RE-ASSESSING BRIDGE OPTIONS IN THE DETROIT-WINDSOR CORRIDOR: ECONOMICS AND PRAGMATISM VERSUS POLITICS

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Executive Summary

For the last decade, the Government of Canada has been determined to build a new bridge across the Detroit River – the busiest trade corridor on the Canada-United States border. This drive led Canada to agree in its 2012 "Crossing Agreement" with Michigan to basically finance the entire project and to take all of the financial risk related to its future operations. Yet, these blanket commitments may prove problematic as project costs estimates for its "Gordie Howe Bridge" project continue to grow. Official project estimates were re-set in April 2018 to C$4.8 million – 17% above the original C$4 billion budget.

The proposed construction of the Gordie Howe Bridge comes at a time of significantly declining traffic volumes across the Canada-U.S. border. Traffic on the Ambassador Bridge, the main full service crossing in the Detroit-Windsor corridor, was down 44% between 2000-2017. With traffic stagnating, toll revenues are unlikely to grow in the years ahead.

This paper lays out the issues around the Gordie Howe project and calculates the estimated required annual Canadian Government subsidy to the Bridge and related infrastructure. It compares three scenarios: status quo, a doubling of tolls, and a tripling of tolls. Under the most optimistic scenario, Canadian taxpayers, by the terms of the Crossing Agreement, will be required to subsidize the Gordie Howe Bridge a rate of US$100 million per year.

The paper then assesses an alternative approach: embracing the proposal by the owners of the Ambassador Bridge to build a new privately funded span adjacent to the existing crossing. The estimated cost of achieving basically an equivalent outcome in infrastructure functionality would be C$420 million - less than one-tenth of the cost of the Gordie Howe project.

Ultimately, the paper asks, how much is public ownership and control of a bridge worth? The paper concludes that the significant financial liabilities surrounding the Gordie Howe Bridge suggest that the project be shelved.

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Asking the Hard Questions

French philosopher Charles Peguy once quipped that "(e)verything begins in mysticism and ends in politics." The debate around a new bridge connecting Detroit, Michigan and Windsor, Ontario has been going on for so long and the politics have been so intense that one cannot help but think that Mr. Peguy was on to something.

As the busiest trade corridor between the United States and Canada, there is little doubt that ensuring world-class transportation infrastructure between the two cities and their extended regions is important. Given that the Ambassador Bridge will turn 90 next year, all players in the region's infrastructure debate acknowledge that a new span is a sound idea. After all, transportation, border security, technology and other factors have changed a lot since the Ambassador was erected.

Yet, the key question remains: is the "public option" in the form of the proposed Gordie Howe Bridge the right way forward? This paper argues that it is not. The financing arrangements developed by the government of former Prime Minister Stephen Harper in 2012 (and augmented in 2015) made Canada liable for funding most of the upfront costs and underwriting all overruns, except those directly related to project construction, for the life of the bridge. When one looks at traffic trends through the Detroit-Windsor corridor and likely toll revenue, it seems probable that Canadian taxpayers will be saddled with significant liabilities related to the project for decades to come.

This assessment is shared by PwC, which prepared a confidential 2007 report for the Michigan Department of Transportation (MDOT). Prabhat Diksit, one of that authors, stated in an e-mail to MDOT that

> *(t)here is a large understated "pink elephant" in this room that should be driving every element of decision making: Namely the fact that real tolls will not raise sufficient funds to build the project and therefore some kind of public subsidy…will be necessary.*[2]

If there was no alternative to the Gordie Howe Bridge, paying the overage may seem like the wise investment. However, there is an alternative. The Detroit International Bridge Company (DIBC), which currently owns and operates the Ambassador Bridge, has actively sought to build, with private financing, a new Detroit-Windsor Bridge. In fact, on August 31, 2017, the Government of Canada approved the final permit for the new US$1 billion DIBC span across the Detroit River.[3] The company is required to begin construction within 5 years and tear down the existing Ambassador Bridge.

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[2] http://www.senate.michigan.gov/committees/files/2011-SCT-ECON-06-16-1-02.PDF.
[3] *Ambassador Bridge officials say they have 'final permit' to build new span.* CBC News. September 6, 2017. http://www.cbc.ca/news/canada/windsor/ambassador-bridge-windsor-detroit-1.4277609. The permit is approved under Order-in-Council number 2017-1112.

If both projects go ahead, the Detroit-Windsor corridor (excluding the Tunnel) would grow from 4 lanes on the existing Ambassador Bridge to 12 lanes on two bridges: 6 lanes on the new Ambassador Bridge and 6 lanes on the Gordie Howe Bridge. If traffic volumes were growing, this type of capacity expansion might make sense. Yet, as noted below, traffic volumes on the Ambassador Bridge and across the Canada-U.S. border are down significantly since 2000.

If somehow the Government of Canada could demonstrate that the owners of the Ambassador Bridge were systematically not fulfilling their obligations as an operator of a key piece of bi-national infrastructure, the case for a publicly underwritten bridge may be more compelling. Yet, this seems not to be the case. The Ambassador Bridge has a reputation of being professionally run. One would reasonably expect that Ottawa would not have approved the DIBC's permit request for a new bridge if there were major operational problems. Moreover, there are no special regulatory mandates included in the Order-in-Council beyond timetable, site planning and coordination requirements, suggesting that the critique of the Ambassador Bridge's performance is more political than managerial.

The government of former-Prime Minister Stephen Harper was determined to see the Gordie Howe Bridge built. It poured huge amounts of time and political capital into what became a significant political fight. They negotiated a financing package that would see Canada pay or guarantee all costs associated with the project, even the building of the U.S. Customs plaza on U.S. soil. Now that the Harper Government is out of office and the bilateral political passions have moved on to other issues, the time has come for Canada to take a sober second look at the decisions made around the Gordie Howe Bridge. Canada has yet to make the largest financial outlays and contracting decisions related to the project. It therefore can step away from the project at a relatively small cost.

In this case, "(e)verything should begin in mysticism and end with economics."

A Brief History

The Ambassador Bridge has always been a private venture. It was built by private capital between 1927 and 1929 under authorization from the U.S. Congress and the Canadian Parliament. The completed span was heading toward dedication and opening in 1929 when the stock market crashed, setting off the Great Depression. As the U.S. and Canadian economies contracted, toll revenues did not cover costs and the company that operated the bridge was headed into bankruptcy. At this point, Joseph Bower, the financier who had raised the money to build the Ambassador Bridge, developed a new plan: bondholders would be converted into shareholders. The conversion process took place in 1939 and led to the creation of the Detroit

International Bridge Company. The DIBC would go on to be listed on the New York Stock Exchange for 50 years.[4]

The Ambassador Bridge operated without incident for the next half-century. The 1965 Canada-U.S. Auto Pact vastly increased the volume of truck traffic crossing the span. One of its big users in this period of growth was Central Cartage, owned by Manuel "Matty" Moroun. As his cross-border volumes increased, Mr. Moroun grew determined to purchase the Ambassador Bridge.[5]

In 1973, Central Cartage first expressed its interest in acquiring the bridge in a letter to the Canadian Government. At that time, the government of Canadian Prime Minister Pierre Trudeau was taking a sceptical view of foreign investment and of U.S. companies more broadly. External Affairs Minister Mitchell Sharp responded to the Central Cartage letter by stating that if the bridge was to be sold, tolls would have to be reduced and ownership of the Canadian portion would have to pass, without cost, to the Canadian and Ontario Governments within 25 years.[6] Neither the Canadian Government nor the U.S. Government sought to purchase the bridge company at any point during the decades that its stock was publicly listed.

