

Gordie Howe International Bridge (United-States – Canada)



Source: Ramboll

Location	Detroit, Michigan (United States) – Sandwich, Ontario (Canada)
Sector	Transportation
Procuring Authorities	Windsor-Detroit Bridge Authority (WDBA)
Project Company	Bridging North America (BNA)
Contract Obligations	Design-Build-Finance-Operate-Maintain (DBFOM)
Financial Closure Year	2018
Capital Value	USD 4.4 billion (CAD 5.7 billion) – 2018 value
Contract Period (years)	36 (6 years construction + 30 years operation and maintenance)
Key Facts	Canadian Government providing initial funding for the project with tolls to recuperate spending. Availability payment PPP.

Project highlights

The Gordie Howe International Bridge is a road border crossing between Detroit, Michigan in the United States (US) and Sandwich, Ontario, Canada. The bridge will connect the 14th largest metropolitan area in the US with its second largest trading partner. The Windsor-Detroit trade corridor is the busiest trade corridor in North America, handling almost 30 per cent of all Canada-US trade transported by truck, making the Gordie Howe International Bridge project a critically important piece of public infrastructure.

The bridge will be 2.5 kilometres (km) long with a central span of 853 metres, making it the longest main-span cable-stayed bridge in the US. Given the cross-border use of the bridge, the project includes extensive ports of entries with related immigration and customs facilities. On the Michigan side, the immigration facility will be one of the largest ports of entry in the US. On the Canadian side, the port of entry will be the largest along the Canada-US border.

The project includes roadway improvements on both sides of the crossing, including reconfiguration of the Michigan Interchange over a distance of three kilometres. The project will provide a safe, efficient and secure end-to-end border crossing system directly connecting with the key high-speed and high-capacity links of Highway 401 in Windsor on the Canadian side and Interstate 75 (I-75) in Detroit on the US side.

The Gordie Howe International Bridge was developed as a joint project by both the Canadian and American Governments. The project has been procured using a public-private partnership (PPP, or P3 in North America) model. Overseen by the Windsor-Detroit Bridge Authority (WDBA), the contractor consortium branded "Bridging North America" (BNA) will design, build, finance, operate and maintain the bridge and ports of entry for 30 years, and design, build and finance the Michigan interchange on the US side.

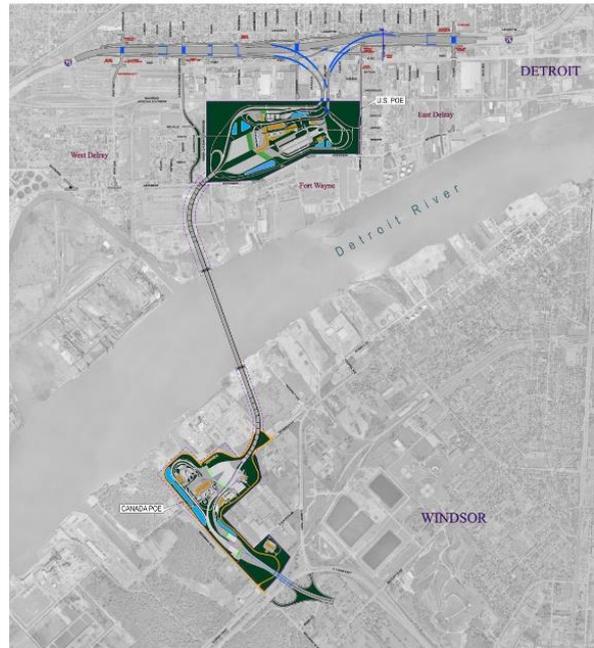
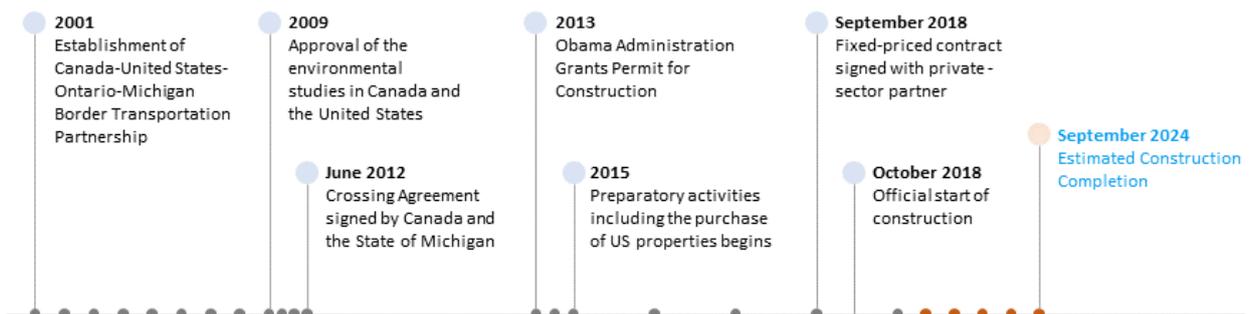


