



# Cost Estimate of Tax Credit for Confederation Bridge Tolls



OFFICE OF THE  
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The mandate of the Parliamentary Budget Officer (PBO) is to provide independent analysis to Parliament on the state of the nation's finances, the Government's estimates and trends in the Canadian economy; and, upon request from a committee or parliamentarian, to estimate the financial cost of any proposal for matters over which Parliament has jurisdiction.

Section 79.2(d) of the *Parliament of Canada Act* allows parliamentarians to request the Parliamentary Budget Officer to cost any issue under the jurisdiction of Parliament. Pursuant to a request from a parliamentarian under this statute, this note provides a cost estimate of a proposed personal income tax credit for Confederation Bridge tolls.

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# Table of Contents

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Executive Summary	1
1. How Much Would a Confederation Bridge Tax Credit Cost?	3
2. Required Toll Revenue for Operating and Maintenance	6
3. Foregone Revenues from Waiving Tolls on the Champlain Bridge Replacement	9
References	10
Notes	11

# Executive Summary

This report, requested by the Honourable Percy Downe, Senator for Prince Edward Island, provides a cost estimate of a proposed non-refundable personal income tax credit for Confederation Bridge tolls paid by local residents, that is, those living on Prince Edward Island.

Senator Downe also asked for two complimentary analyses. Specifically:

- Could the existing contract with the private sector firm, due to expire in 2032, be extended to provide a similar rate of return and at the same time reduce tolls?
- What is the federal cost of the policy decision to waive tolls on the planned replacement of the Champlain Bridge in Quebec?

## Confederation Bridge tax credit

Based on monthly traffic data, local residents made an estimated 730,000 non-commercial trips over the Confederation Bridge in 2015. This resulted in roughly \$17 million in tolls paid to the private sector firm operating the bridge.

A new personal, non-refundable income tax credit at the first bracket rate (that is, 15 per cent) would therefore result in foregone federal revenues of \$2.5 million per year (Summary Figure 1). It is anticipated that this total would increase slowly, commensurate with toll prices and traffic.

It is assumed that the frequency of trips across the bridge would not be influenced by the reduction in the after-tax cost of travel.

Summary Figure 1

## Overall fiscal cost of proposed tax credit

<u>2016-17</u>	<u>2017-18</u>	<u>2018-19</u>	<u>2019-20</u>	<u>2020-21</u>
<i>Fiscal cost (\$ millions)</i>				
2.5	2.6	2.7	2.8	2.9

Sources: Province of Prince Edward Island; Parliamentary Budget Officer.

### **Impact of extending the contract to reduce current tolls**

The Government of Canada currently has a contract with a private firm that provides the firm with all annual toll revenues until 2032. This is part of the compensation for building the original structure, as well as operating and maintaining it until 2032.

As the firm is privately held, no public data are available regarding the net profit it is projected to earn over the remaining life of the contract.

However, estimates can be made based on the average net profit margin of firms that operate and maintain capital assets, as well as comparable operating and maintenance costs for other assets.

PBO therefore calculates that tolls could be reduced by roughly 46 per cent from their current level to pay for average annual operating and maintenance expenses until the end of the bridge's estimated useful life of 100 years (in 2097).

### **Estimated foregone revenues from waiving tolls on the Champlain Bridge replacement**

The Government of Canada published projected costs for the Champlain Bridge replacement in 2015.

Based on these figures, the decision to waive tolls to fully cost recover the building, operation and maintenance of the Champlain Bridge replacement would result in foregone revenues amounting to an estimated \$4.3 billion over 30 years. This is the duration of the P3 contract, after which the asset reverts to federal management.

# 1. How Much Would a Confederation Bridge Tax Credit Cost?

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## What is a tax credit?

Tax credits are amounts that can be used to offset an existing federal tax liability. Most federal tax credits for individuals are calculated by multiplying the tax rate of the first income tax bracket by the relevant statutory amount or expenditure. For example, a transit pass that cost an individual \$800 would result in a \$120 tax credit.