By the late 1970s, Mr. Moroun got his opportunity for ownership. The Bower family, still major shareholders, had decided to divest their interest in the Bridge. Yet, the pathway to controlling interest was not simple. Mr. Moroun had to overcome legendary investor Warren Buffet, who had already acquired 25% of the shares of DIBC. He succeeded in 1979 and applied to the Securities and Exchange Commission to take DIBC private.

Upon learning of the Central Cartage acquisition, the Government of Canada immediately filed suit seeking to block the transaction. They alleged that the sale of the Canadian Transport Company (CTC), which holds the Canadian assets related to the Bridge and is wholly owned by DIBC, did not bring "significant benefit" to Canada, as defined under the Foreign Investment Review Act. The Federal Court of Canada granted a preliminary injunction and the sale was stalled on the Canadian side. In 1980, Central Cartage countered by suing the Government of Canada in U.S. District Court for expropriation, breach of contract and other violations of law. Litigation raged for more than a decade.

By 1990, Canada and the United States had negotiated a bilateral free trade agreement and were pursuing a North American Free Trade Agreement. With trade volumes about to surge, they could scarcely afford to have their most important gateway tied down by acrimony and uncertainty. Consequently, the Government of Canada and the DIBC negotiated a deal to end their dispute. According to the

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[4] Philip Mason. *The Ambassador Bridge: A Monument to Progress*. Detroit: Wayne State University Press, 1987.
[5] Luiza Ch. Savage. *Why Canada is paying $4 billion for a new Detroit-Windsor bridge*. Canadian Business. May 22, 2015. http://www.canadianbusiness.com/economy/4-billion-detroit-windsor-bridge/.
[6] *Statement of Claim*. Arbitration Between the Detroit International Bridge Company and the Government of Canada. January 31, 2013. https://www.investorstatelawguide.com/documents/documents/UN-0044-09%20-%20Detroit%20v.%20Canada%20-%20State%20of%20Claim.pdf.

November 29, 1990 agreement, Canada recognized the ownership of the Ambassador Bridge/DIBC by Central Cartage. Furthermore, they agreed to work together to make the Ambassador Bridge facilities "a model border crossing."[7]

In 1995, the Ambassador Bridge was designated as part of the national highway system. This led in 1998 to the initiation of the "Ambassador Bridge Gateway Project", which mobilized US$230 million in congressional appropriations to connect the span directly to highways I-75 and I-96.[8]

From the mid-1990s to the early 2000s, Ottawa and Ontario periodically expressed support for pursuing an "Ambassador Bridge Gateway Project" of their own on the Canadian side. This reached its zenith in 2002. In September of that year, the Governments of Canada and Ontario announced a Memorandum of Understanding that committed C$300 million in to "Short and Medium Term Improvements" to the "Windsor Gateway". The funds would be focused on "improving existing border crossings and their approaches," including the Ambassador Bridge. A "Joint Management Committee" would guide specific decisions around investments.[9]

The Committee presented its go-forward plan to the Governments of Canada and Ontario in November 2002. On December 20, 2002, Canada and Ontario publicly trumpeted the "Windsor Gateway Action Plan" by issuing a News Release "welcoming" the recommendations. Among the key recommendations were:

- *Working with Canadian Transit Company/Ambassador Bridge, in collaboration with the City of Windsor and the local community, to pursue the development of a dedicated truck route from Ojibway Parkway at the EC Row Expressway to the Ambassador Bridge;*

- *Building a public truck-only parkway between Highway 401 and the EC Row Expressway using the Canada Southern Railway Company (CASO) Rail corridor;*

- *Expanding by one-lane in each direction the EC Row Expressway between the CASO Rail corridor and the Ojibway Parkway; and*

- *Making operational improvements to Highway 3/Huron Church Road by building grade-separated intersections and pedestrian crossings.*[10]

Truck traffic to and from the Ambassador Bridge has long been channelled down the 12km stretch of Huron Church Road to and from Highway 401. The route famously has 18 traffic lights, which cause some 10,000 trucks per day to stop and start

[7] Ibid
[8] Ibid
[9] *Windsor Gateway Short and Medium Term Improvements*. Memorandum of Understanding. September 25, 2002.
[10] *Canada and Ontario Welcome Windsor Gateway Action Plan Recommendations*. News Release. December 20, 2002.

constantly. It is often said that if a truck drives from Toronto to Miami via the Ambassador Bridge that the only traffic lights it will hit are on Huron Church Road.

The Action Plan was essentially proposing to do on the Canadian side what the Ambassador Bridge Gateway Project did on the U.S. side: to provide direct highway access for trucks. The proposal would give them a dedicated route to connect up with Highway 401. As for the many cars crossing the Ambassador Bridge, their journey down Huron Church Road would be eased by the building of a series of overpasses ("grade separated intersections") that would eliminate the need for stoplights and allow traffic to flow smoothly to and from the bridge.

In May 2003, Canada and Ontario announced their decisions on the Windsor Gateway recommendations and how they would deploy the C$300 million announced in 2002. Of their nine-point plan, their first five were:

1. *Province will assume full responsibility for E.C. Row Expressway between Lauzon Parkway and Ojibway Parkway, and will widen it by one lane in each direction.*
2. *Province will assume full responsibility for Lauzon Parkway south of E.C. Row Expressway and will extend/upgrade the highway from Highway 401 to E.C. Row.*
3. *Work together with the City of Windsor and Town of LaSalle on improvements to Highway 3/Huron Church Road, including the grade separation of the Tecumseh Road intersection north of E.C. Row Expressway, pedestrian overpasses at key locations and the grade separation of all major intersections between Highway 401 and E.C. Row Expressway to improve the flow of traffic and enhance the safety of residents.*
4. *Work together with proponents, the Canadian Transit Company (Ambassador Bridge) and the Detroit River Tunnel Partnership in their efforts to build connections to the border crossings, concurrent with the Bi-National Planning Process.*
5. *Work together with partner agencies to accelerate the Bi-National Planning Process, and work with all proponents of new border crossing capacity, including the Canadian Transit Company (Ambassador Bridge), the Detroit River Tunnel Partnership and Mich-Can, in the context of this process.*[11]

The News Release appended a map showing the truck-only route connecting Highway 401 to the foot of the Ambassador Bridge.[12] In other words, Canada and Ontario agreed with the Joint Management Committee recommendations and proposed to provide a connection from the Ambassador Bridge to Highway 401 for

[11] *Canada and Ontario Announce Next Steps at Windsor Gateway*. News Release. May 27, 2003. http://cscb.ca/article/canada-and-ontario-announce-next-steps.
[12] *Statement of Claim*, 2013.

trucks while fixing Huron Church Road for cars. In 2004, the City of Windsor even adopted in Urban Design Master Plan for fixing Huron Church Road.[13]

Then, something changed.