Figure 1. Four components of the Gordie Howe International Bridge Project (source: Windsor Detroit Bridge Authority)

Project timeline



Development

Policy and planning setting

The concept for the Gordie Howe International Bridge began in 2000 driven by the strong perceived financial benefits it would bring. Transport Canada, the United States Federal Highway Administration, the Ontario Ministry of Transportation and the Michigan Department of Transportation came together to initiate discussions and eventually form the partnership that would drive the project forward.

The Canada-United States-Ontario-Michigan Border Transportation Partnership (the Partnership) was established in 2001, between Transport Canada, the United States Federal Highway Administration, the Ontario Ministry of Transportation and the Michigan Department of Transportation. The goal was to study and justify trans-border infrastructure improvement works in the Detroit-Windsor trade corridor¹.

On June 15, 2012, both the Government of Canada and the State of Michigan signed an agreement (the Agreement) to provide the framework for Canada and Michigan's roles and responsibilities toward the biggest and most ambitious cross-border infrastructure project between Canada and the US. The Agreement provides fundamental guidance towards the design, build, financing, operation, maintenance, ownership, material procurement requirements, and jurisdictional requirements of the Gordie Howe International Bridge project.

The agreement states the following conditions:

- the Government of Canada will pay all costs of the required land acquisition in Canada and Michigan and for the construction of an interchange to provide connections to the I-75 highway
- tolls for both Canada-bound and US-bound traffic will be collected on the Canadian side of the crossing and used to reimburse the Canadian Government for the funds it advances related to the project
- all iron and steel for any bridge component in Canada and for any component of the project in the US will be sourced in either Canada or the US
- the P3 agreement must contain provisions for community benefit plans/planning and for the involvement of the host communities in Canada and Michigan
- the crossing will be publicly owned, jointly by the Canadian Federal Government and the State of Michigan
- the International Authority will be comprised of equal representation by Canada (Provincial and Federal levels) and Michigan.

The Agreement created the Windsor-Detroit Bridge Authority (WBDA), whose role would be to direct and administer all aspects of the crossing's implementation, from financing to procurement and eventually maintenance and operation. From its inception, it was expected that the staffing of WBDA would adjust over time to reflect the expertise required to deliver the crossing at the various stages of the project. The role of WBDA would consequently change over the life of the project to adapt to its needs.

Challenges and opportunities addressed by the project

The Border Transportation Partnership named representatives from both countries who would have authority to make decisions representing the Partnership; this entity would become the oversight committee for the crossing. The accord endues the Partnership with authority over the planning and implementation of the project through an independent entity. The Border Transportation Partnership focused its efforts on addressing four transportation needs¹:

¹ https://www.michigan.gov/documents/buildthisbridge/Agreement_389284_7.pdf

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1. Redundancy – Multiple connections improve resilience of the trade corridor. At the onset of the Partnership, the crossings included roadway bridge, rail tunnel, truck ferry, and passenger tunnels
2. Current and future travel demand – As trade and international travel increase, the crossing must be able to accommodate new demand
3. Processing improvements – Current checkpoints are as far as 0.5 km from the crossing itself, leading to various operational inefficiencies, and
4. End-to-end connectivity – The current configuration requires vehicles to pass through as many as 17 signalised intersections, extending crossing time, causing unnecessary delays, and reducing user friendliness of the crossing.

