

GORDIE HOWE INTERNATIONAL BRIDGE PROJECT

CANADA-U.S. BORDER CROSSING: A MODEL FOR BINATIONAL P3s



THE CANADIAN COUNCIL FOR PUBLIC-PRIVATE PARTNERSHIPS
2019 NATIONAL AWARD CASE STUDY

The Canadian Council for
Public-Private Partnerships



Le Conseil Canadien pour
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The Canadian Council for Public-Private Partnerships
2019 National Award Case Studies

Gold Award for Project Financing:
Gordie Howe International Bridge Project

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Introduction

For nearly 30 years, The Canadian Council for Public-Private Partnerships and its members from the public and private sectors have played a strong role in refining the P3 model and promoting new approaches to infrastructure development and service delivery.

Governments across Canada are using the public-private partnership (P3) model to build, maintain and operate much-needed infrastructure, from schools and hospitals to bridges and highways. In 2020, there are 288 active P3 projects in operation or under construction valued at \$139.4 billion.¹

Along the way, the ‘made-in-Canada’ P3 model has become globally renowned but, as the winners of the 2019 National Awards for Innovation and Excellence in Public-Private Partnerships demonstrate, it has never stopped evolving.

This year, CCPPP is publishing three case studies on these exemplary projects, joining the almost 80 that have been published to date. Designed to inspire others to consider innovative and efficient models for procuring infrastructure, the studies highlight many of the lessons learned about P3s. Each case provides a close look at how a successful P3 has worked, including how the partnership was established, its structure and operation and its resulting benefits.

It is important to learn from these complex projects as we move forward. After all, investment in infrastructure is critical for the future of our communities and country because it creates jobs, drives growth, stimulates productivity, and builds a legacy for us to thrive.

Canadians want — and expect — critical infrastructure to be built quickly and with the best value for taxpayers. Using public-private partnerships is an advantage given their fixed price, on-time private sector delivery commitment, risk allocation and improved life cycle maintenance and operations.

In 1998, CCPPP established the National Awards for Innovation and Excellence in Public-Private Partnerships to honour governments and/or public institutions and their private sector partners who have demonstrated excellence and innovation in P3s. Gold, silver and bronze Awards of Merit are given in the areas of project development, financing,

infrastructure, service delivery or other notable attributes to projects from across the country and at all levels of government.

Winning projects are chosen on the basis of the following criteria:

- Innovative features;
- Relevance or significance as a national and/or international model;
- Economic benefit (job creation, enhanced economic value, export potential, etc.);
- Measurable enhancement of quality and excellence of service or project;
- Appropriate allocation of risks, responsibilities and returns between partners; and
- Effective use of financing and/or use of non-traditional sources of revenue.

2019 Award Winners

Gordie Howe International Bridge Project — Gold Award for Project Financing

This international crossing — which will be the longest cable-stayed bridge in North America and the first new major trade link between the United States and Canada in four decades — represents one of the largest recent private financings of a P3 in Canada with a total project cost of CAD\$5.7 billion. The step-up step-down security package provided to lenders is unique and the project is the first Canadian P3 to use a non-traditional foreign exchange risk framework to balance fluctuating currency prices, setting a precedent for future cross-border transactions.

Tłı̄ch̄o All-Season Road — Gold Award for Project Development

This 97-kilometre all-season gravel highway, which will link the remote northern community of Whatı̄ with its neighbours in the Northwest Territories, is among the first P3s in North America with an Indigenous government that has a cash-funded equity stake in the project. The project is also notable for its unique approach to handling long-term risks related to climate change, which is happening at an unprecedented rate in the North. Its “bespoke climate change risk-sharing regime” uses cutting-edge modelling, enabling the partners to more efficiently price their

¹ P3 Spectrum, www.p3spectrum.ca, accessed April 20, 2020.

potential exposure to this risk for long-term operations and maintenance of a road constructed above permafrost.

Library and Archives Canada’s Gatineau 2 Project – Silver Award for Project Development

This new flagship building in Gatineau, Que., will be the first “net-zero carbon” facility dedicated to archival preservation in the Americas and the first federal building constructed to the requirements of Canada’s Greening Government Strategy. This will also be the world’s largest preservation facility equipped with a high-tech automated archive storage and retrieval system. Overall, the project will not only ensure Canada’s precious national collections are kept under optimal preservation conditions, but also set a global standard.

The New Toronto Courthouse – Silver Award for Project Development

Construction is underway on Ontario’s first high-rise courthouse in Toronto’s downtown core, which will amalgamate six Ontario Court of Justice criminal courthouse locations in one new, accessible location. The project will improve access to justice and enhance operational efficiencies, as well as commemorate the rich cultural and heritage value of the site. Along with its 63 courtrooms and 10 conference rooms, the 17-storey facility will include improved security features and house the first Indigenous Learning Centre in an Ontario courthouse.

Stoney CNG Bus Storage and Transit Facility – Silver Award for Infrastructure

This gigantic facility near the Calgary International Airport can hold 424 standard 12-metre (40-foot) buses with overflow space for 50 more buses. It is the largest indoor compressed natural gas bus fuelling complex in North America and one of the largest in the world. But not only are the buses using greenhouse gas reducing technology, the facility itself marries cutting-edge technology and environmental design features such as a top-down ventilation design that safely and efficiently removes air contaminants.

Acknowledgements

CCPPP has a team of dedicated Award selection committee volunteers who review the applications, select the winners and provide feedback on the case studies. Using their extensive P3 knowledge and experience, they select the winners from a pool of very qualified applications and then ensure the case studies provide a learning tool for seasoned practitioners, as well as those new to the P3 model. The following panelists comprised the 2019 selection committee:

- Cliff Inskip, Chair of the Awards Selection Committee and President, Polar Star Advisory Services Inc.
- Shariq Alvi, Managing Director, Infrastructure and Project Finance, CIBC
- Rupesh Amin, Managing Partner, Infrastructure & Development, Forum Equity Partners
- Peter Hepburn, Managing Director and Head, Infrastructure and Project Finance, National Bank Financial Markets
- Alain Massicotte, Partner, Blake Cassels and Graydon LLP
- Johanne Mullen, Partner and Leader, Canadian Infrastructure and Project Finance Group, PricewaterhouseCoopers LLP
- Dr. Alan Russell, Professor & Chair, Computer Integrated Design & Construction, Department of Civil Engineering, University of British Columbia
- Godyne Sibay, Partner, Real Property and Planning Group, McCarthy Tétrault LLP
- Lindsay Wright, Manager, Global Infrastructure, KPMG LLP

Deborah Reid and Jennifer Robinson authored the 2019 Award Case Studies, which were developed with significant input and review from the project partners and procurement agencies as well as the diligent work of the researchers. CCPPP would like to thank them for their contributions as well as Infrastructure Canada for its research support for the case studies.



**Infrastructure
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About CCPPP

Established in 1993, CCPPP is a national not-for-profit non-partisan, member-based organization with broad representation from across the public and private sectors. Our mission is to collaborate with all levels of government, Indigenous communities and the private sector to enable smart, innovative and sustainable approaches to developing and maintaining infrastructure that achieve the best outcomes for Canadians.

Our reports, case studies, guidance and surveys are available on CCPPP's online bookstore at

www.pppcouncil.ca/web/bookstore.

Additional resources include: P3 Spectrum (www.p3spectrum.ca), Canada's premier source for up-to-date P3 project info.

Quick Facts – Gordie Howe International Bridge Project²

Project type

Design-Build-Finance-Operate-Maintain (DBFOM)

Asset/Service

Design, build, finance, operate and maintain a new, six-lane, 2.5-kilometre cable-stayed 853-metre main span bridge across the Detroit River connecting Windsor, Ontario in Canada and Detroit, Michigan in the United States (U.S.) and featuring:

- a secured port of entry on each side of the border;
- a tolling system; and
- completion of the Michigan Interstate-75 (I-75) interchange in Detroit.

36-year term comprised of:

- 6-year design-construction period; and
- 30-year operations and maintenance period.

Status

Under construction.

Partners

Public Sector

- Windsor-Detroit Bridge Authority (WDBA)

Private Sector

- Bridging North America General Partnership (BNA) comprising:
 - ACS Infrastructure Canada Inc.;
 - Fluor Canada Ltd.; and
 - Aecon Concessions, a division of Aecon Construction Group Inc.

Other participants

Public Sector

- P1 Consulting Inc. – Fairness Advisor
- Deloitte LLP – Financial Advisor
- Parsons Corporation – Technical Advisor
- Fasken Martineau DuMoulin LLP – Legal Advisor
- Warner Norcross + Judd LLP – Legal Advisor

Private Sector

- BNA Constructors Canada GP – Construction Contractor
- BNA O&M General Partnership – Operations, Maintenance and Rehabilitation (OMR) Contractor
- Aecon Concessions, a division of Aecon Construction Group Inc. – Developer
- Fluor Corporation – Developer
- RBC Capital Markets – Financial Advisor
- Blake, Cassels & Graydon LLP – Consortium Counsel
- AECOM – Design and Engineering Advisor to Construction Contractor
- IBI Group – ITS and Tolling Advisor to OMR Contractor.

Project cost, financing and value for money³

Total contract value (nominal dollars)

- \$5.7 billion
 - Project costs during construction – \$3.8 billion
 - Operations, maintenance and rehabilitation – \$1.9 billion
- The project represents a \$3.279 billion capital investment by the Government of Canada (approximately 85%) and a \$574.8 million private financing by BNA (approximately 15%) during construction.

Payments covering capital costs

- Monthly construction period payments covering 71.74 per cent of the project's capital costs (available after the first 15 per cent of capital costs have been privately financed);
- Substantial completion payment covering 12.66 per cent of the project's capital costs; and
- Monthly capital payments covering one per cent of the capital cost (after Canadian Port of Entry is delivered).

² Background and facts in this case study rely on the information contained in the award application submitted jointly by the project partners in September 2019 to The Canadian Council for Public-Private Partnerships. Information from the submission has been supplemented and updated with information from the procurement documents, the project agreement, other sources as noted and personal interviews with project partner representatives.

³ All monetary values are in Canadian dollars.

Private financing (nominal dollars)

- To fund BNA's share of capital costs, a total of \$1.033 billion of private financing was raised, including:
 - Long-term (35-year) and medium-term (20-year) bonds totalling \$446 million.
 - Short-term construction period bank loan of \$587 million; and
 - \$93 million in private equity.

Payments during operations (nominal dollars)

- Interim OMR payment following Canadian Port of Entry handover to substantial completion.
- OMR period payments during the 30-year operating period subject to availability and performance totalling \$2.312 million.

Value for money (present value dollars)

- Estimated at \$562.8 million net present value (NPV), or 10.7 per cent.