Senator Percy Downe requested the Parliamentary Budget Officer (PBO) to prepare a cost estimate for a proposed tax credit for Confederation Bridge tolls paid by local residents. The credit would have the following attributes:

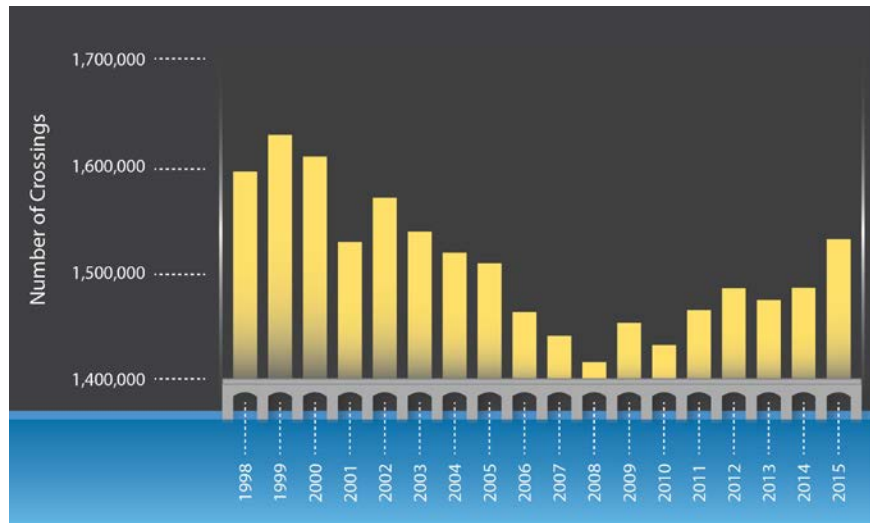
- **Eligibility:** local residents, including those living on Prince Edward Island and parts of New Brunswick immediately adjacent to the Confederation Bridge.
- **Benefit:** eligible federal taxfilers could claim all Confederation Bridge toll expenses in a given tax year, for which a 15 per cent credit would be available.
- **Non-refundability:** the tax credit would offset total federal taxes payable for each individual, meaning that taxfilers with no tax liability would be unable to claim a tax benefit.

To estimate the potential population of eligible taxfilers, PBO compiled bridge traffic data collected by the Prince Edward Island provincial government.

As illustrated in Figure 1-1, overall traffic on the Confederation Bridge has ranged between roughly 1.4 million and 1.6 million trips per year since 1998. These trips consist of multiple vehicle types, but are predominantly passenger cars and commercial vehicles engaged in shipping goods.

Confederation Bridge tolls are charged only for departures from Prince Edward Island. Hence, it is assumed that only half of these trips incur a toll charge.<sup>1</sup>

**Figure 1-1 Confederation Bridge traffic is relatively stable over time**



Sources: Government of Prince Edward Island; Parliamentary Budget Officer.

Note: Data for 2007 were unavailable and were therefore interpolated by Parliamentary Budget Officer staff.

Data are unavailable regarding the residency of individuals crossing the Confederation Bridge. However, the Province of Prince Edward Island does track monthly traffic data, which indicate bridge traffic generally peaks in July and August during the height of the tourist season.

### What is the Consumer Price Index?

The Consumer Price Index, or CPI, is an indicator of change in consumer prices of commonly purchased goods and services across Canada. It is calculated monthly by Statistics Canada, and is the most widely used measure of the change in retail prices.

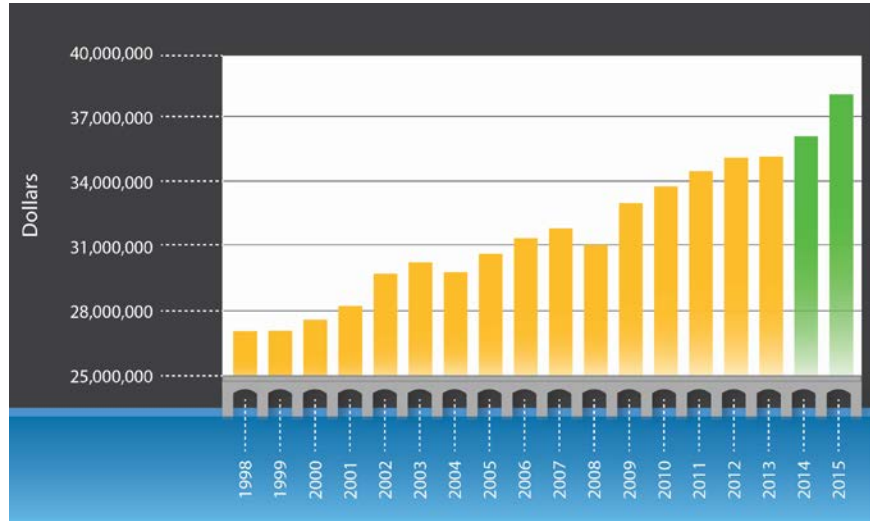
As such, PBO assumes that the base level of traffic observed during non-summer months reflects the activity by local residents. This “local” traffic represents roughly 60 per cent of all annual trips across the Confederation Bridge, estimated at about 886,000 in 2015.