September 11, 2001 highlighted the importance of the corridor to the newly formed Partnership¹. When border crossings were shut for the period following 9/11, the abrupt stop in trade had ripple effects on both economies that were felt for some time. The period of no trade demonstrated the impact a reduction in trade at the crossing and underscored the detrimental effect of the mismatch in demand vs capacity at the crossing. The importance of reducing travel times and increasing throughput became quantifiable and clear.

Perceived long-term benefits

The economic impact of the crossing is one of the driving justifications for the project. The economic impacts were assessed in a report conducted in 2004², which found that by 2020, increased congestion and delay would cost the US more than USD 2.2 billion and Canada more than CAD 300 million (USD 200 million) per year in lost production and output. The impacts of congestion would rise exponentially over the subsequent decade (2020 to 2030) and would lead to further production losses of USD 11.4 billion per year to the US and CAD 2.1 billion per year by 2030 (see table below). These impacts amount to projected losses of USD 40 billion between 2003 and 2020 and another USD 60 billion by 2030.

From an employment perspective, nearly 12,000 full time equivalent jobs could be created by 2030, with over 4,700 in the Detroit area alone as a result of the crossing. Failure to relieve congestion in the Detroit-Windsor corridor may cost up to 6,000 jobs by year 2020 in the Ontario Province, and over 31,000 by the end of 2030. The Canadian economy would lose over 35,000 jobs.²

Through these findings, the study validated that steps should be taken to expand infrastructure capacity at the principal border crossings between Michigan and Ontario to stave off the economic impacts of the do-nothing scenario.

Alternative options considered

A Focused Analysis Area (FAA) was established in the Windsor-Detroit portion of the Broad Geographic Area, based on the transportation problems identified with the Ambassador Bridge and Detroit-Windsor Tunnel.³ The current crossing facilities within the area of Detroit/Windsor include freight train, freight ferry, automobile bridge, and automobile tunnel. The capacities and demands of each facility were

² http://www.partnershipborderstudy.com/pdf/Economic%20Impact%20Report_FINAL_29Jan04WEB.pdf

³ <http://www.partnershipborderstudy.com>

carefully considered when selecting the final alternative. The final crossing type and the location of the crossing were determined in the alternatives' analysis conducted in the environmental assessment (Table 1)⁴.

All options considered had to include border processing and roadway improvements, with new or improved border crossings, to satisfy the long-term transportation needs in the FAA, as shown in the assessment of transportation alternatives. For the medium- and long-term needs of the transportation network in the FAA, the assessment also supported the inclusion of travel demand management measures, with rail, transit and ferry service improvements, as part of a multi-modal strategy. Ultimately, a roadway crossing was selected because it best satisfied the overall objectives of the project.

Factor	Do Nothing	Border Processing	TDM	Rail Improvements	Transit Improvements	Marine Improvements	New and/or Expanded Roadways
Transportation Network Improvement	○	◐	◑	◒	◓	◔	◕
Transportation Opportunities	○	◐	◑	◒	◓	◔	◕
Governmental Land Use, Transportation Planning and Tourism Objectives	○	◐	◑	◒	◓	◔	◕
Border Processing	○	◐	◑	◒	◓	◔	◕
Environmental Feasibility	◐	◑	◒	◓	◔	◕	◖
Technical Feasibility	N/A	◐	◑	◒	◓	◔	◕

Shading represents the degree to which the alternative addresses each factor, relative to the other alternatives