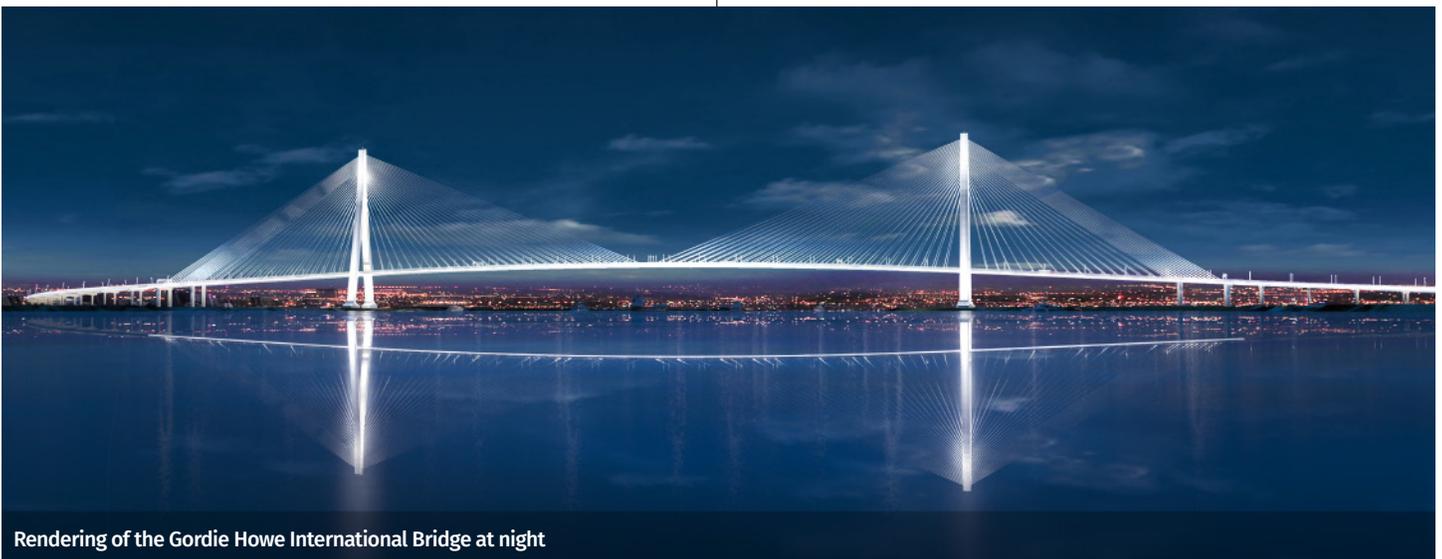
Project highlights and innovative features

- This new international bridge will create additional crossing capacity to meet increased long-term international trade and travel demand, and will support the economies on both sides of the Canada-U.S. border.
- It will be the longest cable-stayed bridge in North America by main span, and one of the largest bridges in the world.

- The binational nature of the project sets it apart from all other P3 transactions previously conducted in Canada. Examples include:
 - ensuring different country codes, regulations and standards are met;
 - managing a workforce and stakeholders on both sides of the border;
 - working in two currencies; and
 - navigating the complex tax structure of working in two countries.
- The innovative financing solution features a unique step-up/step down mechanism that provides robust lender protection and resulted in an A- rating.
- The risk allocation framework was designed to effectively manage the regulations and standards of two countries regarding items such as environmental risk and land acquisition.
- Sustainability and environmental measures are included in the design and construction of the bridge, for example, the bridge foundations and piles will be installed on the riverbank, eliminating the need for in-water works, which diminishes contamination risk, avoids disruption to river traffic and ultimately creates a signature bridge design.

Project websites

www.gordiehoweinternationalbridge.com



Rendering of the Gordie Howe International Bridge at night



Overview

The Gordie Howe International Bridge project is one of the most comprehensive and complex infrastructure projects ever undertaken in North America. Not only because it will be the first major Canada-United States border crossing built in more than 40 years, but also because many key industries rely on the smooth operation of the Windsor-Detroit corridor which is the busiest commercial land border crossing between Canada and the U.S. This border crossing plays a fundamental role in the economies of both countries, particularly in trade with respect to their automobile industries.

The project includes the design, build, finance, operation and maintenance of a new, six-lane, 2.5-km cable-stayed bridge crossing the Detroit River with two secured Ports of Entry (one on each side of the border), the implementation of a tolling system and a connection to the interstate system. The latter component will create a streamlined highway corridor from Ontario Highway 401 in Canada to the I-75 in the U.S.

The complexities of the project's scale and its location on an international border required development of a unique risk profile that would satisfy the lending community and possibly form the basis of future cross-border transactions. For example, factors unique to each country with respect to environmental legislation, land acquisition and foreign exchange rates had to be assessed and considered.

The DBFOM contract was procured by Windsor-Detroit Bridge Authority (WDBA), a Canadian federal Crown corporation, and awarded to Bridging North America (BNA) General Partnership. The BNA consortium will maintain the entire project and collect

tolls throughout the 30-year operations term. All toll revenue will be the property of WDBA.

BNA was selected as the preferred proponent in July 2018, following a public-private partnership (P3) competitive procurement process, to deliver the project through a 36-year performance-based agreement. Commercial close was achieved on September 21, 2018 and financial close followed a week later. At the time of publication (spring 2020), the project was in its design-construction phase.

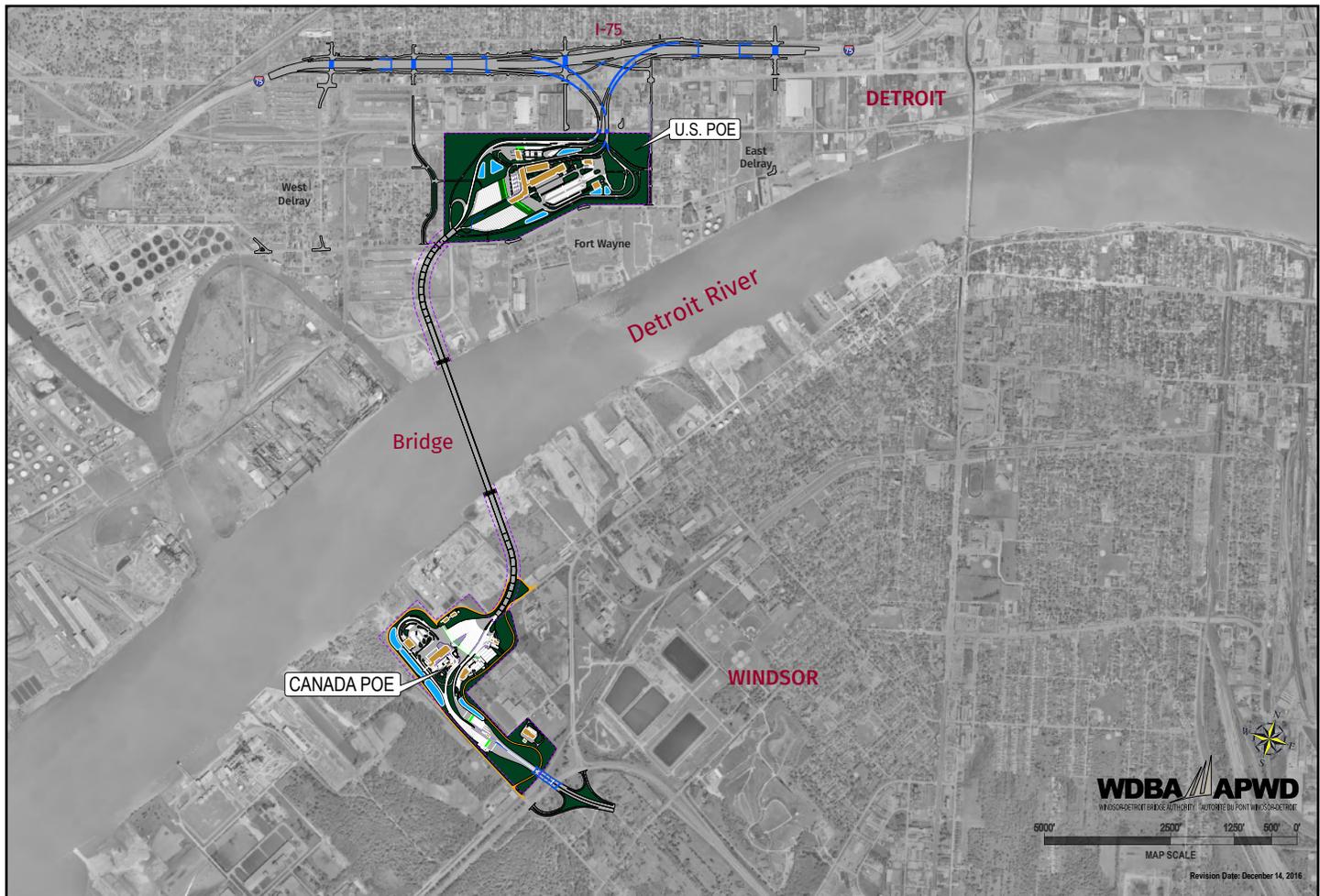
The total contract value in nominal dollars is \$5.7 billion, with \$3.8 billion for project costs during construction and \$1.9 billion for operations and maintenance. The project represents a \$3.279 billion capital investment by the Government of Canada during construction. BNA is required to finance 15 per cent of the project's capital costs up front before receiving any of the government funds. Delivering the project using the P3 DBFOM delivery model will result in an estimated value for money of \$562.8 million net present value, or 10.7 per cent.

The size of the project, the number of stakeholders involved and the multiple cross-border issues required the team to collaborate closely and carefully to bring the project to market. Multiple positive and sustainable community benefits will be realized for the two host communities, on either side of the border, through short and long-term employment opportunities and the provision of a safe and secure border crossing.

This case study will examine the innovative mechanism developed for financing and other distinctive features of the project, which won gold for project financing in the 2019 National Awards for Innovation and Excellence in Public-Private Partnerships, presented by The Canadian Council for Public-Private Partnerships.

Figure 1 shows the location of the project connecting the two cities.

Figure 1: Gordie Howe International Bridge Project



Background and rationale

Canada and the U.S. are among the world's largest trading partners:

- Canada buys more goods and services from the U.S. than any other country in the world.
- The two countries exchange approximately \$1.4 million in goods and services every minute, totalling \$782 billion in 2013.
- Nearly nine million U.S. jobs are supported by Canada-U.S. trade (259,000 jobs in Michigan alone).
- 35 states, including Michigan, have Canada as their leading export market.

The Windsor-Detroit border crossing is the busiest commercial land border between Canada and the U.S., handling 25 per cent of all trade between the two countries and 30 per

cent of all trade carried by truck. More than 2.5 million trucks use this border crossing each year and 6,000 commuters cross daily.

Planning for more efficient movement of goods and people at this significant crossing began as far back as May 2001 when a binational planning, needs and feasibility study was initiated to assess the existing transportation network and long-range transportation plans in southeastern Michigan and southwestern Ontario. Completed in January 2004, the study concluded a new and expanded border crossing was needed to efficiently meet the forecasted traffic demand.⁴

Industry groups participating in the study raised concerns that if the current Ambassador Bridge crossing was closed or blocked for any reason, manufacturing and assembly production

⁴ Canada-U.S.-Ontario-Michigan Border Transportation Partnership, Planning/Need and Feasibility Study Report, January 2004, http://www.partnershipborderstudy.com/pdf/a_PNFStudyReport_FINAL_updatedpgnumbers.pdf

lines in Canada and the U.S. would be forced to stop operations within a matter of hours. For that and other reasons, redundancy was also recommended during the study process.

Following the completion of the feasibility study, a coordinated binational environmental study was undertaken and completed in 2008. It identified the technically and environmentally preferred location of a new bridge and ports of entry as well as connections into Highway 401 and I-75. Environmental approval was required from three separate government agencies — all were obtained in 2009:

- National Environmental Policy Act (United States) – January;
- Environmental Assessment Act (Ontario) – August; and
- Canadian Environmental Assessment Act (Canada) – December.

