. Upon expiration of the Project term, it is required that the highway be in good operating order, in accordance with the handback requirements as specified in the Project output specifications.

3.2 CONTRACT COSTS

The total value of the contract to design, build, finance, operate and maintain the highway is \$717.9 million, with \$364.3 million of the total for construction and \$196.4 million for OM&R during construction and the 20-year OM&R period after the highway has been opened to traffic. The scope of the OM&R work covers 63.3 km of four-lane, twinned highway. The balance of contract costs is for insurance, professional fees, financing and other items.

The construction cost of the Project will be partially offset by \$90 million from the federal government under the NTCF.

The increase in construction cost over the project development period reflects the refinements in cost estimate, inflation and some additional scope elements and enhancements, including:

- Replacement of seven 1960s-era highway bridges. These bridges are primarily on the existing two-lane highway that is to be twinned. The result will be a newly twinned highway in which the existing two-lane section is upgraded and in like-new condition. ~\$20 million;
- Environmental or green enhancements including wildlife fencing and replacement of three major culverts with bridges. ~ \$15 million;
- A longer structure at Middle Brook. ~ \$20 million; and
- Interchange enhancements (roundabouts) and other miscellaneous items. ~ \$5 million.

3.3 FINAL VALUE FOR MONEY ASSESSMENT

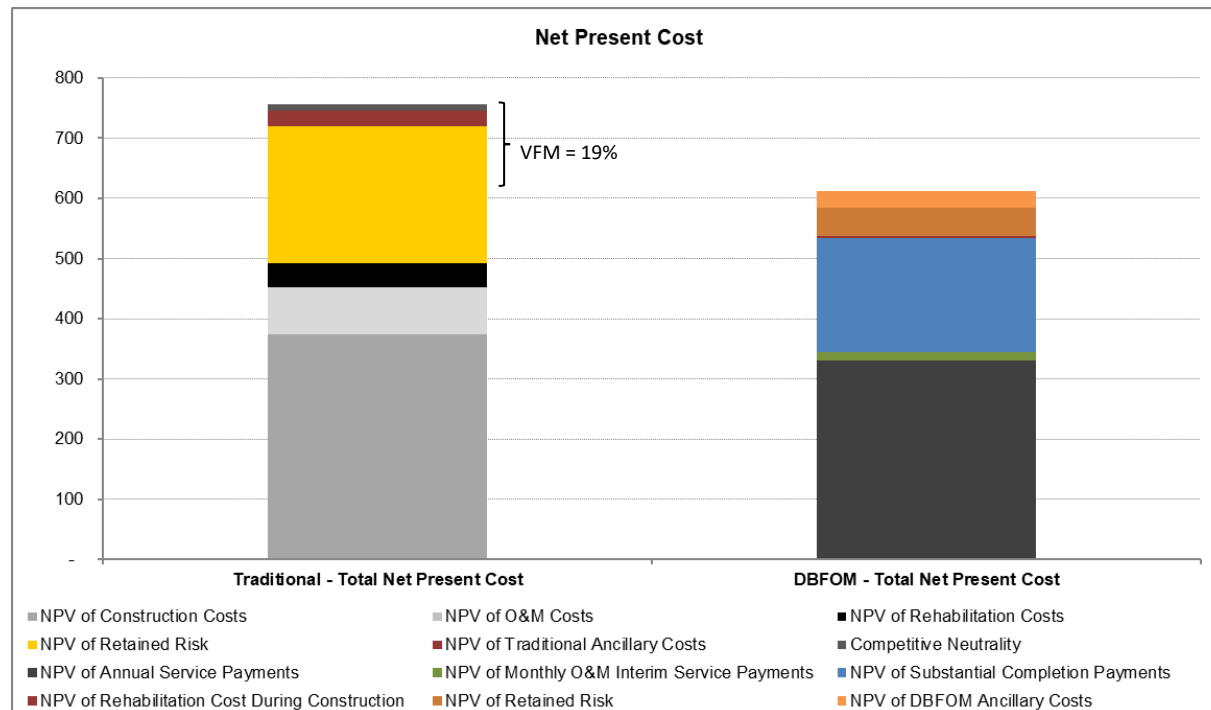
Following on the business case analysis conducted in the development phase of the Project, NSTIR, supported by its advisors, regularly updated the Project VFM analysis throughout the procurement to financial close. This allowed for progressive reconfirmation that the Project, as structured, would deliver VFM.

The final VFM analysis is based on the final Project structure and actual contract costs as agreed with DNA. As necessary, other inputs and assumptions were updated to reflect:

- Revised estimates for ancillary costs to be incurred by NSTIR under the traditional and DBFOM approach; and
- Changes in financial markets.

The result of the VFM Analysis is summarized in Figure 4.

Figure 4: VFM Analysis



The results confirm that the Province should expect overall lifetime costs of the Project to be 19% less through the DBFOM arrangement reflected in the Project Agreement than if built, financed and operated traditionally.