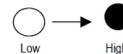


Table 1: Summary of Evaluation of Transportation Alternatives⁴

Procuring and Financing

Procurement model

Initially, the crossing implementation was to include various types of procurement vehicles, with a P3 delivering only the bridge component.⁵ The inspection plazas and other associated infrastructure were to be implemented using more traditional procurement methods. The intention was to keep the funding streams separate and leverage the private sector to operate and maintain portions of the project. As the project progressed, it became clear that aligning the timing of the various components would present a challenge potentially resulting in a partially completed project. Because each component was to be driven by a different party, it would be difficult to manage timing because there was no mechanism to ensure alignment of the various milestones.

Canada has a long history of successfully developing and implementing infrastructure projects using the P3 model. WDBA decided to leverage the deep experience in Ontario and across Canada to deliver the Gordie Howe International Bridge project via a P3. The success of past, complex, high profile projects using this model provided a foundational maturity of the market that was tapped to increase the scope of this project¹.

Eventually, the Gordie Howe International Bridge was fully converted to a P3 model for procurement. The P3 includes:

- the design, build, finance, operation and maintenance of the Canadian and US ports of entry and the bridge, and
- to design, build and finance the Michigan Interchange. Following construction, the Michigan Government will be responsible for the operations and maintenance of the Michigan Interchange.

⁴ <http://www.partnershipborderstudy.com> (environmental assessment report)

⁵ <https://www.gordiehoweinternationalbridge.com/en/p3-procurement>

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Specifically, the selected private sector partner would deliver all infrastructure associated with the bridge, including:

- the bridge itself
- bridge approaches
- toll plazas
- customs and immigration facilities
- related interchange ramps for the I-75 highway

Operation & maintenance of the bridge and the ports of entry will last for 30 years. WDBA will set and collect toll revenue for the Canadian Government, with the private sector partner receiving an availability payment based on performance.

Following a competitive tender process, it was announced on July 5, 2018 that the consortium Bridging North America (BNA) had been selected as the project's private sector partner. BNA signed a CAD 5.7 billion (USD 4.4 billion) contract with WDBA for the project on September 28, 2018. Of the contract value, CAD 3.8 billion (USD 2.9 billion) was allocated to the construction phase, which was scheduled for completion by the end of 2024. The remaining CAD 1.9 billion was allocated for the operations phase⁶. The contract value reflects the progress and service payments the Canadian Government will provide BNA with throughout construction and operation based on performance.

Utilising a P3 model improved value for taxpayers by reducing overall costs as compared to traditional procurement. The P3 model for this project is projected to save approximately CAD 562.8 million (or 10.7%) compared to delivery of the project using traditional procurement methods, as modelled by an independent value for money analysis.⁷

A key component of this P3 is that the government and the private sector share various aspects of risk. For example, cost overruns and delays to projects are shifted from the taxpayer to the private sector, but other foreseeable risks, such as foreign exchange risk, are borne in part by the public sector.

Private sector involvement

The P3 process required a private sector partner to enter a contractual agreement with WDBA. A competitive bidding process was used to engage various consortia to select the winning tenderer. The consortia were required to provide all expertise necessary to deliver all aspects of the bridge financing, operation, construction, and maintenance. To meet these requirements, the consortia became a complex combination of numerous entities.

BNA is comprised of the following engineering and construction entities:

Design-Build Team	Operations & Maintenance Team	Other Partners
<ul style="list-style-type: none"> • Dragados Canada • Fluor • Aecon 	<ul style="list-style-type: none"> • ACS Infrastructure • Fluor • Aecon 	<ul style="list-style-type: none"> • AECOM • RBC Dominion Securities Inc. • Carlos Fernandez Casado and FHECOR Ingenieros Consultores, S.A. (CFC/FHECOR) • Moriyama & Teshima • Smith-Miller+Hawkinson Architects

A separate tender was called to engage a design consultant to act on behalf of the WDBA to look after compliance of the final design. Ultimately, Parsons was selected as the owner's representative consulting engineer.