Between 2008 and 2012 land acquisition started in Canada and preliminary design began for the two ports of entry. In June 2012, the two countries entered into a “Crossing Agreement.”⁵ The parties to the Crossing Agreement are:

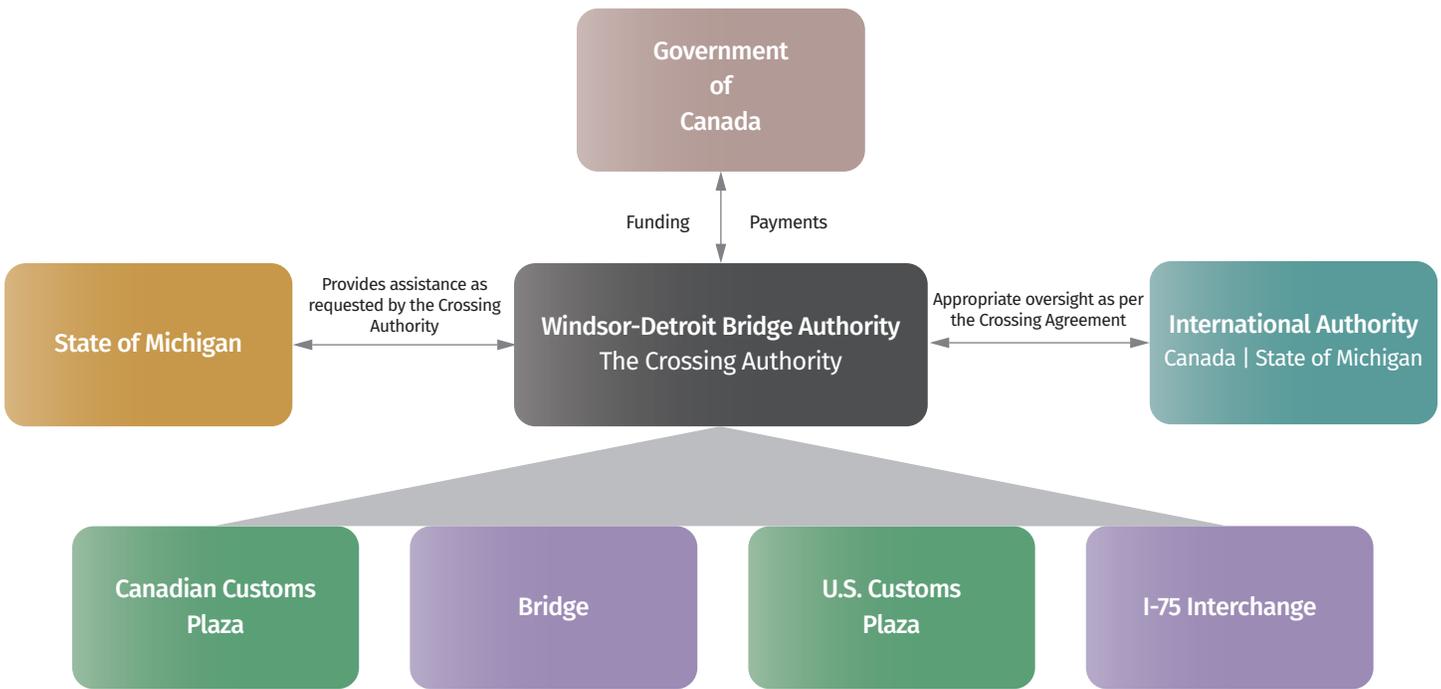
- Government of Canada;
- Windsor-Detroit Bridge Authority (WDBA); and
- State of Michigan.

The Crossing Agreement provides a framework for a crossing authority (subsequently known as WDBA) established by Canada to design, construct, finance, operate and maintain a new international crossing between Canada and Michigan, under the oversight of a jointly established International Authority with two members appointed by Canada, one member appointed by WDBA and three members appointed by Michigan, with financing of the project provided by Canada, and no funding from Michigan.

WDBA was established as a not-for-profit Canadian Crown corporation and reports to Parliament through the Minister of Infrastructure and Communities. WDBA’s mandate is to deliver the Gordie Howe International Bridge project through a public-private partnership (P3). WDBA is responsible for overseeing and managing the construction and operation of the new crossing and will eventually set tolls.

WDBA is governed by a board of directors and is overseen by the joint Canada-Michigan International Authority, which is also responsible for monitoring compliance of WDBA with the Crossing Agreement. Figure 2 illustrates the Crossing Agreement relationships.

Figure 2: Crossing Agreement structure



⁵ Crossing Agreement, Executed June 15, 2012, https://www.michigan.gov/documents/buildthisbridge/Agreement_389284_7.pdf

Objectives

Economic and social objectives

- Additional border capacity to meet increased long-term international trade and travel demand for Windsor-Detroit. This is a key priority for the governments of both countries and for private-sector shippers, carriers and manufacturers.
- An alternative, efficient and secure end-to-end border crossing system directly connecting Highway 401 in Windsor and Interstate 75 in Detroit to provide system connectivity and improved operations and processing capabilities at the border.
- Redundancy to mitigate the risk of disruptions or blockages in the Windsor-Detroit corridor.
- Stimulation of long-term economic growth through job creation and improved gross domestic product.

P3 project objectives

- Provide value for money for taxpayers with innovative, high-quality and long-lasting infrastructure.
- Deliver the project on schedule and within the approved budgetary constraints.
- Work closely with stakeholders during construction to minimize trade disruptions and maintain connectivity.
- Incorporate architectural design excellence in all project elements, with particular emphasis on the bridge aesthetics to enhance the quality and benefits for the surrounding communities.
- Provide an outstanding quality of service during the 30-year operations and maintenance period.

Description of the Project

The Gordie Howe International Bridge project includes four major components:

1. A new six-lane 2.5-km cable-stayed bridge across the Detroit River with a clear span of 853 metres and no piers in the water.
2. A Canadian Port of Entry, or POE, on a 53-hectare site that will include all Canadian inbound border inspection facilities for passenger and commercial vehicles, Canadian outbound inspection facilities, tolling operation for the U.S.-bound and Canada-bound traffic, and maintenance facilities.
3. A U.S. POE on a 68-hectare site that will include all U.S. inbound border inspection facilities for passenger and commercial vehicles, U.S. outbound inspection facilities, commercial exit control booths and the potential for a maintenance facility.
4. A new Michigan I-75 interchange creating a streamlined corridor from the I-75 in Detroit, across the bridge and to the existing Rt. Hon. Herb Gray Parkway in Windsor, which connects to Ontario Highway 401. The interchange will consist of the primary connecting ramps to and from the U.S. POE and associated local road improvements needed to fit the new ramps into the interstate system. The interchange is expected to include over 200,000 m² of new bridges and pavement, eight new local interstate ramps and four U.S. POE ramps. Michigan will be the ultimate owner of the Michigan interchange and it is excluded from the contracted OMR obligations.

WDBA is responsible for the traffic revenue risk and will set tolls, and BNA will perform the complete toll collection services including issuing transponders, customer service, payment collection and other ancillary services. The toll collection includes both transponder and manual toll collection. Figure 3 illustrates the space and some of the features of each port of entry.

Procurement Process

Selecting the P3 model

The decision by the Government of Canada and State of Michigan to use a P3 delivery model followed a rigorous financial and technical analysis and preparation of an independent

business case that concluded a public-private partnership would be the most cost-effective method to deliver the project.

The P3 business case indicated that one competitively chosen private-sector concessionaire should be responsible for the detailed design, partial financing, construction, operation, and regular and major life cycle maintenance of the project components over a 30-year concession term. To allow for the

Figure 3: Canadian and U.S. Ports of Entry

Canadian Port of Entry



Total building space
12,438 m² / 133,881 ft²



First Nation art piece
featured



Total landscaped area
10 hectares / 24 acres



Featuring Black Oak
Savannah & Tallgrass
Prairie landscapes

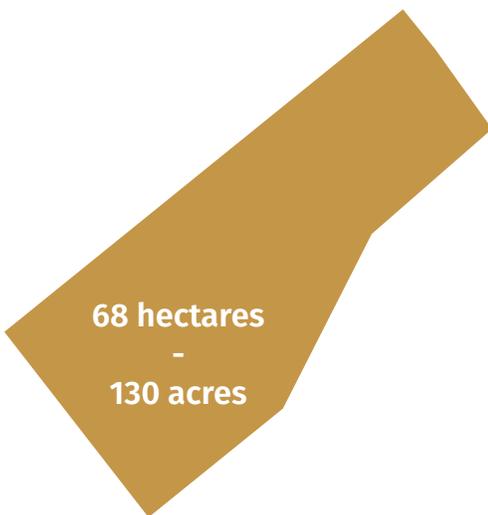


24 inspection booths



16 toll booths

U.S. Port of Entry



Total building space
30,318 m² / 326,335 ft²



surrounded by 30 m /
100 ft buffer with
vegetation and public
path



Total landscaped area
12 hectares / 30 acres



36 inspection booths

integration of the I-75 component with the overall operations of the interstate network, the business case identified Michigan would be responsible for the operations, maintenance and rehabilitation (OMR) of the I-75 interchange. However, it was also determined that one concessionaire would best be able to coordinate construction, minimize costs, maximize risk transfer to the private sector, and assure on-time delivery. The proposed P3 model was a design-build-finance-operate-maintain (DBFOM) contract with one private partner to deliver the project.

Given the scale of the project, the risks and interests involved, and the anticipated needed resources, the business case indicated that the P3 DBFOM approach would make the best use of the expertise of each partner to meet the clearly defined public needs. The project would benefit from:

- risk sharing between the government and private sector based on the party best able to manage, mitigate and/or eliminate the risk (for example cost overruns and delays would be shifted from the taxpayer to the private sector);
- a whole-life approach with the private sector having responsibility for the design and delivery of the project and the long-term operations, maintenance and rehabilitation;

- the private sector's expertise, efficiencies and innovation; and
- payment based on performance with incentives for on-time, on-budget delivery and achievement of performance standards during the useful life of the asset.

Selecting a partner

Competitive process

The procurement process for the project had two stages: Request for Qualifications (RFQ) and Request for Proposals (RFP). It took three years and two months to complete the process from RFQ to financial close.

Request for Qualifications

An RFQ was issued by WDBA on July 20, 2015. Two and a half months later WDBA received statements of qualifications from six teams. Following evaluation of the submissions, three shortlisted teams were announced on January 20, 2016. The three shortlisted teams are shown in Table 1.

Table 1: Shortlisted teams

Bridging North America	CanAm Gateway Partners	Legacy Link Partners
ACS	EllisDon	John Laing
Fluor	BBGI	Vinci
Aecon	Fengate Capital	SNC Lavalin
Dragados	Bechtel	HDR Corp.;
RBC	Arup Canada	Leonhardt
AECOM	Hatch Corp	Alfred Benesch & Co
DBi Services	Lane Infrastructure	Golder
Moriyama and Teshima	TY Lin	American Bridge
Smith-Miller + Hawkinson	Traylor Bros (contractor)	Janin Atlas Inc.
Turner Construction Company	Bergmann Associates	Barton Malow
Carlos Fernandez Casado S.L / FHECOR Ingenieros Consultores, S.A.	Walbridge Aldinger LLC	DRICCA (JV with Ajax Paving, Dan's Excavating, Hull Co, Toebe Construction, Amico)

Request for Proposals

The RFP was issued November 10, 2016 and proponents were given until April 2018 to prepare their proposals, which were to include technical and financial submissions, an aesthetic design and an early works submission. Throughout this period, almost 100 commercially confidential meetings were held with decision-makers, stakeholders and the proponents to discuss the project agreement, utilities, schedule, operations, design and financial aspects of the project to ensure the risk profile was properly allocated and all teams had an adequate understanding of the project. A representative from P1 Consulting, the fairness monitor, was present at all meetings.