In 2001, federal and state/provincial transportation authorities formed the Ontario-Michigan Border Transportation Partnership.[14] It was established to study bi-national transportation needs and makes recommendations on areas for improvement. The Partnership, which was formed in the context of surging NAFTA-induced traffic volumes, swiftly recommended that additional capacity be added to the Detroit-Windsor Corridor. While this initially contemplated working with the Ambassador Bridge, the Canadian Windsor Gateway initiative and the U.S. Ambassador Bridge Gateway initiative, the Partnership shifted its views steadily toward building a wholly new "Detroit River International Crossing" (DRIC), particularly after 2003. Whether this was driven by the enhanced national security environment following the 9/11 attacks is hard to say, but seems probable. As this process unfolded, they became steadily more hostile to the DIBC proposal to twin the existing Ambassador Bridge as an answer to capacity constraints. By 2007, the Governments of Canada and United States signed a Memorandum of Understanding to agreeing to jointly pursue the development of the DRIC.[15]

In light of the Canadian change of heart, the Windsor Gateway projects were buried. There were many lawsuits. The DIBC pushed ahead with their plans to twin the Ambassador Bridge. The Canadian Government pushed hard to get the DRIC through the planning process. In 2012, the Crossing Agreement, which laid out the financing terms for the new bridge, was announced. There was a statewide referendum in Michigan in response to the deal. In 2015, Prime Minister Stephen Harper and Michigan Governor Rick Snyder announced that the DRIC would be called the "Gordie Howe International Crossing", named in honor of "Mr. Hockey."

And so the story goes.

The Infrastructure Imperative

Governments everywhere talk relentlessly about infrastructure. President Donald Trump made renewal of American infrastructure central to his presidential campaign. Prime Minister Justin Trudeau's government recently established the

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[13] *Huron Church Urban Design Master Plan*. 2004. https://www.citywindsor.ca/residents/planning/Plans-and-Community-Information/Know-Your-Community/Urban-Design/Windsor-SEEN-Urban-Design-Agenda/Pages/Huron-Church-Road-Urban-Design-Master-Plan.aspx.

[14] *Ontario-Michigan Border Transportation Partnership Framework*. Framework Agreement. February 7, 2001. https://www.state.gov/documents/organization/195002.pdf.

[15] Memorandum of Cooperation between the Department of Transportation of the United States of America and the Department of Transport of Canada on the development of additional border capacity at the Detroit-Windsor gateway. April 6, 2007. https://www.state.gov/documents/organization/195002.pdf.

Canada Infrastructure Bank to provide "access innovative financing for revenue-generating infrastructure projects."[16]

Not only do infrastructure projects create jobs, the economic fate of metropolitan regions around the world is determined by connectivity.[17] For the Detroit-Windsor metro region, the Ambassador Bridge is the backbone of the regional economy and beyond. As the largest commercial crossing point on the Canada-U.S. border, its impact can be felt in Toronto, Chicago and other major North American centers. The Mexican Counsel General in Detroit once told the author that the Ambassador Bridge handles 80% of Canada-Mexico merchandise trade. This seems plausible given the importance of the automotive trade to this relationship.

Ironically, for years, the rhetoric around North American infrastructure has too often not been translated into new or even properly maintained roads, bridges, border ports of entry and the like. Inconsistent government investment has, over time, created a crisis situation for many parts of North America's trade and transportation infrastructure. According to the American Society of Civil Engineers, the overall quality of U.S. infrastructure merits a D+. Some 9.1% - or 56,007 bridges - in the United States have received so little maintenance investment over the years that they were considered "structurally deficient" in 2016.[18] The state of infrastructure in Canada is not great either. Some one-third of municipal infrastructure, including roads and bridges, are in fair, poor or very poor condition.[19]

Given the tightness of public budgets and the urgent need for investments, many governments have turned to the private sector to fund the construction and management of infrastructure. While the specific financing and liability models vary widely, such projects are general advanced under the euphemism of public-private partnerships (P3). Indeed, the aforementioned Canada Infrastructure Bank is seeking private and official (sovereign wealth fund) capital from around the world to invest in the country's infrastructure. The bank will put up some financing and retain regulatory authority, but the role of the private sector is central.

Given that the DIBC appears to be well capitalized and committed to the long-turn viability of its key asset, the Ambassador Bridge has benefitted from a steady stream of maintenance spending and improvements over the years. Because of private ownership and an apparent ethos of stewardship, the current bridge is in as about a good condition as any major 90-year-old span can be. All of the investments made

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[16] Canada Infrastructure Bank. http://canadainfrastructurebank.ca/

[17] Landmark studies on the linkage between infrastructure connectivity and economic growth include David Aschauer. *Is Public Expenditure Productive?* Journal of Monetary Economics, 1989. https://pdfs.semanticscholar.org/7a3b/b091d95f0944b1e03d44b581f0d5d64ecd1d.pdf and Stephane Straub. *Infrastructure and Growth in Developing Countries: Recent Advances and Research Challenges*. Policy Research Working Paper. No. 4460. World Bank, 2008. http://documents.worldbank.org/curated/en/349701468138569134/Infrastructure-and-growth-in-developing-countries-recent-advances-and-research-challenges.