⁶<https://www.gordiehoweinternationalbridge.com/u/files/Meetings/Financial%20Close/FINAL%20Fact%20sheet%20package%20ENGLISH%20PKG%202.pdf>
⁷ [https://www.gordiehoweinternationalbridge.com/u/files/Meetings/Financial%20Close/Value%20for%20Money%20Report%20\(2018-09-27\)%20Final.pdf](https://www.gordiehoweinternationalbridge.com/u/files/Meetings/Financial%20Close/Value%20for%20Money%20Report%20(2018-09-27)%20Final.pdf)

Infrastructure financing

Under the terms of the P3 contract, BNA is required to finance delivery of the project, with the Canadian Government providing progress payments (through WDBA) at various gateways required to support construction. Once construction is completed, BNA must finance aspects of its operation as well, as it is responsible for operating and maintaining the crossing. The consortium is paid during operation of the bridge through 'availability payments' provided by the Canadian Government based on performance metrics in the P3 contract.

Sophisticated financing was part of the consortium requirements during the tendering and evaluation process. The selection of the appointed consortium included an evaluation of their approach to financing and cashflow to ensure the financial health and, ultimately, the viability of the entity. Financial risks associated with cash flow during operations and maintenance must be borne by BNA.

Following the expiry of the operations and maintenance contract after 30 years of operation, tolls will continue to be collected by the Canadian Government, however the operation model is yet to be determined.

Separate to the P3 contract, the Canadian Government had invested CAD 559 million between 2005 and 2018 to develop the project and enable financial close on the P3 contract. This initial investment will be repaid to Canada using the toll revenues gained during operation.

The analysis of cash flows is used and reported by WDBA in its financial reports to inform shareholders of the operations' financial balance.

Financial risks

It was previously estimated that in its first year of operation (when opening was projected for 2016), the bridge would generate USD 70.4 million in toll revenues⁸, with USD 123.5 million in total gathered by 2025.

At several points, the project experienced setbacks due to funding issues; in particular, the inability of the US side to contribute to the construction costs. An agreement announced on June 15, 2012 ensured the project will proceed, with the Canadian Federal Government to fund bridge construction, land acquisition in Michigan and the construction of the I-75 on-ramps. On February 18, 2015 Canada announced that it would also fund the construction of a customs plaza on the US side of the bridge in Detroit's Delray neighbourhood. The plaza will have a budget of around CAD 250 million and be recouped through tolls⁹. In order to cover the plaza's operational and staffing costs, the U.S. Department of Homeland Security indicated that, in the first year of operation, the operations and staffing cost will be about USD 100 million, with an ongoing cost of USD 50 million¹⁰ per year. While no tolls will be charged on the US side, the Canadian contribution will be repaid from bridge tolls collected on the Canadian side.

In the end, Canada would fund all the construction activities required for the crossing. An additional benefit is that portions of the Michigan side of the crossing qualified for funding under the Federal Highway Administration (FHWA) scheme. The required design elements and processes were adhered to ensure compliance with FHWA federal aide requirementsⁱ.

⁸ https://www.mlive.com/news/detroit/2010/06/mdot_report_detroit_river_inte.html

⁹ <https://www.cbc.ca/news/canada/windsor/250m-u-s-customs-plaza-to-be-paid-for-by-canada-1.2962166>

¹⁰ <https://www.gordiehoweinternationalbridge.com/en/dhs-announces-new-international-trade-crossing>

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WDBA manages financial risks through financial reporting and risk analyses. WDBA provides regular reports regarding the financial situation of the crossing's construction.

Approach to currency risk and credit ratings

At the onset of the project, three stages of foreign exchange (FX) risk were identified:

Bidding and Financial Close

During this period, the tendering consortia needed to establish a baseline FX rate to assemble a competitive bid. To avoid unnecessarily increased bid prices as a result of FX, the Canadian Government assumed the risk at the bid stage. This was achieved by establishing a rate reset at the financial close of the tendering process. This realigned the bid prices to use the same FX rates at the time of evaluation. While precedence existed for this approach, a new mechanism for facilitating the rate reset needed to be developed by WDBA.