The inclusion of aesthetic design guidelines in the RFP was an important contributor to the future success of the project. Each proponent’s design was reviewed for conformance with the requirements of the aesthetic design guidelines for the project to ensure that the intent of the project was being satisfied. The proponents had the opportunity to receive feedback during the commercially confidential meetings, after which they made a preliminary aesthetics design submission before their technical submission. The aesthetics submissions were given one of three grades under a pass/fail system. All three proposals submitted were found to be compliant with the aesthetic design guidelines.

Technical submissions were received on time from all three teams on April 3, 2018. And on April 30, 2018 early works proposals were submitted. This was a deliverable added during the procurement process and was created to accelerate the design and construction phase of the project. The early works submission consisted of a separate agreement to perform the construction of a perimeter access road, utility relocation and advance fill on the Canadian POE to occur before financial close. Financial submissions were due and received from all three teams on May 8, 2018.

An extensive evaluation process was conducted by WDBA and its advisors from April to July 2018. Representatives from U.S. Customs and Border Protection, Canada Border Services Agency and Canadian Food Inspection Agency, as well the Michigan Department of Transportation, were included in the process.

Name of private partner

On July 5, 2018, Bridging North America General Partnership was officially declared the preferred proponent and the early works agreement was executed.

Commercial and financial close

Commercial close was achieved on September 21, 2018. Financial close followed a week later. Table 2 outlines the overall timeline for the project.

Table 2: Project timeline

2001-2004	Planning/needs and feasibility study
2005-2009	<ul style="list-style-type: none"> Coordinated environmental studies – U.S. and Canadian sides Comprehensive and peer-reviewed geotechnical analysis Canada determines the project will not have a significant environmental impact, with mitigation measures U.S. record of decision obtained
2008-2012	<ul style="list-style-type: none"> Canada land acquisition begins Preliminary Canadian and U.S. POE design and other preparation work
2012	<ul style="list-style-type: none"> Canada-Michigan Crossing Agreement signed WDBA incorporated
2013	Presidential permit
2014	<ul style="list-style-type: none"> Board of directors, president and CEO appointed for WDBA Board members appointed to the Canada-Michigan International Authority U.S. Coast Guard bridge permit
2015	International Authority approves U.S. land acquisition

2015 July 20

RFQ issued

2015 October 9

RFQ submissions due

2016 January 20

Three qualified teams shortlisted

2016 November 10

RFP issued

November 2016 – April 2018

Meetings held between WDBA and proponents

2018 April 3

Technical submissions due

2018 April 30

Early works submissions due

2018 May 8

Financial submission due

April to June 2018

RFP evaluation process

2018 July 5

Preferred proponent announced and early works agreement executed

2018 September 21

Commercial close

2018 September 28

Financial close

October 5, 2018

Construction started

2023 November 6

Canadian POE handover date

2023 November 28

Bridge handover date

2024 May 30

U.S. POE handover date

2024 November 30

Scheduled substantial completion

November 2054

End of 30-year maintenance term

Fairness of the process

To ensure the procurement process was rigorous, fair, open and transparent, P1 Consulting was engaged by WDBA as the fairness monitor. The fairness monitor observed the process including sessions with proponents and proposal evaluation, provided advice as needed and reported back to WDBA. The fairness monitor had no role in the evaluation or selection process other than to monitor its compliance with the procedures and to ensure a fair opportunity for all qualifying proponents to participate in the selection process.

For both the RFQ and RFP stages, the fairness monitor concluded the process was undertaken in a fair, open and transparent way. The RFP report concluded:

As Fairness Monitor for this Project we are satisfied that the WDBA has followed the procedures in accordance with the applicable RFP and WDBA policy documentation and that the participants followed the procedures and fairly applied the evaluation criteria.⁶

⁶ P1 Consulting, Fairness Attestation - Request for Proposals for the Gordie Howe International Bridge by the Windsor-Detroit Bridge Authority ("WDBA"), July 4, 2018.

Overall Structure of the Agreement

Partner roles and responsibilities

BNA General Partnership was incorporated as a special-purpose entity to enter into the project agreement with the WDBA. The consortium is a vertically integrated general partnership comprised of three equity partners: ACS Infrastructure Canada Inc. (ACS); Fluor Canada Ltd. (Fluor); and Aecon Concessions, a division of Aecon Construction Group Inc. (Aecon). ACS and Fluor each hold a participating interest of 40 per cent and Aecon holds the remaining 20 per cent share. The same proportion is maintained by their respective subsidiaries and/or affiliates in the design-build general partnership and in the operations, maintenance and rehabilitation general partnership.

The partnership structure is illustrated in Figure 4.

The construction contract was executed entirely by the design-build general partnership, comprised of Dragados Canada Inc. (40%), Fluor Canada Ltd. (40%) and Aecon Infrastructure Management Inc. (20%), (collectively known as the construction contractor).

The maintenance and rehabilitation works will be performed by the maintenance and rehabilitation general partnership comprised of ACS BNA O&M GP Inc. (40%), Fluor BNA O&M GP Inc. (40%) and AECON BNA Maintenance Inc. (20%) (collectively known as the OMR contractor). As shown in Figure 4, the obligations of the construction contractor and the OMR contractor are supported by their respective guarantors.

The construction contractor and the OMR contractor have both entered into interface agreements with BNA to integrate all parties and to ensure the private-sector interest and decisions will be based on the best interests of the project as a whole. This structure helps with timely decision making, early identification of critical issues and transition between the different phases of the project.

The relationship between the senior creditors and BNA was established through the execution of financing documents such as the Common Terms and Intercreditor Agreement, the Bond Indenture and supplementary security documents. A direct agreement between the senior creditors and WDBA was also implemented to provide further protection to the public sector and the lending community in the event BNA fails to comply with its obligations under the financing documents.

Financial Arrangements

Capital costs

The total contract value of the project is \$5.7 billion (nominal dollars) comprised of:

- \$3.8 billion for the project costs during construction; and
- \$1.9 billion for the operations, maintenance and rehabilitation portion.

Capital costs are funded by the Government of Canada, contributing \$3.279 billion during the construction period, with the remainder provided by BNA General Partnership through private financing.

BNA’s share of the capital financing is comprised of:

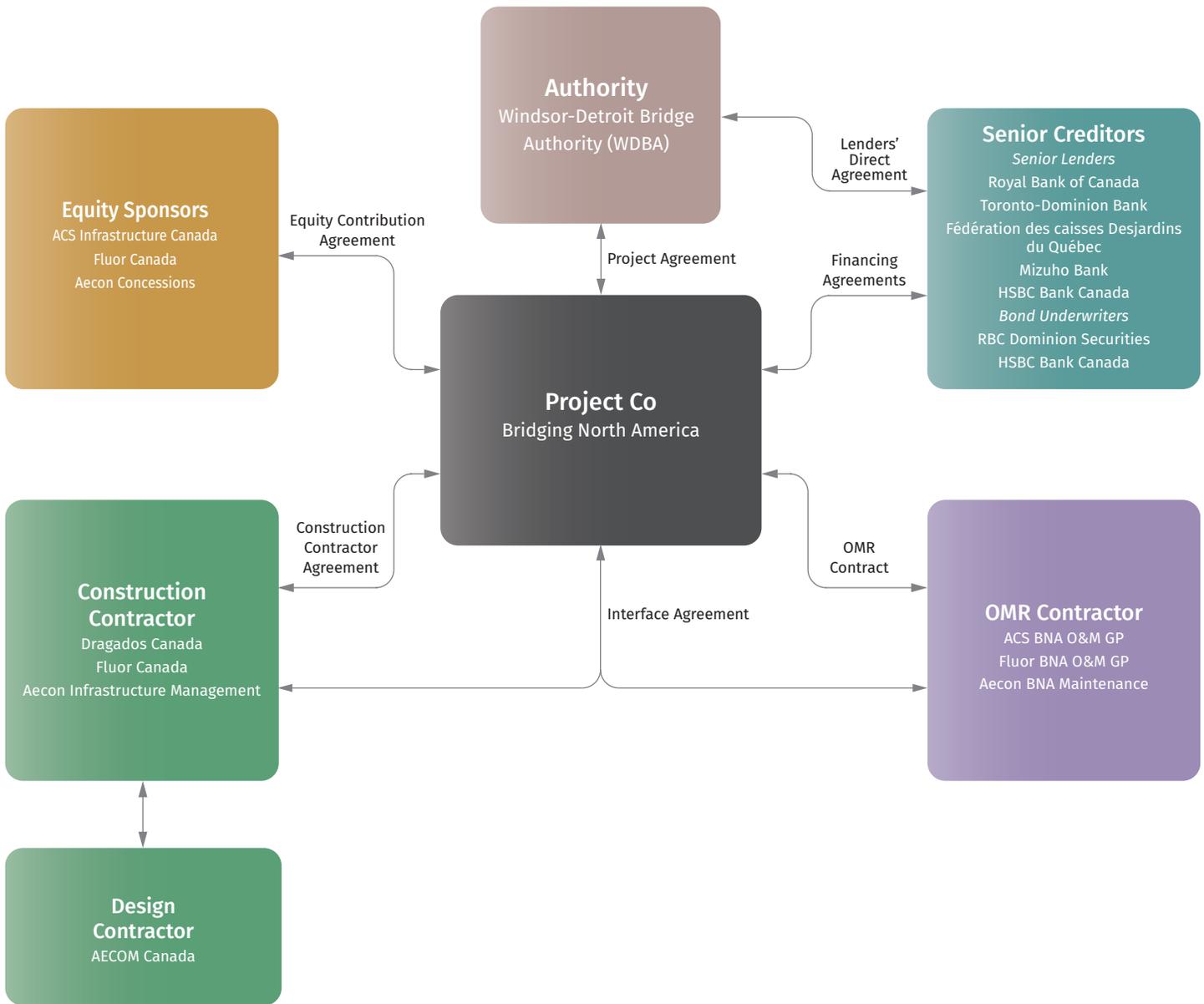
- \$446 million in senior amortizing bonds, to be repaid during the operating period through capital payments:
 - \$157 million in Series A medium-term bonds with a 20-year tenor (rated A- by Standard & Poor’s)
 - \$289 million in Series B long-term bonds with a 34.8-year tenor (rated A- by Standard & Poor’s)
- \$587 million short-term senior construction facility specifically sized to be repaid at substantial completion; and,
- \$93 million of equity secured by letters of credit until contributed at the end of the construction period.

Table 3 summarizes the sources of capital for the project.

Table 3: Sources of capital

Source of capital	Amount (\$millions)	Percentage (%)
Senior medium-term bonds	\$157	13.9
Senior long-term bonds	\$289	25.7
Senior construction facility	\$587	52.1
Equity commitment	\$93	8.3
Total Capital	\$1,126	100

Figure 4: Partnership structure



Lenders

The project financing structure is the result of a highly competitive selection process involving a market sounding of multiple funding sources and the evaluation of several financing strategies and structures proposed by bank lenders, underwriters and private placement investors. A funding competition was run between bank and bond options (underwritten and private placement), and in the case of bonds at different ratings. This

process created competitive tension among the funders and provided funding redundancy while minimizing the cost of capital. The financing plan, resulting in the lowest NPV option for BNA, was fully committed at the time of bid.