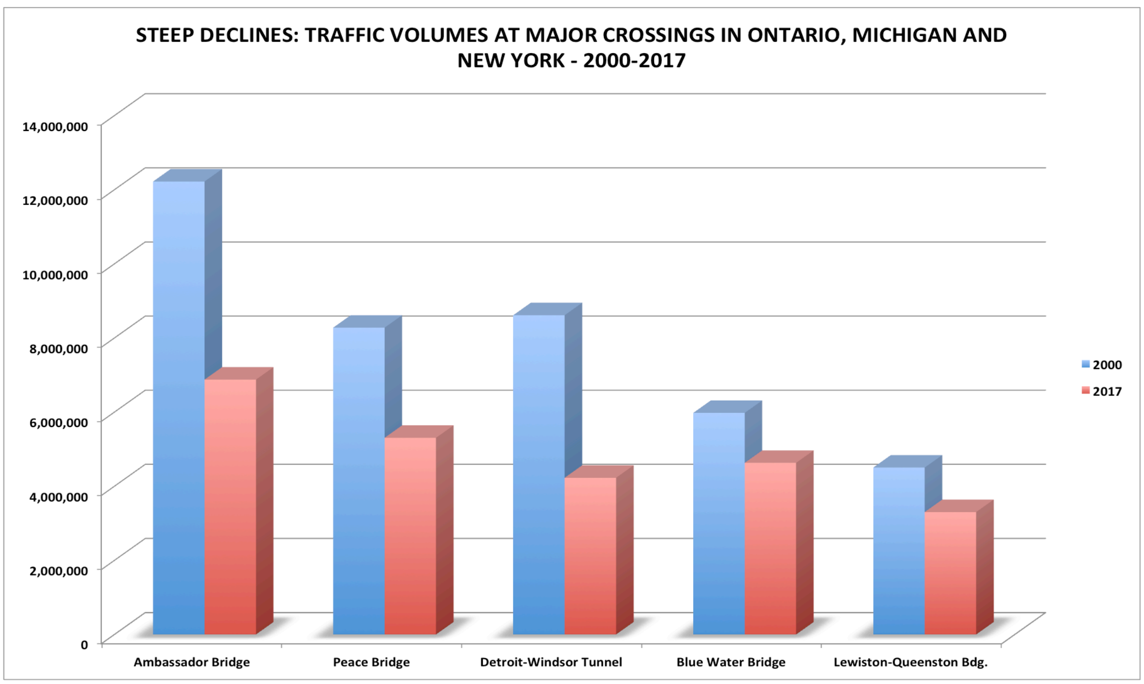
[18] 2017 Infrastructure Report Card. American Society of Civil Engineers. https://www.infrastructurereportcard.org/. (Accessed April 8, 2018).

[19] Canada Infrastructure Report Card. http://canadianinfrastructure.ca/downloads/Canadian_Infrastructure_Report_2016.pdf.

by the DIBC over the years have been money that the Canadian, Ontario, Michigan and U.S. Governments did not have to spend, making them available for other public purposes. There is every reason to expect that the DIBC would continue to make available adequate operational and maintenance resources for the ongoing operation of their new span.

Transportation Trends: The Canada-U.S. Border

U.S. and Canadian diplomats are fond of saying that Canada and the United States do not "trade" as much as they "build things together." While the long-standing model of bi-national co-production, where components move back and forth across the border in the building up of a final product, still exists, it is less common than it was 20 years ago. Supply chains have extended to Mexico, Asia and beyond, meaning that the tight interconnection between U.S. and Canadian production systems has been somewhat diluted by deeper linkages with the rest of the world.

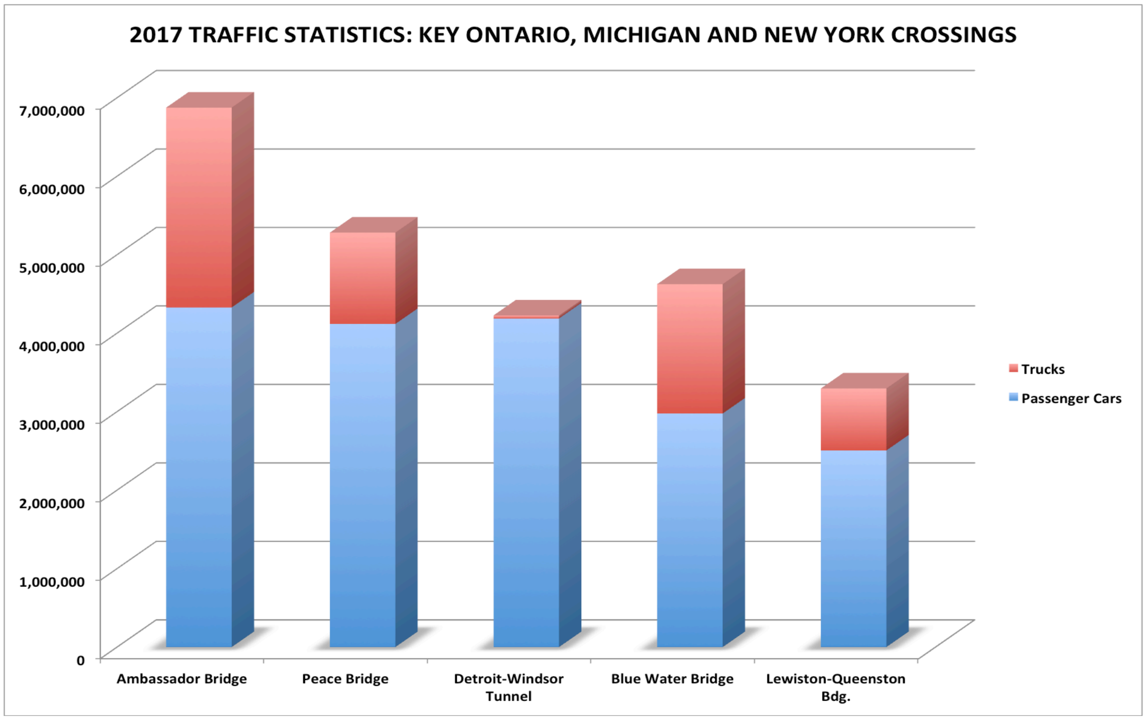


Source: Bridge and Tunnel Operators Association

These changes in production patterns coupled with shifts in the management of the Canada-U.S. border following the terrorist attacks of September 11, 2001 have had a dramatic impact on cross-border traffic. Traffic on the Ambassador Bridge fell by 44% between 2000 and 2017 while traffic on the Peace Bridge fell by 36%. The number of passenger cars, dissuaded by passport requirements and more rigorous screening, fell by half on the Ambassador Bridge during this period. The number truck crossings during this period were down by 27%.[20] Growth rates in cross-

[20] Bridge and Tunnel Operators Association

border traffic are projected to remain flat in the years ahead, meaning that there is little hope in the foreseeable future of returning anywhere close to pre-9/11 levels.



Source: Bridge and Tunnel Operators Association

Declines in volumes on the Ambassador Bridge and at other ports of entry reflect a broader shift in patterns of U.S.-Canada trade. Specifically, the decline of auto production in Canada and in the upper-Midwest region of the United States has weighed heavily on these traffic volumes. Canada's annual auto exports fell 40% from 2000 to 2008. Its share of overall exports fell from 24% to 13% during this period.[21] The rise of Mexico as an auto producer strongly influenced these shifts. In 1993, the year before NAFTA entered into force, Mexico produced just north of 1 million light-duty vehicles per year and exported about 1/3 of its output.[22] By 2017, Mexico's production had grown to 3.8 million units, more than 80% of which were exported, much to the United States.[23] Mexico has produced more vehicles than Canada every year since 2008. Since recovering from the Great Recession, Canadian production has stagnated at about 2 million units per year.[24] The net effect of these shifts has been more border traffic at Laredo, Texas[25] and fewer crossings at Detroit, Michigan.