On September 28, 2018, a Project Agreement (contract) was executed between WDBA and BNA, signifying financial close. Upon conclusion of negotiations and the rate reset process, WDBA offers protection for BNA against fluctuations in interest rates on debt and fluctuations in credit spreads on financing instruments. WDBA also protects the consortium against exchange rate fluctuations between the period when the proponents submitted bids and when rates were locked in for the Project Agreement (i.e. Financial Close).

Construction

The contractor must purchase materials throughout construction. As a result of the procurement guidelines, the sources of the materials could be Canadian or American, so costs could be incurred in US Dollars, whereas the project is financed using Canadian Dollars. The risk associated with this exchange is entirely borne by the contractor.

Both countries will provide all iron and steel for any bridge component in their respective country. Costs of the required land acquisition in Canada and Michigan, and for the construction of an interchange to provide connections to the I-75, will be paid by the Canadian Government.

Operations Period

In a design/build/operate/maintain contract, the consortium must account for costs during a lengthy operational period. WDBA acknowledges that asking a contractor to bear the FX risks associated with this operational period is not fair and may impact the long-term solvency of the consortium. The viability of BNA is essential to the success of the project. A mechanism was created to share the FX risks during the operations and maintenance period whereby payments can be made between WDBA and BNA in either currency. This allows for costs that are incurred by the contractor in one currency to be repaid in that currency, thereby reducing inefficiencies and eliminating the need to hedge.

Tolls for both Canada-bound and US-bound traffic will be collected on the Canadian side of the crossing and used to reimburse the Canadian Government for the funds it advances related to the project. The P3 agreement must contain provisions for community benefit plans and for the involvement of the host communities in Canada and Michigan.

Management

Political and operational coordination

The International Authority is a joint Canada-Michigan governance entity responsible for monitoring compliance of WDBA with the Crossing Agreement signed by Canada and Michigan.¹¹ Six members with equal representation from Canada and Michigan make up the International Authority. Two members are appointed by Canada, one appointed by WDBA and three appointed by Michigan. The appointment terms for members of the International Authority will last until one year after the bridge opening.

WDBA is responsible for the design and delivery of the P3 procurement process, and for overseeing the construction and operation of the new crossing. WDBA will set and collect all tolls as the operator of the new bridge. WDBA is led by a Chief Executive Officer (CEO) and governed by a board of directors who are responsible for overseeing the business activities and other affairs of WDBA. Up to nine members, including the CEO, form the board. All directors are approved by the Government of Canada with the Chair and CEO holding office for five years and the directors holding office for up to four years. WDBA is located in Windsor, Ontario.

Harmonisation of rules, procedures, and technical standards

Technical standards that were not made clear during the tendering process are communicated via technical reports provided by the study team.¹² Engineering designs submitted by BNA's consulting team are reviewed for compliance with chosen standards by the Owner's Representative, Parsons.

Arbitration issues

Ultimately support for the bridge has been broad, especially among business owners. While some local residents have raised concerns, namely in response to a campaign by special interest groups, their issues have always been met head on by WDBA and its partners. The public's support of the bridge is ultimately the result of an extensive outreach program conducted by WDBA from the very early stages. They continually invite public comment and feedback on the public works, engaging local residents and stakeholders wherever possible to include them in the process.

Accountability

WDBA, as a Crown corporation, is accountable to the Parliament of Canada through the Minister of Infrastructure and Communities. As per the Financial Administration Act (FAA), the duties and responsibilities of the board are to set corporate objectives and direction, ensure good governance, monitor financial performance, approve budgets and financial statements, approve policies and by-laws, as well as ensure that risks are identified and managed.