The resulting financing structure is comprised of three debt tranches (short, medium and long term) and equity.



Gordie Howe International Bridge project team members at the Construction Start Event, October 5, 2018

Short-term debt

The short-term debt, or senior construction facility, is \$587 million and will extend from financial close to the receipt of the substantial completion payment (approximately 6.26 years) and will bear an all-in fixed interest rate of 3.713 per cent. It is provided by the following lenders:

- Royal Bank of Canada (RBC) – 20 per cent;
- Fédération des caisses Desjardins du Québec (Desjardins) – 20 per cent;
- Toronto-Dominion Bank (TD) – 20 per cent;
- Mizuho Bank, Ltd. (Mizuho) – 20 per cent; and
- HSBC Bank Canada (HSBC) – 20 per cent.

Medium- and long-term debt

The \$157-million medium-term senior bond facility has an all-in interest rate of 4.023 per cent with a total term of 19.7 years. The \$289-million long-term senior bond facility bears an all-in interest rate of 4.341 per cent and a total term of approximately 35 years. Both bonds were rated A- by Standard & Poor’s and were offered in both the Canadian and U.S. markets, adding competitive tension to the bond pricing. Both bonds were jointly underwritten by:

- RBC Dominion Securities – 60 per cent; and
- HSBC Bank Canada – 40 per cent.

Equity

The equity commitment of \$93 million is provided by the three partners in the BNA General Partnership in the proportions indicated earlier:

- ACS – 40 per cent;
- Fluor – 40 per cent; and
- Aecon – 20 per cent.

Payments

Construction period payments

The capital payment structure for the project requires BNA to finance the first \$574.8 million (approximately 15 per cent of the capital costs). After this threshold is reached, WDBA pays construction progress payments covering the remaining 85 per cent of capital costs measured by progress in construction costs. WDBA starts paying a monthly capital payment immediately after the Canadian POE handover date, which is scheduled for November 2023 one year before substantial completion which is scheduled for November 2024. A substantial completion

payment will be made when all major structures are completed. Construction period payments are all subject to construction period deductions incurred during the payment period.

Interim OMR payment

Following the Canadian POE handover date and extending to the substantial completion date, BNA is required to perform interim operations and maintenance work. WDBA is required to make interim OMR payments to BNA for this work.

Fixed payments

Other construction period payments include fixed amounts that are fully funded by WDBA, for example, for the community benefits program which will be discussed further on in the case study.

Operations, maintenance and rehabilitation period payments

During the OMR period, WDBA is required to pay BNA monthly payments, totaling \$2.312 million and mainly comprised of operations and maintenance payments, tolling operations payments and rehabilitation payments. Monthly payments are subject to availability and performance deductions and are indexed for inflation. Any loss of availability due to a government authority, vandalism, or a third-party contractor not following the indicated procedures is outside BNA's responsibility and does not impact BNA's payment.

To mitigate foreign exchange risk, up to one-third of each monthly OMR payment can be paid in U.S. dollars allowing the OMR contractor to pay its U.S. dollar incurred costs. These amounts are fixed in the project agreement.

Gainshare/painshare energy adjustment

The project agreement includes an annual energy adjustment calculated monthly, and charged in the subsequent month, if the annual energy consumption varies by more than the energy model's threshold limits for each target value. Essentially, the OMR contractor is responsible for energy consumption risk, while WDBA is responsible for the price volatility risk.

Revenue sharing

There is no revenue sharing in the project agreement. All tolling revenues will be the property of WDBA.

Innovative Features

Financing

The financing features of this binational project make it unique among other North American P3 projects. The involvement of two countries allowed underwriters to explore marketing the bonds in both Canadian and U.S. markets and provided greater competitiveness to the deal. BNA also developed the necessary framework to allow other jurisdictions to enter the deal resulting in the bonds being well received by investors and significantly oversubscribed. Other financing innovations include risk-mitigation solutions for currency exchange hedging, security package and tax structuring.

Choosing the most efficient method of financing

Throughout its bid development, BNA ran a competitive process on pricing and terms to select the most efficient financing structure for the project. To do this, BNA accessed multiple markets and forms of liquidity and studied multiple financing solutions (including hybrid debt solutions) to obtain an optimized solution for WDBA. The financing structures were evaluated based on their respective competitiveness, execution certainty and market capacity.

The ultimate benefit of launching numerous funding competitions was that BNA was able to secure N+1 redundancy on both the bank facility and the bonds. This means that if a funder should drop out or step down, the rest could step up to replace them, ensuring the robustness of the financing structure.

Medium-term bonds

After an extended capital evaluation process, BNA chose to combine a medium-term bond structure with a long-term bond. This allowed BNA to capitalize on investors' demands for shorter duration amortizing bonds, while increasing pricing tension and the weighted average life for the longer duration amortizing bonds. This bond combination helped reduce the overall bid NPV.

Optimizing the payment structure

WDBA originally contemplated the possibility of four capital payment streams, in other words separate payment streams for completion of each of the four components – the bridge, two ports of entry and the Michigan interchange.

During the bid process, BNA recognized these multiple capital payment streams could create inefficiencies between the financial structure and the coordination of the works. To mitigate this, BNA integrated the construction and operations teams into their bid strategy sessions. The result was their proposal for an innovatively structured single capital payment stream to start when the first of the four components was completed. This allowed for an accelerated construction schedule and a cost-effective financing solution.

Under BNA's plan, the bridge will be completed almost one year before substantial completion. This allowed BNA to market to investors and rating agencies that the most difficult part of the project has a buffer of almost 30 months to the longstop date. This work schedule changed the financing profile from an extremely complex bridge project into a large construction project with a bridge component giving lenders and investors more confidence.

Currency exchange

For the procurement phase, this transaction was the first time a procuring authority in Canada offered currency protection between bid submission and financial close. BNA and WDBA worked together to agree upon a currency exchange rate-setting mechanism that equitably allocated risk between the two parties based on currency exchange forward rates.

For the construction phase, BNA was able to structure an optimal risk-protection strategy through currency exchange hedging. While costs are incurred in both currencies, all public payments and private financing are in Canadian dollars.

For the 30-year operations phase, long-term currency fluctuation protection instruments were not available. During the procurement process, proponents worked with WDBA to come up with a plan that allows for a portion of the availability payments to be paid in U.S. dollars. This provides a natural mitigation of the long-term foreign exchange risk.

Competitive security package

The construction contractor's security package featured a unique step-up mechanism for the required amount of liquid security, as well as a parent company guarantee step-down mechanism, whereby the limit of liability may decrease as certain milestones are achieved. These step-up/step-down features resulted in further optimization of the design-build price, while

still providing the robust protection required to warrant an A- rating by Standard & Poor's. This security package ultimately provided the funders and rating agency with comfort and optimized the project's value for money.

Complex tax structure

As construction and maintenance activities would be undertaken on both sides of the border, BNA had to customize the commercial structure and the project entities to be in compliance with the requirements of the tax agencies of both countries – the Canada Revenue Agency for Canada and the Internal Revenue Service for the U.S.

The project faced additional hurdles as procurement took place while a number of tax-related activities were taking place such as corporate tax reform in the U.S., the imposition of tariffs on exports between the U.S. and Canada and the negotiation of a new trade agreement among the U.S., Mexico and Canada to replace the North American Free Trade Agreement (NAFTA). All of these activities had to be carefully addressed.

To address the uncertainty of the NAFTA negotiations, the RFP required that the proponents include in their proposals the amount and price of steel, iron and aluminum to be purchased in Canada and in the U.S., specifying which amount was to be used in the other country, together with the additional cost expected to be incurred by the proponent as a result of the tariffs. The project agreement includes a clause that if the tariffs are removed or reduced by Canada or the U.S., the reduced amount will be credited to WDBA.

Sustainability and promotion of environmental measures

Significant effort was made to promote sustainability and environmental measures in the design and construction phase. For example, the bridge foundations and piles will be installed on the riverbank, eliminating the need for in-water works, diminishing contamination risk, avoiding disruption to river traffic and ultimately creating a signature bridge design with a clear main span of over 850 m.

In addition, the two state-of-the-art POEs providing security and customs facilities on each side of the border were designed to be energy efficient and environmentally sustainable, and both

will achieve LEED⁷ BD+C NC (for new construction and major renovations v4) Silver and LEED O+M: EB) (for operations and maintenance of existing buildings v4) Silver certifications during construction and throughout the operations term.

Benefits

Cost savings/value for money

WDBA retained Deloitte LLP to complete the value-for-money (VFM) assessment for the project. The VFM compares the estimated total-risk adjusted project costs, expressed in dollars measured at the same time of delivering an infrastructure project under two delivery models: the design, bid, build (DBB) model traditionally used by public-sector entities (PSC costs) and the P3 model (P3 costs), which for this project is a design-build-finance-operate-maintain (DBFOM) model.

The VFM assessment approach used by Deloitte was primarily based on the methodology used by Infrastructure Ontario prior

to 2015, as outlined in Infrastructure Ontario's *Assessing Value for Money: A Guide to Infrastructure Ontario's Methodology*.⁸

Table 4 and Figure 5 show the VFM assessment demonstrated an estimated risk-adjusted cost savings of \$562.8 million or 10.7 per cent.

Community socio-economic and environmental benefits

Community benefits plan⁹

Canada and Michigan recognized the opportunity to leverage the significant investment of this new public infrastructure for the benefit of the Windsor and Detroit communities. As such, the requirement for a community benefits plan for the project was incorporated into the Canada-Michigan Crossing Agreement signed in 2012.