As well, data indicate that roughly 10 per cent of total traffic is “commercial” in nature and, therefore, would not be eligible for the tax credit.

Between 1998 and 2015, total annual toll revenues increased slowly, in line with relatively stable traffic flows (Figure 1-2). The agreement with the private sector operator of the Confederation Bridge provides that tolls can increase by no more than 75 per cent of the previous year’s change in the Consumer Price Index (CPI).

As such, the nominal cost of passage across the Confederation Bridge has gradually increased over time<sup>2</sup>.

**Figure 1-2 Overall Confederation Bridge toll revenues have grown slowly**



Source: Response to Parliamentary Order Paper Question Q-468, Parliamentary Budget Officer.

Note: Revenues for 2014 and 2015 are forecasts prepared by staff of the Parliamentary Budget Officer, based on actual bridge traffic data, the actual Consumer Price Index and blended average toll rate for 2010 to 2013.

PBO assumes that local residential traffic is charged the toll rate for passenger vehicles, which was \$45.50 in 2015. Based on the share of total traffic assumed to be "local", this suggests that about \$17 million in tolls paid in 2015 could be eligible for the proposed tax credit.

At the proposed tax credit rate of 15 per cent, this would result in foregone federal tax revenues of \$2.5 million (Figure 1-3). It is anticipated that this would increase slowly, commensurate with historical growth in traffic and PBO's projected path for the CPI over the medium term.

It is assumed that the frequency of trips across the bridge would not be influenced by the reduction in the after-tax cost of travel.

**Figure 1-3 Overall fiscal cost of proposed tax credit**

<u>2016-17</u>	<u>2017-18</u>	<u>2018-19</u>	<u>2019-20</u>	<u>2020-21</u>
<i>Fiscal cost (\$ millions)</i>				
2.5	2.6	2.7	2.8	2.9

Sources: Province of Prince Edward Island; Parliamentary Budget Officer.



## 2. Required Toll Revenue for Operating and Maintenance

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As part of his request, Senator Downe also asked whether the existing contract with the private sector firm, due to expire in 2032, could be extended to provide a similar rate of return and at the same time reduce tolls.

The Government of Canada currently has a contract with a private firm that provides the firm with all annual toll revenues until 2032. This is part of the compensation for building the original structure, as well as operating and maintaining it until 2032. There are four primary financial aspects of the agreement:

1. Issuing debt to finance the construction phase;
2. The Government of Canada agreeing to service and retire this debt;
3. The firm collecting and retaining all toll revenues from the Confederation Bridge until 2032; and,
4. The firm operating and maintaining the Confederation Bridge until 2032, following which responsibility would revert to the Government of Canada.

All investments will earn a certain rate of return over their duration. One standard method of calculating this rate of return is to project all the net cash flows that will be earned by the investor (whether positive or negative) over the life of the project. The cash flows would be adjusted for a required rate of return, and all the individual residual cash flows would be totalled.

In the case of the Confederation Bridge, the net cash flows for the current operator would relate to a number of factors: the initial construction phase; direct annual subsidy from the Government to retire the debt incurred during construction; collection of toll revenues; and annual operating and maintenance costs.

The discount rate for the project would generally reflect the cost of capital (borrowing, other equity investment), as well as a premium associated with the firm's perceived project risk.

In the case of the Confederation Bridge, this project-related risk, especially during the construction phase, would be higher than usual given the engineering complexity of the project at the time.

Theoretically, a firm would be indifferent to the timing of the cash flows as long as the projected net present value (that is, the estimated real value of all

## The “time value of money”

The “time value of money” is a financial concept that asserts that a dollar today is worth more than a dollar tomorrow. Generally, individuals holding money could choose to save it and earn risk-free interest. Hence, someone who is owed money will be theoretically indifferent to receiving it today, or receiving the same payment plus interest, at a later date.

net cash flows) is unchanged. Hence, spreading cash flows over a longer period would be acceptable as long as these cash flows are commensurately larger.

Similarly, the firm would be happy to accept less cash, as long as it is received over a shorter time horizon. This concept is known as the “time value of money”.