[21] *Canada's exports over time: Resources and Manufactured Goods*. The Daily. Statistics Canada. September 29, 2017. http://www.statcan.gc.ca/pub/11-630-x/11-630-x2017005-eng.htm.
[22] T. Klier and J. Rubenstein. *The growing importance of Mexico in North America's auto production*. Chicago Fed Letter. Federal Reserve Bank of Chicago. No. 310, May 2013. https://www.chicagofed.org/publications/chicago-fed-letter/2013/may-310.
[23] Laurence Iliff. *Mexico's '17 record production rises more*. Automotive News. February 12, 2018. http://www.autonews.com/article/20180212/OEM01/180219969/mexico-auto-production-record-2017.
[24] *NAFTA Briefing: Trade benefits to the automotive industry and potential consequences of withdrawal from the agreement.* Center for Automotive Research. January 2017. http://www.cargroup.org/wp-content/uploads/2017/01/nafta_briefing_january_2017_public_version-final.pdf.
[25] According to the U.S. Department of Transportation, the volume of truck crossings at Laredo more than doubled in the 20 years at NAFTA.

Financing Structure for the Gordie Howe Bridge

The "Crossing Agreement"[26], which establishes the terms and conditions for Canada-Michigan cooperation on the Gordie Howe Bridge (then called the New International Trade Crossing (NITC)) is an extraordinary undertaking. It was signed between Canadian Prime Minister Stephen Harper and Michigan Governor Rick Snyder on June 15, 2012. As a reflection of its strong determination to see the new bridge built, Canada was essentially willing to put up all of the money necessary to make the project move forward and to basically accept all of the risk.

Governor Snyder's own press release described the distribution of responsibilities as follows:

- *Michigan is not obligated to pay any of the NITC's costs and no state appropriation is required.*
- *Canada's expenditure of $550 million will be eligible as U.S. federal matching funds for use on highway projects across Michigan.*
- *Actual design, construction, operation and maintenance of the NITC will be done by a private entity through a 40-50 year public-private partnership agreement between the Crossing Authority and the private entity as concessionaire.*
- *The Canadian government will make annual "availability payments" to the concessionaire to fund the design and construction of the NITC as well as for the ongoing operation and maintenance expenses during the terms of the public-private partnership agreement.*
- *No tolls will be charged in Michigan for use of the bridge. Canada will charge tolls, which will be used to reimburse the Canadian government for the funds it advances related to the NITC and for its annual availability payments to the concessionaire.*
- *The Canadian government will pay all costs of the required land acquisition in Canada and Michigan. It also will pay to construct an interchange to connect the NITC to I-75.*

One area that was left unresolved in the 2012 deal was the question of financing the U.S. customs plaza. Typically customs plazas are the responsibility of the respective federal governments. In a 2012 fact sheet issued by the Canadian Consulate in Detroit, the assertion that "(t)he U.S. government is expected to cover the full cost of the U.S. customs plaza" is cited as a selling feature of the Crossing Agreement.[27] In February 2015, Canada extended its liability yet further by agreeing to provide

https://explore.dot.gov/t/BTS/views/BTSBorderCrossingAnnualData/BorderCrossingTableDashboard?:embed=y&:showShareOptions=true&:display_count=no&:showVizHome=no.

[26] *Crossing Agreement.* https://www.michigan.gov/documents/snyder/Agreement_389442_7.pdf.

[27] *The New International Trade Crossing*. Consulate General of Canada-Detroit. July 2012. http://www.detroitchamber.com/wp-content/uploads/2012/12/NITC-The-Facts.pdf.

US$250-300 million to fund construction of the U.S. plaza. The U.S. Department of Homeland Security did commit to deploying and paying staff when the plaza opens.

It is important to note that the Crossing Agreement is very clear that Michigan's role in this project is that of observer. The Canadian Government is responsible for all aspects of the project. In fact, the Michigan Legislature has gone to extreme measures to support this conclusion. They placed restrictive statutory language both in policy and appropriations bills during each of the past four legislative sessions which the Governor has signed.

All in, the official cost of the Gordie Howe project was estimated to be C$4 billion, including the two customs plazas, the bridge and interchange with the Windsor-Essex Parkway and Michigan Interstate-75. Yet, like many mega-projects, initial estimates already are rising significantly.

In April 2018, Canadian Press reported that internal Canadian Government projections now estimate the cost of the bridge project at C$4.8 billion and rising.[28] Given escalating costs, the government has ordered an expenditure review while downplaying the consequences for the project. Given that projected costs are already nearing C$5 billion and the consortium has not yet been selected, one could easily envision the project edging toward C$6 billion. These costs would worsen significantly is the Canadian Dollar were to take a hit from a U.S. NAFTA withdrawal or some other exogenous shock.

Doing the Math

According to the terms of the Crossing Agreement, the Government of Canada is liable to make up any shortfalls in toll revenue - the principal source of funds for any bridge. If the one does the math, there is a substantial risk that Canadian taxpayers will face significant annual liabilities for the foreseeable future.

The specific amount of liability would depend on an array of factors. Below, we set forth three scenarios based around escalating toll revenues.

Scenario One is based on the status quo in terms of toll revenue. For cars, the present crossing fee on the Ambassador Bridge is US$5.00. For trucks, the fees vary based on the size of the vehicle.) On average, truck fees range from US$20.00-25.00. This scenario takes the mid-way point of US$22.50 as its point of departure.

As the only crossing of its kind, the Ambassador Bridge gets all of the toll revenue. Under each of these scenarios, it is assumed that present policy is upheld and both