The Crossing Agreement stipulates that a community benefits plan must include the manner in which:

- stakeholders and communities are to continue to be involved;
- host community input relating to community benefits and stakeholder involvement are to be factored;

Table 4: Value-for-money results

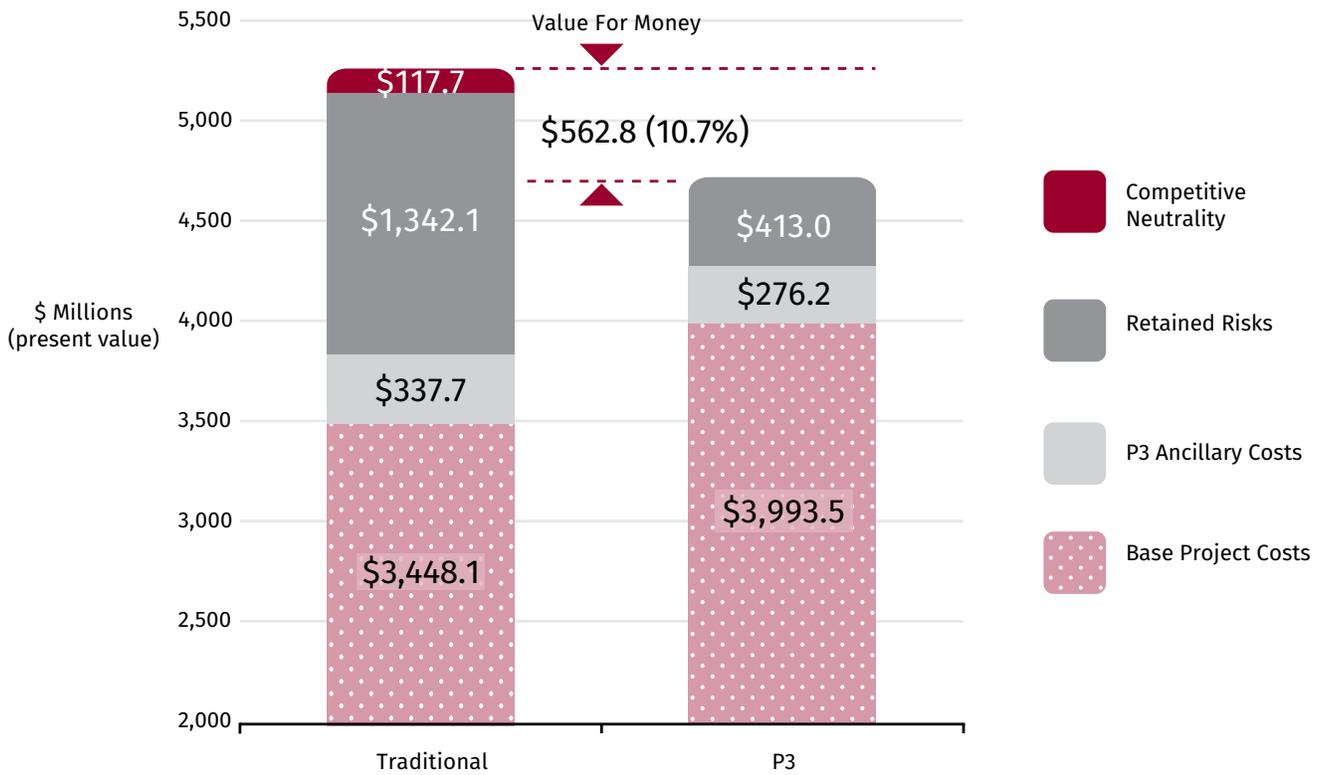
P3 Model \$ Millions (NPV)		PSC Model \$ Millions (NPV)	
Adjusted Base Project Costs	\$3,993.5	Adjusted Base Project Costs	\$3,448.1
Competitive Neutrality	N/A	Competitive Neutrality	\$117.7
Ancillary Costs	\$276.2	Ancillary Costs	\$337.7
Retained Risks	\$413.1	Retained Risks	\$1,342.1
Total	\$4,682.8	Total	\$5,245.6

⁷ LEED® (Leadership in Energy and Environmental Design) is a program of the Canada Green Building Council promoting a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water efficiency, energy efficiency, materials selection and indoor environmental quality. For more information on LEED certification levels please see: <https://new.usgbc.org/leed/rating-systems/new-buildings>

⁸ Windsor-Detroit Bridge Authority, *Gordie Howe International Bridge Value for Money Report*, September 2018, p. 6.

⁹ For a complete understanding of the Community Benefits Plan please see the full public report: Gordie Howe International Bridge, *Community Benefits Plan*, June 2019, <https://www.gordiehoweinternationalbridge.com/en/community-benefits-section>.

Figure 5: Value-for-money components



- bidders plan to work with local institutes of higher learning, unions and others; and
- job training and local job development will be encouraged.

The Crossing Agreement states that benefits will be shared equally between the two countries.

The vision for the community benefits plan is to deliver a series of initiatives, based on public input, that create measurable and positive results-based opportunities for the host communities. The plan:

- provides economic opportunities in the host communities;
- contributes positively to workforce development programs;
- delivers neighbourhood improvements; and
- ensures clear commitments and accountability from all parties for its delivery.

The Community Benefits Plan was released in June 2019. It documents the development of the plan through public

consultation and presents the details of the initiatives that are currently being, and will be, implemented on both sides of the border throughout the duration of the project. The plan reflects community priorities and has two components:

1. Workforce Development and Participation Strategy – geared toward engaging businesses and focusing on supporting workforce, training and pre-apprenticeship/ apprenticeship opportunities; and
2. Neighbourhood Infrastructure Strategy – focusing on collaborating with stakeholders and community members through consultation to develop a community betterments strategy based on identified priorities.

Workforce Development and Participation Strategy

The Workforce Development and Participation Strategy focuses on creating and making accessible jobs, training and contracting opportunities to local workers and contractors, and leveraging existing local resources to maximize these opportunities.

To raise awareness and encourage participation in the project during the construction period, BNA will promote employment opportunities, training and pre-apprenticeship/ apprenticeship opportunities as well as business and contracting opportunities to residents, community members, businesses, educational institutions and labour associations. To deliver the strategy, BNA is partnering and collaborating with organizations and workforce development agencies with the experience and resources in place to support training and skills-development initiatives. The strategy is broken into three sections with more than 80 initiatives in total. The three sections are:

- Canadian Workforce Development and Participation Plan – at least \$250 million of the total value of the work during the design-build phase in Canada will be performed by, contracted to, or supplied by the workers or contractors located in the City of Windsor, Essex County or within 100 kilometres of the City of Windsor;
- Canadian Indigenous Peoples Workforce Development and Participation Plan – engaging and employing Canadian Indigenous Peoples in and around the City of Windsor, Essex County and Walpole Island, Ontario and contracting their businesses; and
- U.S. Workforce Development and Participation Plan – engaging, employing and contracting Detroit residents and Detroit-based and Detroit-headquartered businesses.

Neighbourhood Infrastructure Strategy

The second component of the Community Benefits Plan is the Neighbourhood Infrastructure Strategy, a \$20 million community infrastructure investment focused on priorities identified through the two-phase consultation that took place between 2015-2019 with communities, businesses, Canadian Indigenous Peoples and other stakeholders in Windsor and Detroit.

The Neighbourhood Infrastructure Strategy is comprised of initiatives that are consistent with the Crossing Agreement and the key regional priorities identified through consultation including community partnerships, community safety and connections, economic benefits, aesthetics and landscaping. The initiatives are also targeted toward the Sandwich/West Windsor area and the Delray/Southwest Detroit area ensuring that the communities most directly adjacent to the project are the ones most directly benefitting from the Neighbourhood Infrastructure Strategy.

This strategy provides \$20 million in direct community investments on both sides of the border developed by community feedback and input, including trail connections, environmental features, business development, youth engagement, road and park improvements, and arts and culture features.

Risk Allocation

The unique risk allocation framework developed for this project will be precedent setting for future cross-border transactions. The scale and complexity of the project, together with its cross-border activities, required an approach that addressed certain risks unique to each country and close collaboration with WDBA to negotiate a risk profile that satisfied the lending community. Some of the key challenges are highlighted below and a summary of key project risks follows in Table 5.

- **Permits, licenses and approvals:** During construction, the construction contractor is responsible for all permits, other than WDBA permits (listed in the project agreement) and protections are set for undue delays with different timing limitations for each side of the boarder.
- **Utilities:** The construction contractor is responsible for the utility works (specified in the project agreement) with a protection for unknown utilities that triggers a cost and schedule relief on both sides of the border. Additional protections for the U.S. side were provided due to the differences in status and referent information. On the Canadian site 95 per cent of utility locates were completed before financial close, whereas on the U.S. site there was limited information and some lands were unavailable. The protections for the U.S. site include a compensation event for any delays related to a baseline U.S. utilities location report and a shared risk regime provided for mislocated utilities.
- **Contamination:** Contaminated areas were found on both sides of the border, and because of the different level of detail in soil studies in each country WDBA provided different risk allocation regimes for each side:
 - In Canada, where the soil studies were more detailed, the construction contractor and OMR contractor

are responsible for all known contamination and any new contamination caused by BNA, subject to compensation for any unknown contamination discovered;

- In the U.S., the protection for unknown contamination is the same as for the Canadian side; however, there is a shared responsibility regime for contamination on the U.S. lands (except in certain areas risk was limited). WDBA must reimburse all U.S. contamination work costs, including remedial action imposed by a government authority or contamination in groundwater migrating from the site.
- Tariffs:** As noted earlier, the procurement process was underway while the U.S.-Canada-Mexico trade negotiations were in progress. To accommodate for this uncertainty, proponents included the amounts and prices of steel, iron and aluminum to be purchased in both

countries, specifying which amount was to be used in the other country together with the additional costs expected to be incurred by the proponent as a result of the existing tariffs. If the tariffs change, any reduced amount will be credited to the WDBA. If the tariffs increase, there is no protection for BNA.

Communications

Between the partners

Building on its approach during the procurement phase, BNA believes efficient and effective communication among all participants is important to ensure the success of the project. The vertically integrated approach used by the consortium during the bid phase has been replicated for the contract phase. Aligned interest, co-location of teams and a good working relationship

Table 5: Summary of key project risks

Area	WDBA	BNA	Construction Contractor	OMR Contractor
Design and construction period				
Design			■	
Construction of infrastructure:				
▪ Bridge, U.S. and Canadian POE, Michigan interchange			■	
▪ Access to land	■			
▪ Delivery delays and design-build costs			■	
Environmental assessment	■			
BNA permits, licences and approvals			■	
WDBA permits, licences and approvals	■			
Unknown contamination	■		■	
Contamination (U.S. side) – except BNA contamination	■			
Geotechnical risk (errors in guaranteed data)	■			

Area		WDBA	BNA	Construction Contractor	OMR Contractor
Utility relocation delay (U.S. side)		■		■	
Site conditions				■	
Inflation risk				■	
Cross-border issues: <ul style="list-style-type: none"> ▪ Tariffs (increase) ▪ Currency exchange risk (impact on U.S. referenced costs changes) ▪ Tax structure approval (CRA and IRS) 				■ ■ ■	
Operations, maintenance and rehabilitation period					
Toll revenue risk		■			
Toll rates		■			
Collecting tolls					■
Cities/regions (Michigan, Detroit, Windsor)	Existing and new city infrastructure	■			
Fixed infrastructure (OMR)	Bridge and ports of entry, tolling infrastructure and technology				■
Third-party infrastructure	Existing and new third-party infrastructure	■			
Handback condition					■
Currency exchange risk	(impact on U.S. referenced costs changes)	■			
Tax structure approval	(CRA and IRS)		■		
Inflation risk		■			

with WDBA facilitates effective and timely debates and exchange of information between the partners.

BNA organized a partnering workshop to retain the good communication achieved during the procurement phase. The first partnering workshop was held shortly after financial close with key representatives of BNA, WDBA and WDBA's consultants.

As the project progressed, partnering initiatives were developed including:

- working committees, both standing and ad hoc, as established in the project agreement, that meet to formally review project aspects;
- quarterly workshops with project-level representatives focusing on realizing agreed upon implementation goals and strategies;
- stakeholder consultation sessions to gather early stage input to design and construction decisions; and
- consultation with WDBA and other stakeholders, including regularly scheduled presentations, meetings and workshops.

With the public

WDBA and Michigan have involved the communities of Windsor and Detroit from early on in the development of the project and in particular in the development of the Community Benefits Plan.

The public consultation process was driven by the following principles:

- Openness and inclusivity: Comment from any member of the public or stakeholder group with an interest in the project and in community benefits will be welcome.
- Transparency: Results and progress information will be communicated.
- Clarity: Roles and responsibility will be defined.
- Flexibility: The process will consider the needs of participants, their differing interests, areas of expertise, and availability.
- Evaluation: The consultation plan may be modified to respond to participant feedback or changing conditions.