As the firm is privately held, no public data are available regarding the net cash flows that it has generated, or is projected to generate, over the life of the project. Tolls are intended to compensate the firm for current operations as well as the risk accepted during the initial construction phase. Similarly, PBO does not have access to the firm’s internal analysis to identify the rate of return it is projected to earn over the life of the contract.

While PBO is unable to analyze the firm’s willingness to receive lower tolls over an extended period, data are available to estimate the target for toll revenues required to provide a market-average rate of return for the maintenance and operation of the Confederation Bridge.

Statistics Canada annually collects financial and taxation statistics for firms, classified by the type of business.<sup>3</sup> These data indicate that firms responsible for the maintenance and operation of large infrastructure assets, such as utilities, typically have an operating profit margin of 15 per cent. That is, their annual income is roughly 15 per cent of their total revenues. In line with this, average expenses represent 85 per cent of total revenues.

While Statistics Canada data can provide an estimate of the proportion of firms’ revenues, expenses and income, more data are needed to estimate the actual figures for the Confederation Bridge. PBO relied on data published for two similar assets: the Golden Ears Bridge in British Columbia and the Champlain Bridge in Quebec.

Actual annual financial data for the Golden Ears Bridge is published by Translink, the public entity responsible for managing municipal transit services in the Greater Vancouver Area. Translink, in collaboration with a private sector partner, opened the Golden Ears Bridge in 2009.

While the total construction cost of Golden Ears was lower than the Confederation Bridge and it was built in a different climate, it does provide an indication of estimated maintenance and operation costs for a comparable asset.

Estimated financial data for the Champlain Bridge replacement were published by the Government of Canada in 2015. The data include total construction costs for the replacement asset, as well as projected operating and maintenance expenses over the 30-year P3 management contract.

Again, while the data are only forecasts and estimated construction costs are higher, the Champlain replacement is in a similar climate and also provides an indicative estimate of running costs for a comparable asset.

Operating and maintenance costs for the Golden Ears Bridge have been stable at \$5.9 million over the past four years. Normalizing these expenses using the capital cost of the original asset suggests that the Confederation Bridge (with an initial capital cost of \$1 billion) would have operating and maintenance expenses of about \$9 million per year in 2015.<sup>4</sup>

In comparison, projected operating, maintenance and rehabilitation costs over the first 30 years of operations for the Champlain Bridge replacement are \$780 million, or roughly \$26 million per year.

Using a similar normalization approach, this infers that the Confederation Bridge would have operating and maintenance expenses of about \$17 million per year in 2015. Given the foregoing, the average annual net profit would need to be about \$3 million, and revenues roughly \$20 million.

Consequently, tolls could be reduced by about 46 per cent (roughly \$15 million in current dollars) to pay for the average annual operating and maintenance expenses until the end of the bridge's estimated useful life of 100 years (in 2097).

As noted earlier, this estimate relates only to the operating and maintenance expenses of the Confederation Bridge. The existing toll rates are set to provide payment for current operating and maintenance costs, as well as compensation for the risk accepted by the contractor during the construction phase.

As well, the comparison among the Confederation Bridge, Golden Ears Bridge and Champlain Bridge replacement is imperfect, as they vary by size, engineering complexity, traffic and climate.

# 3. Foregone Revenues from Waiving Tolls on the Champlain Bridge Replacement

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The Government of Canada published projected costs for the Champlain Bridge replacement in 2015.

Based on these figures, it is estimated that the decision to waive tolls to fully cost recover the building, operation and maintenance of the Champlain Bridge replacement will result in foregone revenues of about \$4.3 billion over 30 years. This is the duration of the P3 contract, after which the asset reverts to federal management.

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# Notes

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1. This is a simplifying assumption made by PBO staff, as there may be net inflows or outflows from Prince Edward Island in any given year.
2. Given that the toll increase is capped at less than inflation, the real cost of Confederation Bridge tolls has decreased over time.
3. Financial and taxation statistics for enterprises, by North American Industry Classification System. CANSIM Matrix 180-0003.
4. Original capital costs for the Golden Ears Bridge and Champlain Bridge replacement were deflated to 1998 dollars, the year the Confederation Bridge went into operation. Maintenance and operating costs were inferred using the ratio of costs for the Golden Ears Bridge in 2015 and the Champlain Bridge replacement over the 30 year P3 contract.