Communication and dissemination

As a public entity, transparency and public outreach are core functions of WDBA. As part of a community benefits plan, they conduct extensive public engagement to gather feedback on the project and the impacts it will have. The history of public engagement is extensive, starting from the onset of the project and continuing regularly through public meetings and other forms of engagement. Hundreds of meetings have been held on both sides of the border, including with schools, businesses, residents, transportation groups, etc. Acknowledging the potential economic and logistical benefits, businesses have been very vocal in their support of the project, especially from the Michigan side of the crossing.

¹¹ <https://www.gordiehoweinternationalbridge.com/en/who-we-are>

¹² http://www.partnershipborderstudy.com/reports_us.asp#techreports

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WDBA is committed to ensuring that communication with the public is maintained during construction so that community concerns are addressed as quickly as possible, and to address any disinformation campaigns spread by the bridge's opponents. Residents receive notifications of upcoming work, regular progress updates and a project contact to discuss questions and concerns. The results of the project's operation are communicated in the WDBA reports.

Conclusions

- **Public Benefits** – *project benefits must be clearly identified and quantified for all parties. Economic benefits are critical, but so are impacts to the environment and sustainability. In the project, extensive economic analysis was completed to justify the project, and exhaustive environmental studies were conducted to satisfy both national environmental agencies. The studies paved the way for broad public support as well as political support.*
- **Public Perception** – *Economic studies were conducted to justify the project at a macro level. To maintain public support, especially in the areas directly affected by the project, local outreach programs play a key role. WDBA maintains strong ties with the affected communities including businesses and residents, involving them in public dialogue and gathering feedback regarding all major project activities. This involvement allows residents to be heard and their needs and worries considered, fostering a good relationship between the project and the community. A robust community outreach program should accompany the project that focuses on transparency, involvement, and clarity of message.*
- **Risk Assessment and Burden of Risk** – *Identifying risk early and ensuring just risk allocation will help ensure the viability of the project. In the case of the Gordie Howe project, Canada used its experience in overseeing P3 projects to fully understand the complexities of using the P3 process in the crossing context. They could identify the risks associated with foreign exchange early on and develop a plan to address and mitigate the costs that the consortium would assume to address these risks.*
- **Maturity of Private Sector and Public Sector** – *In the case of Gordie Howe, the P3 process could be used because the Government had extensive understanding of the capabilities of the private sector to deliver a project of this scale and complexity. In fact, the maturity of the P3 process provided a solution to the critical problem of aligning construction schedules that were previously independent. By incorporating all aspects of the infrastructure works into a single P3, the WDBA could be reasonably confident that the sequencing of activities would align and result in holistic delivery of the project. This confidence was only made possible by the maturity of the private sector to deliver in a P3 context, and the public sector to oversee a project that requires sophisticated oversight. While P3s are typically used to address a gap in funding availability, in a mature P3 market, the mechanism can be used to facilitate on-time delivery, amongst other benefits.*
- **Governance Structure** – *A strong oversight body with the interests of both countries in mind has played a critical role in the success of this project to date. The WDBA is empowered by both countries to act on their behalf, giving them a level of authority that commands respect from the P3 partner, which ultimately encourages adherence to rules, regulations, and project schedule.*
- **Procurement** – *Complex projects require understanding on both the public and private side during procurement. The public entity must demonstrate knowledge and sophistication when designing the Request for Proposal (RFP). WDBA considered all interests in the RFP process, ensuring that no one party (public or private) was expected to shoulder disproportionate risk. Through a robust RFP evaluation process, WDBA was able to identify strengths and weaknesses of the bidders to reduce the risk of a private sector partner that was unfit to deliver the project.*

¹ Source: Interview with Windsor-Detroit Bridge Authority representatives, Heather Grondin (VP of Communications WDBA-AWP), Kevin Wilkinson (Controller at WDBA), Carmen Wayde (Deloitte Canada), Tom Barlow (Partner at Fasken Martineau DuMoulin)