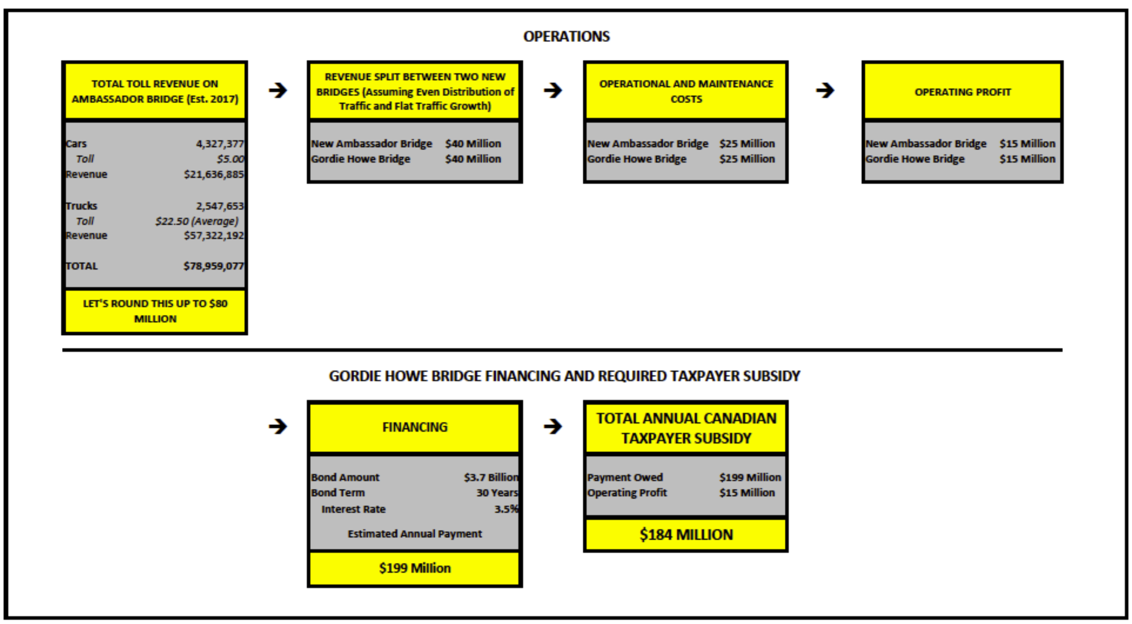
[28] Jordan Press. *Feds ordered savings review for Gordie Howe bridge over cost concerns: documents.* Canadian Press. April 19, 2018. https://windsor.ctvnews.ca/feds-ordered-savings-review-for-gordie-howe-bridge-over-cost-concerns-documents-1.3892684.

the new Ambassador Bridge and the Gordie Howe Bridge are built. Because there is no reasonable way to do otherwise, the assumed toll revenue is split 50-50.

The traffic figures used for the calculations in these scenarios are from 2017. As noted above, cross-border traffic in the Detroit-Windsor region is basically static. The data reveal that there was an increase of 676 trucks on the Ambassador Bridge in 2017 over 2016 out of a total 2.5 million truck crossings. The Ambassador Bridge saw an increase of 124,263 cars in 2017, but this was an offset to the decline of 124,108 cars using the Detroit-Windsor Tunnel, which was closed extensively during the 4th quarter of 2017 for construction.[29] One can assume that traffic levels will revert to the norm when the Tunnel construction works are fully completed.

Past experience and anecdotal evidence suggests that operational and maintenance costs would likely be in the US$25-30 million range per year for each bridge. The lower estimate is used in these scenarios. The remaining funds after these expenditures would be a simplified operating profit or EBIT (Earnings before Interest and Taxes.)

CURRENT TOLLS



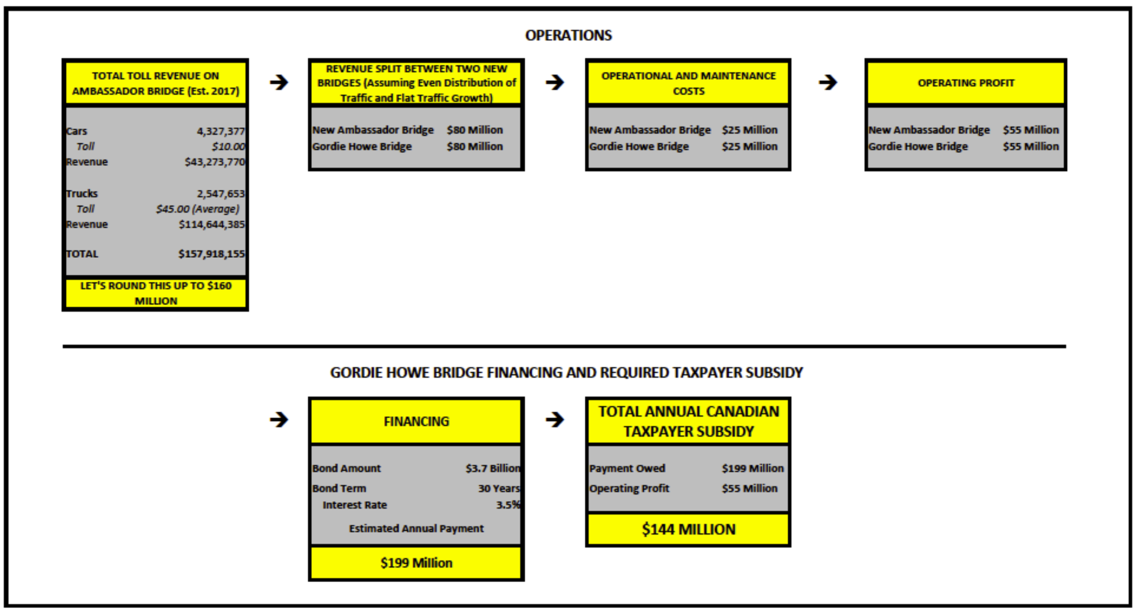
The scenarios then factor in the financing costs for the Gordie Howe Bridge. It is assumed that the bridge project costs a total of C$4.8 billion – or US$3.7 billion at the current exchange rate –and that the Canadian Government issues a standard 30-year bond at 3.5%. Given Canada's credit rating and present cost of borrowing as well as the upward trajectory of interest rates, this seems like a reasonable estimate. Holding everything else equal, this would result in principal and interest payments that are equivalent to US$199 million annually.

[29] *Bridge and Tunnel Operators Association.* https://www.bridgeandtunneloperators.org/index.php/about-us.

Scenario One above assumes US$80 million in toll revenue. Each bridge gets US$40 million and, after operational and maintenance costs is left with an operating profit of US$15 million. In our scenario, we then factor in the financing costs related to the Gordie Howe Bridge. The result is that the Canadian taxpayer would be required to subsidize this span to the tune US$184 million per year.

Under Scenario Two, the car and truck tolls are doubled while retaining the same traffic volumes. The new Ambassador and Gordie Howe Bridges receive US$80 million each. Operating profit for each bridge under this scenario grows to US$55 million. Still, this is barely enough to cover one-quarter of the annual principal and interest owing on the Gordie Howe bond. In this case, Canadian taxpayers would be required to provide US$144 million in subsidies per year to sustain the bridge.