Phase one consultation

The first phase of consultation occurred between 2015 and 2018 and included public meetings, focus groups, stakeholder

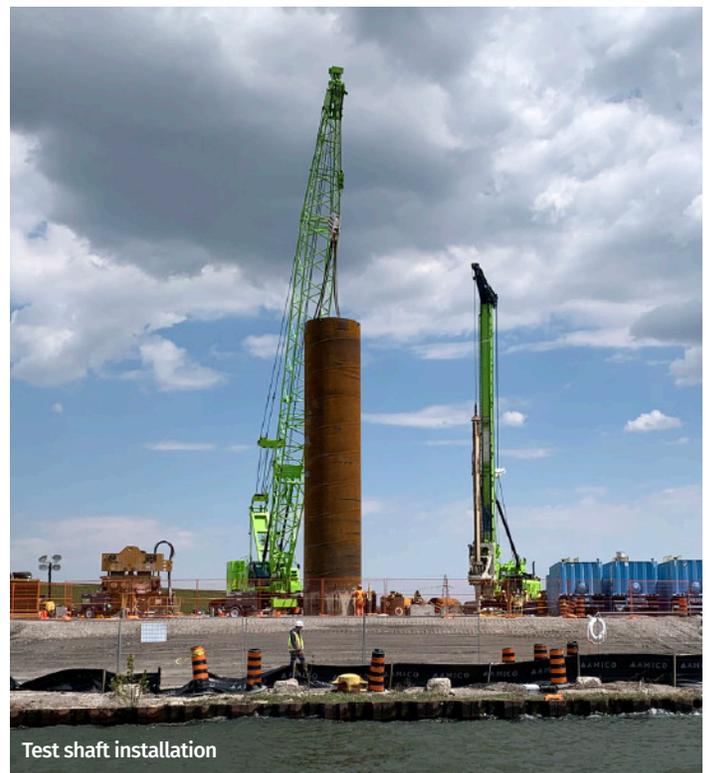
meetings, tours, online engagement, direct correspondence and the use of social media.

More than 230 suggestions for community benefits were submitted by Ontario and Michigan residents, Indigenous Peoples, business owners and community and municipal leaders. Most of the submissions fell within five categories: local workforce and training strategies; aesthetics and landscaping; community safety and connections; construction and operations effect on the communities; and regional economic and community development opportunities.

Phase two consultation

Building on the feedback from the 2015-2018 consultation and a request from stakeholders to continue to be involved, an additional six-month targeted consultation period from October 2018 to March 2019 followed financial close. This phase of the consultation included BNA, WDBA and the State of Michigan.

A multi-faceted approach was taken to engage both communities to ensure their unique characteristics were recognized and to hear their many perspectives. Over 1,000 stakeholders participated in more than 70 meetings held on both sides of the border, and over 400 surveys were received.



As a result of these consultation activities, a number of priorities within the original five categories were identified. Themes that emerged from the feedback included:

- trail system connections and cycling infrastructure;
- economic development;
- local road enhancements;
- recognition of area history;
- home repair program;
- support for community programming; and
- recognition for environmentally sensitive areas.

Ongoing public participation and consultation

A local group was formed in the fall of 2019 to continue the involvement of the community in the delivery of the Community Benefits Plan. The Local Community Group is composed of 16 stakeholders representing the communities of Sandwich and Delray, bridge user groups, institutions of higher education, economic development organizations and Canadian Indigenous Peoples. The group meets quarterly and works as informal partners in the implementation of collaborative activities, providing formal linkages into the region and input into the implementation of the Community Benefits Plan.

The group will also provide input into the assessment and review of community funding applications as part of the investment activities within the Neighbourhood Infrastructure Strategy. The group met for the first time in December 2019 and had its second meeting in February 2020.

Project features influenced by community consultation

Community and stakeholder consultation and feedback played an important part in articulating aesthetic design guidelines with high local resonance and relevance. Highlighted below are some project features influenced by community consultation.

Design focused on the community

Community consultation contributed to the development of the following project objectives that recognized that the communities of Windsor and Detroit are home to North America's newest international crossing and that would result in a landmark that could be admired and would boost civic pride:

- The bridge should be an impressive and inspiring new gateway symbol for Canada and the U.S.;

- The design should demonstrate modern, friendly, and state-of-the-art infrastructure and respond to its unique Windsor/Detroit context;
- The bridge design should achieve a high level of aesthetic quality, at a distance and up close, by day and by night;
- Ports of entry architecture and landscape design should showcase functionality, design excellence, sustainability and barrier-free accessibility.

To meet these objectives, BNA created a design that is modern and elegant with a tower shape inspired by the curvature of a hockey stick in a slap shot — a nod to hockey legend Gordie Howe, for whom the bridge is named.¹⁰ The bridge towers have two legs rising from the ground and extending upwards, inclining towards each other, until they meet far above the bridge deck. This simple and elegant form will not be compromised by any cross ties, resulting in a striking visual appearance.

Sustainability and environmental impacts

One of the themes of the public consultation was the recognition of environmentally sensitive areas. As part of the project, mitigation measures will be taken to lessen the effects of construction on the community and the environment in line with the commitments in the approved Federal Screening Report in Canada and the Environmental Impact Statement in the U.S.

In addition, the landscaping around both ports of entry will use native vegetation, including the restoration of a Carolinian landscape on the Canadian POE lands. The vegetation will support the protection and expansion of adjacent natural areas. Landscape plantings at the U.S. POE will also help with storm water management, slope stabilization and enhanced aesthetics. For the Michigan interchange, trees and shrubs will be planted in groupings to achieve restoration compatible with the surrounding neighbourhood.

¹⁰ **Gordon Howe** OC (March 31, 1928 – June 10, 2016) was a Canadian professional ice hockey player. From 1946 to 1980, he played twenty-six seasons in the National Hockey League (NHL) and six seasons in the World Hockey Association (WHA); his first 25 seasons were spent with the Detroit Red Wings. Nicknamed “Mr. Hockey”, Howe is often considered the most complete player to ever play the game and one of the greatest of all time. In 2017, Howe was named one of the “100 Greatest NHL Players”. Source: Wikipedia https://en.wikipedia.org/wiki/Gordie_Howe, accessed December 6, 2019.

Multi-use path

As a result of public consultation, project requirements were revised to incorporate a 3.6-metre wide dedicated multi-use path to accommodate pedestrians and cyclists across the bridge and connect into adjacent local road and trail networks.

Dispute resolution

In the spirit of the partnership, parties have agreed to make an effort to resolve all disputes through negotiations at the lowest level of management and with the lowest possible costs. If a dispute cannot be settled at the project level, as with most P3 agreements, a formal dispute resolution mechanism is included in the project agreement that provides alternatives to escalate the dispute on several levels before resorting to binding arbitration.

Performance Monitoring

WDBA is responsible for overseeing the delivery of the project. In March 2018, WDBA contracted an owner's engineer to support and assist WDBA in ensuring BNA meets its contractual responsibilities. WDBA's performance monitoring includes design review, providing technical knowledge and monitoring and overseeing the construction activities of BNA through inspections, compliance reviews and audits.

Quality is a priority for the project. As such a robust quality oversight regime was built into the project agreement. To lend added weight to measures to minimize non-compliance and ensure all non-compliance is addressed, WDBA included an innovative financial deduction regime during construction. The regime gives BNA time to resolve non-compliance issues and if they are not resolved within a certain timeframe, a financial deduction is made from the progress payment.

Monitoring the Community Benefits Plan

WDBA and the State of Michigan are directly involved in the delivery of the Community Benefits Plan with WDBA providing stringent oversight to ensure the commitments outlined are reported on and achieved. Through consultation, the communities have expressed the importance of public reporting. As such, the Community Benefits Plan includes a strong

documenting, tracking and reporting structure that demonstrates accountability to the region. Quarterly reports on progress and results will be posted on the project website where the Community Benefits Plan is also posted.

Lessons Learned

Stakeholder coordination

The project involved two countries, multiple levels of government and multiple government agencies. This meant there were many stakeholders with many interests. It also meant that project success depended on efficient coordination of all stakeholders and their interests.

For instance it was important to establish the project parameters early. This included basic terms and conditions for project development and procurement. These were set out very early on in the Crossing Agreement between Canada and Michigan. This agreement was one of the foundation documents for the entire project and it became key as it laid out the roles and responsibilities of both Canada and Michigan. The terms of the Crossing Agreement assisted with stakeholder coordination and proponent preparations, established the use of the Canadian P3 model to deliver the project and incorporated international best practices and applicable law in both Canada and the U.S.

During the procurement process, WDBA was in constant coordination with all the parties involved, including the cross-border agencies, port authority masters, Michigan Department of Transportation, local communities and the security clearance institutions to make sure all parties were working towards a unified goal.

Local knowledge and community involvement

The local knowledge of the construction contractor was instrumental in understanding the needs of the neighbourhoods and customizing solutions. On the Canadian side of the border for example, ACS/ Dragados and Fluor were involved in the construction of the Rt. Hon. Herb Gray Parkway that connects to the project in Windsor. On the U.S. side, a similar level of understanding was achieved through the extensive experience in the area of Turner (a company of the ACS Group) and Fluor.



Ojibway Overpass construction

In addition, the communication with local community groups during the procurement process through meetings and public forums enabled the team to address specific concerns relating to the project. WDBA facilitated community involvement with quarterly community meetings, focus groups, and progress announcements and collected community feedback that helped with the finalizations of the project documents.

Close collaboration and active dialogue during procurement process

Throughout the procurement process, WDBA provided significant opportunities for collaboration and dialogue through commercially confidential and ad-hoc meetings with proponents. Subjects included the project agreement, finance, design, utilities, schedule, operations, security clearance, traffic management, community benefits, insurance and properties. In these meetings, WDBA ensured the appropriate parties from both countries were present and in a position to have open dialogue about the topic at hand. The transparency in the discussions allowed proponents to find the most efficient solution for the project.

WDBA received submission of white papers and alternative solutions in areas where proponents felt the specifications (both technical and financial) were overly prescriptive. This allowed proponents to innovate within the intentions of the project and ultimately resulted in benefits to the project.