3.4 KEY ADVANTAGES OF THE PROJECT APPROACH

The significant benefits the Province will realize from the Project, including increased safety, reduced traffic congestion and increased productivity, are broadly recognized. In addition to these benefits, relative to the traditional approach, the delivery of the Project through a PPP arrangement offers several advantages, including:

- Expedited Project completion
- Cost certainty
- Clear accountability

These advantages are discussed below.

3.4.1 Expedited Highway Construction

The Project’s construction phase is expected to be completed within seven years of the public consultation session in 2017 as shown in Table 6. The Province has historically taken significantly longer to deliver projects of similar size and complexity using the traditional model. As an example, the twinning of 14.5 km of Highway 104 at Antigonish took 20 years from design to completion of construction. As described in the foregoing, the Project structure incentivizes DNA to complete construction quickly while employing high-quality construction materials and techniques.

Table 6: Project Schedule

Milestone	Date
Highway Twinning Feasibility Study	December 2015
NTCF Funding Application Submitted	November 2017
NTCF Funding Awarded	July 2018
RFQ issued for DBFOM Team	July 2018
RFP for DBFOM Contract	February 2019
RFP Submissions	October and November 2019
Financial Close	May 2020
Construction Completed	December 2023

3.4.2 Cost Certainty

Without consideration to the various risks in Project delivery, delivering the Project through a PPP arrangement appears to be more expensive than through a traditional approach. This is largely due to additional private sector financing costs that accrue under a PPP arrangement.

Given the size and complexity of the Project, NSTIR determined, through a comprehensive risk assessment exercise, that the Project is exposed to certain key risks. As NSTIR is not best positioned to manage many of these risks, there is a higher probability of materialization if the Project is delivered through a traditional approach.

The materialization of these risks could have significant cost implications, which, in NSTIR’s experience, often results in final project costs well exceeding initial project budgets. In the case of this Project, the anticipated cost impact of the materialization of these key project risks outweighs the additional financing costs to be incurred under the PPP arrangement.

Additionally, the payment terms and schedule are well defined within the Project Agreement. The terms limit recourse to NSTIR in the event of cost overruns and therefore create cost certainty for the Province and taxpayers.

3.4.3 Clear Accountability

Project roles and responsibilities are well defined in the Project Agreement and performance standards are clearly stipulated. Strict and enforceable financial deductions, coupled with escalating legal remedies, will apply in the event of non-compliance.

These financial deductions and legal remedies are given further effect by the capital that DNA has at risk and the additional oversight of DNA’s lenders. This structure aligns the interest of all parties to the Project Agreement, encourages performance and facilitates the realization of the maximum benefits for all Nova Scotians.

APPENDICES

A. FINANCIAL ADVISORS' LETTER



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Nova Scotia Department of Transportation and Infrastructure Renewal
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August 05, 2020

Value for money analysis - Highway 104 Sutherlands River to Antigonish Twinning Project

Dear Ms. Harland,

Ernst & Young Orenda Corporate Finance (EY) has prepared the Value for Money (VFM) assessment for the Highway 104 Sutherlands River to Antigonish Twinning Project at the Financial Close stage. The analysis was conducted in accordance with generally accepted Canadian and global practices.

The VFM assessment is based on a comparison of the total project costs of the Highway 104 Sutherlands River to Antigonish Twinning Project, as reflected in the Preferred Proponent's final bid model at Financial Close, under:

1. A traditional delivery approach, as represented by a Design-Bid-Build (DBB) delivery model using estimated total project costs
2. A public-private partnership (PPP) approach, as represented by a Design-Build-Finance-Operate and Maintain (DBFOM) delivery model

The methodology applied involved establishing a period-by-period cash flow profile under each procurement delivery model, assuming Project procurement on a "like for like" basis (i.e. consistent timeline, specifications, etc.). These cash flow profiles were risk-adjusted and brought to current dollars by applying an appropriate discount rate to provide a net present value (NPV) of costs for each procurement delivery approach.

The cost information and underlying assumptions were not independently audited or verified for accuracy or completeness.

Based on the methodology applied, the results of the VFM assessment demonstrates an estimated VFM cost savings of 19% by using the PPP approach to deliver the Project in comparison to using the Traditional delivery approach.

Yours sincerely,

*Ernst & Young Orenda
Corporate Finance Inc.*

ERNST & YOUNG ORENDA CORPORATE FINANCE INC.

B. FAIRNESS MONITOR'S SUMMARY REPORT AND OPINION OF ASSURANCE

**Highway 104 Sutherlands River to Antigonish Twinning
Project**

Government of Nova Scotia

**Fairness Monitor's Summary Report
and
Opinion of Assurance**

Submission To:

Janice Harland

Director

Capital Programming

Transportation

&

Infrastructure Renewal

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Submission Date:

June 17, 2020

Submission From:

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Table of Contents

Introduction	3
Background.....	3
Mandate of the Fairness Monitor.....	3
Principles of Fairness	3
Activities of the Fairness Monitor	4
Opinion of Assurance.....	4

Introduction

RFP Solutions was engaged on April 30, 2018 by the Province of Nova Scotia to oversee the two (2) stage procurement process for the Highway 104 Twinning Project as the Fairness Monitor. The process involved an initial Request for Qualifications (RFQ) to qualify firms eligible to submit proposals to a subsequent Request for Proposals (RFP) for the delivery of the Project. This report serves as an opinion of assurance at the conclusion of the procurement process by the Province.