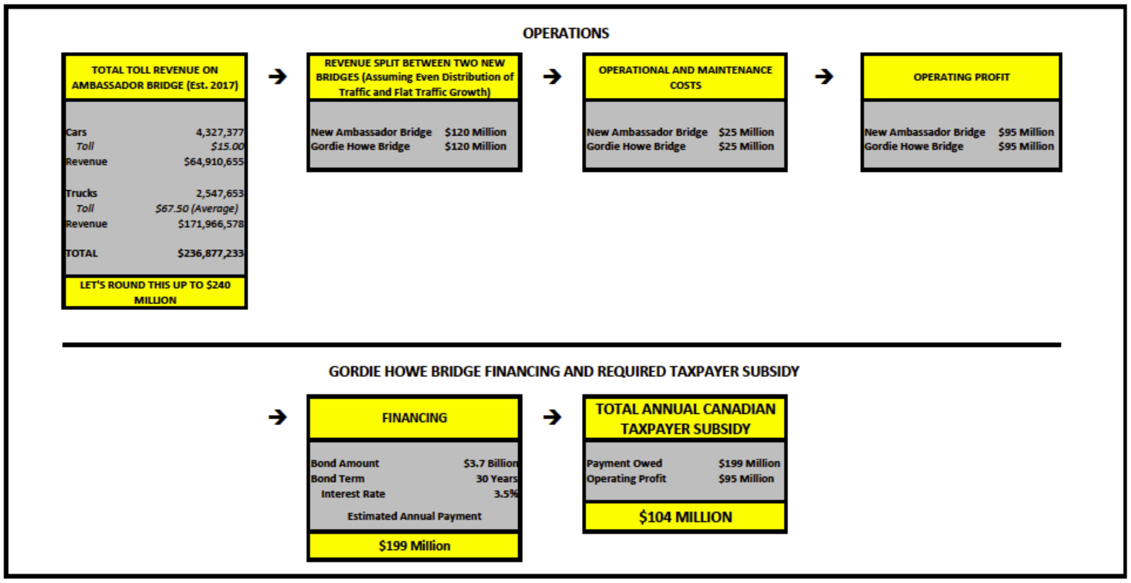
DOUBLE THE CURRENT TOLLS



Under Scenario Three, the car and truck tolls are tripled while traffic volume are held constant. Each bridge gets US$120 million in revenue, yielding an operating profit of US$95 million. Even assuming with such a dramatic increase in tolls, the Canadian Government is still required to provide US$104 million in subsidies to keep the bridge operating.

It is important to note that if fares were tripled, one would most likely see significant substitution effects. Many automobiles would likely shift to the Detroit-Windsor Tunnel because it would cost one-third of what the new Ambassador and Gordie Howe bridges would cost under this scenario. With the Tunnel located in downtown Detroit, a couple of miles away from the other bridges, many people would gladly drive a few minutes to save US$10.00. A similar shift toward the Tunnel would not take place for tractor-trailers, as it is not set up to accommodate them. Nevertheless, with the Blue Water Bridge just 104km/64 miles away, shifting ports of entry is easy enough for the right fare differential. Considering that an estimated 53% of truck traffic across the Ambassador Bridge is long distance in nature, the two corridors are perfectly substitutable alternatives with no penalty in time and distance.[30]

TRIPLE THE CURRENT TOLLS



As interest rates continue to rise, one could easily envision the cost of the bond rising to 4%. Under this scenario, the required Canadian taxpayer subsidy will climb even higher. The annual cost of principal and interest on the bond would be US$212 million. Assuming the same revenue and cost projections as above, the taxpayer subsidy ranges between US$197 million under the current toll scenario to US$117 million in the unlikely event of a tripling of current toll rates.

GORDIE HOWE BRIDGE FINANCING: REQUIRED TAXPAYER SUBSIDY AT 4% INTEREST RATE	
	Taxpayer Subsidy
Retain Current Toll Rates	$197 MILLION
Double Current Toll Rates	$157 MILLION
Triple Current Toll Rates	$117 MILLION

In the unlikely event that the bond could be financed at 3%, the taxpayer subsidy would still be over US$170 million at the current toll rate scenario and over US$90 million at the triple rate scenario. In short, no matter how you run the calculations,

[30] *Preliminary Results of the Comprehensive Traffic and Toll Revenue Study for the Detroit International Crossing Project Forecast Refresh and Update.* Wilbur Smith Associates. May 2010. http://www.partnershipborderstudy.com/pdf/6-16-10/DRIC%20Comprehensive%20TR%20Study%20Draft%20Final%20Report%20May%202010%20on.pdf.

Canadian taxpayers are looking at parting with vast sums of money to subsidize the Gordie Howe Bridge for years to come.

Some might say that the C$4.8 billion cost estimate is too high. If costs are cut and/or money is paid upfront and Canada issues a US$2.5 billion bond at 3.5%, the principal and interest payments would still be US$135 million per year. Even if one assumes the most generous scenario – a tripling of tolls – the Gordie Howe Bridge would be nowhere close to being solvent.

O'KEEFE MODEL ON THE LONG-TERM FINANCIAL COSTS OF THE GORDIE HOWE BRIDGE

Canadian $ Illustrative Scenarios [1]	Scenario 1	Scenario 2 [4]	Scenario 3
	0% Volume Growth 2.3% Toll Rate Growth	2.1% Volume Growth 1.5% Toll Rate Growth	Volume Growth Based on 2014 CDM Smith Study 2.3% Toll Rate Growth
Canadian Debt Remaining After 50 Years of Operations (C$ Millions) [2]	$11,401	$6,607	$3,755
Years to Pay Off Canadian Debt (Year Michigan Begins to Share Profits)	Never [3]	85 years (CY 2107)	61 years (CY 2083)

General Notes
[1] The O'Keefe Model begins with a 5 year construction period followed by the operational period.
[2] Measured from the year operations begin, after the construction period.
[3]"Never" indicates that operating profit is never large enough to cover interest payments on the existing debt.
[4] The 2.1% volume and 1.5% toll rate growth were figures used to illustrate what growth rates would need to be achieved to pay off Canadian government debt around the 100 year mark (ultimately 85 years).

	Total Investment		
	Scenario 1	Scenario 2	Scenario 3
Bridge Cost [1]	$ 3,000	$ 3,000	$ 3,000
Operations and Maintenance Cost [2]	1,900	1,900	1,900
Contingency [3]	700	700	700
Project Cost Before Interest Cost	5,600	5,600	5,600
Canadian Interest - Exhibit B	47,269	13,524	9,042
	$ 52,869	$ 19,124	$ 14,642

[1] Deposition of Linda Hurdle March 20, 2018, page 291, lines 16-17
[2] Ibid, page 293, lines 8-12
[3] Ibid, page 295, line 6

One key question is how long will it take the Canadian Government to pay off its debt. Given flat traffic growth and limited prospects for toll increases as well as the propensity of governments not to proactively budget for future expenditures, it is quite probable that the debt on this project will take decades to pay off. A recent report by Patrick M. O'Keefe[31] modelled three scenarios: conservative, mid-range and optimistic. His central table is set forth above. Depending on the scenario, Canadian taxpayers are facing a subsidy of C$14-$52 billion over the life of the

[31] Patrick M. O'Keefe. *GHIB's lack of financial viability jeopardizes future required financing and approvals*. Expert Report. Civil Action 17-000536-CC. Michigan Department of Transportation, Plaintiff vs. Riverview-Trenton Railroad Company Et Al, Defendants. April 24, 2018.

project. If traffic volumes stagnate, Canada may never reach a place where the operating revenue is large enough to cover the interest payments on the debt accrued to build the Gordie Howe Bridge. Even under the most optimistic scenario, it will still take Canada 61 years to pay off the debt associated with the project.