Understanding market conditions

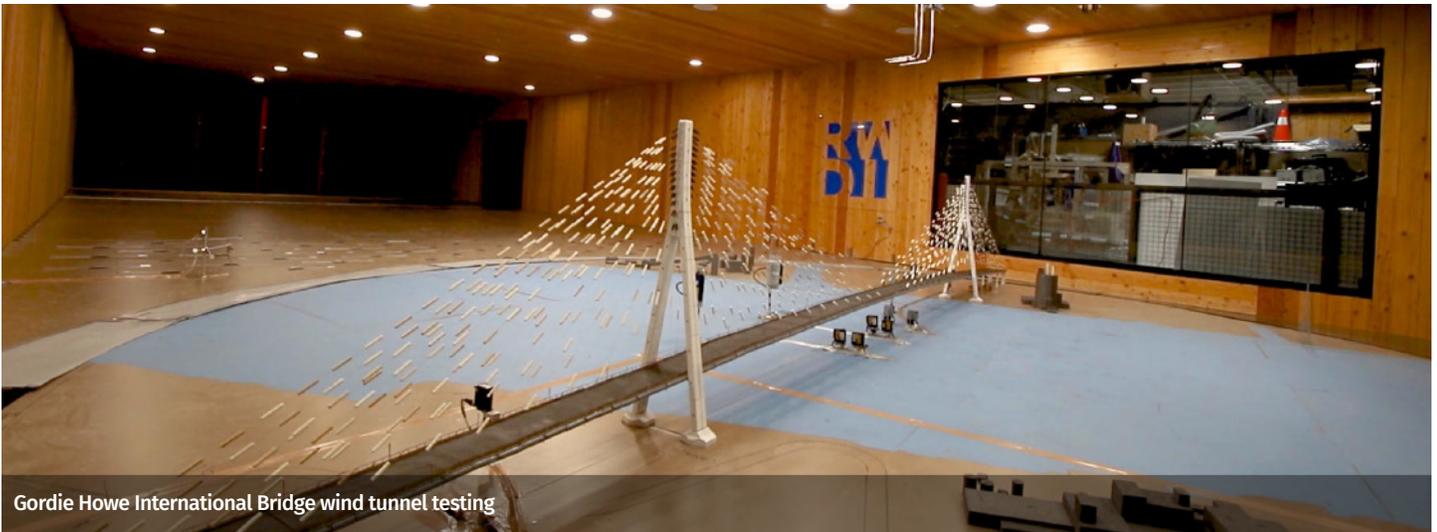
The knowledge and understanding of the market conditions and the strong relationship with the main players on the financing side permitted the BNA team to undertake an aggressive and innovative approach, which in the end, helped to overcome the uncertainty and volatility of the market.

Lender education

Throughout the procurement process, BNA worked very closely with lenders to ensure all of the benefits of the risk allocation profile of the project agreement were reflected in the pricing. By ensuring this understanding, BNA was able to secure a very competitive rating and highly competitive pricing through a fundamental shift in the perception of risk on the project. As noted earlier, completing the bridge component one year before substantial completion changed the financing profile and increased the confidence of lenders and investors.

Team composition and vertical integration

The international and local experience of BNA's consortium members, ACS/Dragados, Fluor and Aecon, are contributing to the success of the project. It was important that members of the general partnership have experience in both countries to understand the challenges associated with the project and provide appropriate solutions to the different regulatory regimes.



Gordie Howe International Bridge wind tunnel testing

The international experience was critical to bringing new ideas to a project and the local knowledge meant that the team was able to assess those ideas for feasibility with the local market. Ultimately, this allowed for a highly productive dialogue based on the collective experience of the team.

BNA's vertically integrated approach to the project enabled it to enlist the right team to develop an innovative, yet practical and cost-effective solution. A good example of this is the early involvement of the maintenance team in the design process that resulted in efficient long-term solutions (e.g. an optimized bridge design and pavement solution) and smooth negotiation of the agreements.

Project governance structure

The project governance structure is a key factor in project development and success. The International Authority was established as a joint Canada-Michigan governance entity created solely for this project. It is responsible for monitoring compliance of WDBA with the Crossing Agreement signed by Canada and Michigan and consists of six members with equal representation from Canada and Michigan. Two members are appointed by Canada, one by WDBA and three by Michigan. As well, WDBA, as a Canadian Crown corporation, is wholly owned by the Government of Canada and has the powers necessary to carry out the project. This mandate is vested in a nine-member board of directors.

Cross-border procurement

There were many challenges of the project due to its cross-border nature:

- The three-year procurement period made it challenging for the proponent teams and sponsors due to various changes in external market factors and the need to obtain comfort in the market for a cross-border procurement.
- The project must adhere to two sets of regulations and standards. For example, to meet federal building guidelines in Canada and the U.S., the bridge will be dual-designed. Because of this, the bridge is being constructed to the most stringent of the Canadian and U.S. standards to achieve the highest standards of structural design and durability.
- Federal, state, provincial and local laws are all applicable to the project. Similarities exist, but they are not the same. Environmental laws, for example, vary meaningfully between jurisdictions. In some cases, it was necessary to set out separate requirements in the project agreement to reflect different legal regimes. In other cases, dual compliance was considered reasonable and necessary or the project agreement adopted the laws in one jurisdiction and applied them contractually to the project as a whole.
- The Crossing Agreement required WDBA to ensure compliance with U.S. Department of Transportation

Federal Highway Administration requirements for Michigan to receive matching funds from the federal government for its highway projects. This introduced a new layer of oversight into the project, which had to be reconciled with the need to avoid inconsistencies, complications and delays. Provisions were added which recognized the roles of both Michigan Department of Transportation and the Federal Highway Administration and of WDBA as the counterparty to BNA.

Concluding Comments

The Gordie Howe International Bridge is a landmark project for both Canada and the U.S. Its binational nature sets it apart from other P3 transactions in almost every way. From ensuring the codes, regulations and standards of two countries were met to managing stakeholders, workforces and currencies on both sides of the border, this P3 procurement required innovation in all aspects of delivery.

From early on in the process public and stakeholder input played an important role in shaping the community benefits initiatives and project requirements. Based on the priorities identified by the host communities, the project will provide significant opportunities and positive social and economic outcomes for the Windsor-Detroit area. A Community Benefits Plan was developed as a required part of the project to ensure that the two host communities of Windsor, in Canada, and Detroit, in the U.S., realize positive and sustainable benefits of the project in a meaningful way.

Using a DBFOM P3 delivery model, WDBA partnered with BNA to deliver a key public facility in two countries that respects the legal, cultural and community needs of both. When completed, the bridge will be the longest cable-stayed bridge in North America and will provide new crossing capacity in Canada's busiest trade corridor with the U.S. Establishing an efficient risk profile required an extraordinary level of coordination by the public and private sectors and supported the benefits of the P3 procurement process.

Using the DBFOM P3 delivery model resulted in an estimated value for money of \$562.8 million net present value, or 10.7 per cent, representing a significant savings to taxpayers. The total contract value is \$5.7 billion with just over \$1.0 billion in private

financing, making the project one of the largest private financings of a P3 project in Canada. The project will generate lasting and sustainable benefits for both countries by creating thousands of jobs, stimulating increased trade and investment, and promoting economic development in the region.

The creative solutions with respect to the treatment of the foreign exchange risk, the complex tax structure, the need for flexibility to adapt to international trade agreement negotiations, and the risk allocation tailored to the needs of each country are unique in the industry and represent an evolution of the P3 model in the market, making the project a model for future transactions. Moving forward, the excellence and innovation demonstrated on the Gordie Howe International Bridge project will be precedent setting for all future cross-border transactions in Canada and perhaps the world.

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Appendix: CCPPP's National Award Case Studies 1998 - 2019

Defence

Communications Security Establishment Canada Long-Term Accommodation Project (2011)

Education

Quad at York University, Ontario (2018)
Saskatchewan Joint Use School Projects (2015)
Alberta School Alternative Procurement – Phase 1 (ASAP I), Alberta (2010)
O'Connell Drive Elementary School, Nova Scotia (1998)

Energy

Fort McMurray West 500-kV Transmission Project, Alberta (2018)
John Hart Generating Station Replacement Project, B.C. (2014)
Britannia Landfill Gas to Electricity Project, Ontario (2005)
Vancouver Landfill Gas Cogeneration Project, B.C. (2003)
Bruce Nuclear Power Facility, Ontario (2000)
Waterloo Landfill Gas Power Project, Ontario (2000)

Government Services

Archives of Ontario – Offsite Archival Storage (2006)
Cook Chill Food Production Centre, Ontario (2005)
DriveTest: Ontario Driver Examination Services (2004)
Transforming the Delivery of Ontario's Social Assistance System (2003)
Emergency Service Mobile Communications in Ontario (2000)
Electronic Child Health Network, Toronto, Ontario (1999)
Teranet, Ontario (1998)

Health

New Oakville Trafalgar Memorial Hospital, Ontario (2016)
Humber River Hospital, Ontario (2015)
BC Cancer Agency Centre for the North and Fort St. John Hospital & Residential Care Project, B.C. (2012)
Centre Hospitalier de l'Université de Montréal Project (2012)
Glen Campus – McGill University Health Centre, Quebec (2010)
Women's College Hospital Redevelopment Project, Ontario (2010)
Royal Jubilee Hospital Patient Care Centre, B.C. (2009)
VIHA Residential Care and Assisted Living Capacity Initiative, B.C. (2007)
Abbotsford Regional Hospital and Cancer Centre, B.C. (2008, 2005)
Facility Management for the Royal Ottawa Health Care Group, Ontario (2000)
Devonshire Care Centre, Alberta (2000)
Shaikh Khalifa Medical Centre, United Arab Emirates (2000)

IT Infrastructure

Connecting Small Schools in Newfoundland (2003)

Justice & Corrections

Forensic Services and Coroner's Complex, Ontario (2016)
Okanagan Correctional Centre, British Columbia (2015)
Elgin County Courthouse, Ontario (2014)
Ontario Provincial Police Modernization Project (2013)
Surrey Pretrial Services Centre Expansion, B.C. (2011)
Durham Consolidated Courthouse, Ontario (2007)
Central North Correctional Centre, Ontario (2002)
Five Corners Project, B.C. (2002)

Real Estate

Aurora College Family Student Housing, Northwest Territories (1999)
Legislative Chamber, Offices and Housing, Nunavut (1999)

Recreation & Culture

L'Adresse symphonique, Quebec (2011)
SHOAL Centre: Seniors Recreation Centre, B.C. (2004)
John Labatt Centre, London, Ontario (2002)
Skyreach Place, B.C. (2000)

Social Housing

Single Room Occupancy Renewal Initiative Project, B.C. (2013)

Transportation

Gordie Howe International Bridge Project (2019)
Tłı̨ch̓q All-Season Road Project
North Commuter Parkway & Traffic Bridge Replacement, Sask. (2018)
Iqaluit International Airport, Nunavut (2017)
Southwest Calgary Ring Road, Alberta (2016)
Disraeli Freeway and Bridges Project, Winnipeg, Manitoba (2012)
Canada Line, B.C. (2009)
Confederation Bridge, PEI (2009)
Highway 407 ETR, Ontario (2008 & 1999)
Autoroute 30, Montreal, Quebec (2008)
Northwest Anthony Henday Drive, Alberta (2008)
William R. Bennett Bridge, B.C. (2008)
Autoroute 25, Montreal, Quebec (2007)
Kicking Horse Canyon Project –Phase 2, B.C. (2007)
Golden Ears Bridge, B.C. (2006)
Anthony Henday Drive Southeast Leg Ring Road, Alberta (2005)
Sea-to-Sky Highway Improvement Project, B.C. (2005)
Sierra Yoyo Desan Resource Road, B.C. (2004)
Fredericton-Moncton Highway Project, New Brunswick (2003)
Belledune Port Authority, New Brunswick (2000)
Retendering Alberta's Highway Maintenance Contracts (2000)
Cobequid Pass Toll Highway, Nova Scotia (1998)

Water, Wastewater & Biosolids

Calgary Composting Facility, Alberta (2017)
City of Saint John Safe Clean Drinking Water Project, New Brunswick (2017)
Regina Wastewater Treatment Plant Upgrade Project, Saskatchewan (2014)
Biosolids Management Facility, Sudbury, Ontario (2013)
Britannia Mine Water Treatment Plant, B.C. (2006)
Goderich Water and Sewer Services, Ontario (2000)
Port Hardy Treatment Project, B.C. (2000)

These case studies can be obtained through CCPPP's online bookstore at: www.pppcouncil.ca/web/bookstore

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