Background

The Highway 104 Sutherlands River to Antigonish Twinning Project consists of the construction of a four lane divided highway corridor beginning at the end of the existing divided highway east of New Glasgow near Exit 27 at Sutherlands River and running for a distance of approximately 38 km to the existing divided highway just west of the Addington Forks Interchange (Exit 31) at Antigonish.

The Project includes the construction of: two new lanes adjacent to the existing highway from Exit 27 to a location near the community of Barneys River Station (approximately 17 kms); approximately 10 km of new four-lane divided highway through a wooded area to bypass the existing highway through Marshy Hope; two new lanes adjacent to existing highway from the new four lane section to the Antigonish Bypass (approximately 11 kms); associated land access roads; two new interchanges, approximately 24 new bridges. Included in the bridge numbers are three river crossings.

Through this process, the Province was seeking to procure a private sector counterparty to deliver the twinning of Highway 104 (Sutherlands River to Antigonish) through a long-term design, build, finance, operate and maintain (“DBFOM”) arrangement.

Mandate of the Fairness Monitor

The Fairness Monitor was engaged by the Province prior to the release of the draft RFQ and remained engaged through to the conclusion of the second-stage RFP process by the Province, including oversight of the Province’s evaluations and ranking of Proponents to identify the highest ranked Proponent, execution of the Project Agreement and achievement of Financial Close, and oversight of final notifications and debriefings to the other participating Proponents.

The Fairness Monitor was mandated to review the procurement process (RFQ and RFP) undertaken by the Province and assess and report on fairness matters, including providing a final report at the conclusion of the process providing an informed opinion on the extent to which the Province adhered to the principles of fairness in relation to the process.

Principles of Fairness

The following principles of fairness were applied throughout the procurement process:

EQUALITY - all participants given the same opportunity, the same information, and all subject to the same set of rules;

NEUTRALITY - an absence of bias or favouritism to any participant(s) - a dispassionate and impartial perspective which avoids the subjective indulgence of one's personal likes or dislikes;

INTEGRITY - a process with no pre-determined outcome, that is free from self-interest or competing interests, and that is undertaken in accordance with what is ethically right and proper;

CONSISTENCY - all submissions assessed using the same criteria and processes;

OBJECTIVITY - observation, evaluation and judgment based solely on the evidence presented, and not on personal beliefs, preferences or preconceived opinions;

TRANSPARENCY - a process that is open, accessible and easily understood by all participants; and

LEGITIMACY - a process resulting in an honest and truthful outcome that is able to withstand any degree of scrutiny.

Activities of the Fairness Monitor

At each of the two (2) stages of the procurement process (RFQ and RFP), the Fairness Monitor reviewed the solicitation documentation prior to their release to industry participants.

During the solicitation open period, the Fairness Monitor reviewed all Addendum and responses to industry questions drafted by the Province. The Fairness Monitor observed all Provincial engagement with industry during the process, including the RFQ Applicants, and a series of Commercially Confidential and Subject Specific Meetings with each of three (3) short-listed Proponents during the RFP phase.

Prior to the close of each solicitation, the Fairness Monitor reviewed the evaluation process structure, composition, governance, together with evaluation tools, training materials and manuals to ensure concordance with the published solicitation documents and the principles of fairness, and attended the Province's training of evaluators, providing orientation on the principles of fair evaluation.

At the closing date of each solicitation, the Fairness Monitor verified that industry submissions were received on time. The Fairness Monitor participated in the completeness reviews of responses/proposals, as well as the relationship review undertaken by evaluators prior to the release of the proposals to the evaluation teams at each of the RFQ and RFP stages.

The Fairness Monitor oversaw all consensus meetings of the Province's evaluation teams and review draft clarifications to Proponents prior to their issuance by the Province; in addition to review of responses received and their disposition by the Province. The Fairness Monitor reviewed the records of the consensus evaluations at each stage of the process, to validate that the outcomes recorded reflected the observed consensus of all participants.

At the conclusion of the RFP technical evaluations, the Fairness Monitor reviewed the conduct of the Financial Evaluation and oversaw the calculation of final scores and ranking of Proponents by the Province. The Fairness Monitor reviewed notifications prepared by the Province to Proponents, and monitored the process by which the Province and the highest-ranked Proponent proceeded to execution of the Project Agreement and achievement of Financial Close.

The Fairness Monitor reviewed the Province's final notifications and procedures for debriefing of the unsuccessful Proponents and oversaw the conduct of debriefings by the Province.

No fairness concerns were identified by the Fairness Monitor's during the procurement process.

Opinion of Assurance

In our opinion, the Province conducted each stage of the two (2) stage procurement process for the Highway 104 Sutherlands River to Antigonish Twinning Project with the utmost integrity, consistent with the principles of fairness, Provincial procurement policies and public sector best practices.



Steve Johnston
Managing Director/Fairness Monitor
For: RFP Solutions Inc.

Date: June 17, 2020