Canada needs to strongly consider the merits of investing one or two hundred million dollars per year in perpetuity on a bridge project that may never pay for itself. Considering that Finance Minister Bill Morneau is forecasting an C$18.1 billion deficit[32] and considering that Ottawa's "market debt" – the debt on which Canada is paying interest - now exceeds C$1 trillion[33], there is little space for this kind of waste.

The Place of Michigan

As noted above, Michigan has refused to commit money to the project. In theory, the state is supposed to share in the toll revenues from the Gordie Howe Bridge once the debts associated with its construction are satisfied. Under the best-case scenario, this would not happen for decades. A more likely scenario is that Canada – weighed down by perpetual subsidies to the Gordie Howe Bridge – seeks to re-negotiate the "Crossing Agreement." Depending on how this scenario would play out, Michigan could in fact find itself compelled to own a piece of Gordie Howe liabilities after all.

A Strong Alternative

The Great Lakes economy demands world-class trade infrastructure in the Detroit-Windsor region. Infrastructure choices and ownership should be a function of fiscal sustainability and pragmatism, not politics.

The DIBC has been given the proper permits by the United States and Canada to build a replacement to the Ambassador Bridge. They are putting up the US$1 billion that they estimate that they will need to build their bridge. They will not receive a penny from any government. They have a long track record of operating the busiest piece of trade infrastructure on the Canada-U.S. border. They successfully work with agencies and regulators on both sides of the border. In short, Detroit-Windsor and southwestern Ontario-the U.S. Midwest get a new bridge without Canada having to pay for it, thereby freeing up large sums of money for other uses.

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[32] Rachel Aiello. Budget 2018: Liberals stay the course on spending, deficit projected at $18.1 billion in 2018-19. CTV News. February 27, 2018. https://www.ctvnews.ca/politics/budget-2018-liberals-stay-the-course-on-spending-deficit-projected-at-18-1-billion-in-2018-19-1.3820431.
[33] Murray Brewster. *Federal government's total 'market debt' now tops $1 trillion, documents show*. CBC News. March 26, 2018. http://www.cbc.ca/news/politics/federal-market-debt-1.4590441.

The very point of public-private partnerships is to limit the impact on government budgets while delivering infrastructure. The DIBC, with its private financing and government regulation, seems more consistent with the "alternative financing" philosophy that is much in use in Canada today than the unlimited liability model of the 2012 Crossing Agreement.

One other factor that should be noted is the risk that the new Ambassador Bridge and the Gordie Howe Bridge would cannibalize each other. Additional lane capacity would be useful and an important part of the modernization of the corridor infrastructure. Nonetheless, going from 4 lanes – the current capacity of the Ambassador – to 12 lanes – 6 on each bridge – may be overkill.

One idea to consider could be to green light the new Ambassador Bridge while keeping the existing Ambassador Bridge for redundancy purposes and prescribed uses. The Canadian permit for the new Ambassador Bridge mandates a destruction of the existing Ambassador Bridge. The U.S. permit mandates that it be preserved for historic purposes. From an urban design and throughput management perspective, it does not make sense to destroy the original bridge, which is still a perfectly functional piece of infrastructure. The key is to ensure that it is used for its specified purposes and is properly maintained.

In assessing the benefits and liabilities in their totality, it would seem that the Gordie Howe project should be shelved and the Governments of Canada and Ontario should focus on partnership with DIBC to ensure that the new Ambassador Bridge delivers what it needs to and is subject to proper regulatory oversight.

Highway Access

One of the key arguments made by proponents of the Gordie Howe project is that it will finally provide highway-to-highway access. Yet, as noted above, lack of connectivity to Highway 401 is as much a policy choice as anything else. The Windsor Gateway project identified a clear pathway for connecting the Ambassador Bridge with Canada's highway network. It also proposed a clear pathway for fixing Huron Church Road. All in, these upgrades were estimated to cost C$300 million in 2002 – roughly C$420 million in 2018 dollars. All in, connecting the Ambassador Bridge to the Canadian highway system while fixing Huron Church Road would cost less than one-tenth of what the Gordie Howe bridge would run.

Conclusions and Recommendations

With so much political capital spent, acrimony built up and human and financial resources deployed, it may be hard for Canada to step away from the Gordie Howe Bridge project. Yet, a sober analysis – with the peak passions of the 2010-15 now behind us – suggests that step away Canada must.

All reasonable estimates suggest that the Gordie Howe Bridge will not pay for itself. Traffic volumes are unlikely to significantly grow as shifts ensue in the North American auto sector and other parts of the manufacturing economy. This situation is made doubly challenging by the fact the new Ambassador Bridge and the Gordie Howe Bridge will have to split toll revenue.

Canada broadly accepts private ownership of critical infrastructure. In fact, upwards of 90% of the nation's "critical infrastructure"[34] is privately held. Moreover, it does not mandate a nationality requirement to operate in this space.

It is clear that the Government of Canada and the Detroit International Bridge Company have had a challenging history. Yet, that history seems to have been more based on interests rather than competence. In an age when infrastructure needs far outstrip available funds, investing C$4.8 billion in a project for which there is a viable alternative hardly seems like a wise choice.

Canadian political leaders and taxpayers should be asking the question: what is public control of the main Detroit-Windsor bridge worth? Will it look like a wise decision when an annual subsidy of US$100-200 million in public funds has to be provided to pay the project financing costs? This seems doubtful.

So how should this unwinding be done?

First, the Government of Canada can undertake and make public an external assessment of the financing of the Gordie Howe project. Using realistic projections is likely to reveal that project toll revenue cannot cover the cost of the project. This would provide the basis for reconsideration and withdrawal.

Second, they should work out a governance and engagement framework with the DIBC for how the new Ambassador Bridge will be managed and regulated going forward. Given that Canada seems to have had few complaints with how the current bridge is operated, the principal challenges on the pathway to a new framework are more political than technical.

Third, key elements of the Windsor Gateway Action Plan should be resurrected. This includes a dedicated truck corridor connecting the new Ambassador Bridge with Highway 401 and grade-separated intersections and other improvements on Huron Church Road.

The Governments of Canada, Ontario, the United States and Michigan all want to see cross-border trade grow. So too do key private sector actors. If everyone can work together, rather than at odds, the new Ambassador Bridge can be the same engine of

[34] https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/pln-crtcl-nfrstrctr-2014-17/index-en.aspx#s2.

prosperity and connectivity that the original has been for the last 90 years. Let us hope now that all have the wisdom to make this happen.