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The Residential and Civil Construction Alliance of Ontario (RCCAO) is composed of management and labour groups that represent a wide spectrum of the Ontario construction industry. The RCCAO's goal is to work in co-operation with governments and related stakeholders to offer realistic solutions to a variety of challenges facing the construction industry and which also have wider societal benefits.

RCCAO has independently commissioned 37 reports on planning, procuring, financing, and building infrastructure, and we have submitted position papers to politicians and staff to help influence government decisions.

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- Joint Residential Construction Association
- LiUNA Local 183
- Ontario Formwork Association
- Residential Carpentry Contractors Association
- Toronto and Area Road Builders Association

Creating an Effective Canadian Infrastructure Bank

An independent research study prepared for the Residential
and Civil Construction Alliance of Ontario (RCCAO)

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EXECUTIVE SUMMARY



The establishment of a Canadian infrastructure bank has risen to the top of the national political agenda after being identified as a key piece of the new federal government's infrastructure investment program. The purpose of a Canadian infrastructure bank is to provide low interest loans and credit enhancement services to provincial and municipal governments investing in infrastructure for priority sectors. The cost of project financing is reduced by taking advantage of the federal government's top credit rating.

This report assesses the merits, likely benefits and optimal design of a Canadian infrastructure bank (CIB). It shows that because of the relatively small spread between the interest rates at which the federal and most provincial and municipal governments borrow money, the lending services of an infrastructure bank would provide significant benefits but only for the largest infrastructure projects.

Moreover, the cost of capital is only one challenge that provincial and municipal governments face: there is also often a struggle first with selecting projects that will provide the greatest benefit, and then delivering them effectively. A key financial hurdle is generating sufficient new revenues from user fees or other general taxation to pay the money back.

As such, to maximize the overall benefits of a CIB, it should have a broader mandate to screen or verify that projects have been selected using evidence-based assessments. Thus, the CIB would be an arm's-length federal institution that would be identified as a centre of excellence supporting rigorous project evaluation and procurement best practices, as well as providing loan support to suitable projects.

In recognition of this expanded role, the CIB could be referred to as the Canadian Infrastructure Investment Agency (CIIA). The CIB or CIIA would create synergies that not only lower the financing costs of infrastructure, but also improve the overall value of the projects that are delivered across Canada. This report concludes by making five key recommendations about the role and design of a CIB:

- 1 The CIB must be capitalized with funds that are in addition to, rather than a replacement for, existing federal capital grants dedicated to infrastructure.
- 2 A primary focus of the CIB should be on the provision of lending services to large infrastructure projects with capital values of at least \$10 million. Smaller projects, which make up the majority of provincial and municipal infrastructure projects that receive federal government investment contributions, are more efficiently managed through federal block transfers.

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- 3 All large infrastructure projects applying for financial support from the infrastructure bank should have a credible, independent study of the project's benefits and costs, and the project should be identified as a top priority by the sponsor government. The scope and depth of these project evaluation studies should be commensurate with the cost of the proposed project. The infrastructure bank should certify that these project evaluation reports have been conducted rigorously following best practices before financing is approved. The federal government is not selecting projects on behalf of provinces and municipalities, but rather creating a framework to ensure that decisions are made based on sound evidence.
 - 4 Low interest loans or credit enhancement services provided to private sponsors should be targeted at innovative projects in priority sectors that may be deemed too risky to attract standard private financing. This includes affordable housing or green energy projects, as well as transportation projects which rely on unpredictable user-fee revenues to recoup the upfront investment. In these cases, to ensure that private investors are suitably motivated to evaluate and deliver projects effectively, the proponent should be required to invest at least one-third of the capital cost of the project without a government guarantee.
 - 5 The infrastructure bank should become a centre of excellence on effective infrastructure project delivery and a convener of federal, provincial and municipal procurement practitioners to develop recognized best practices.

A: INTRODUCTION



Across Canada, infrastructure has risen to the top of the policy agenda. Infrastructure provides the foundation for economic prosperity, environmental sustainability and a high quality of life. It is now widely acknowledged that after decades of underinvestment, there is an urgent need for infrastructure development across the country to upgrade and expand the current capital stock. In the 2015 federal election, all three leading parties advocated for major increases in infrastructure spending, and the winning Liberal party pledged to make infrastructure investment a core component of its mandate. Over the next decade, the federal government plans to double spending on national, provincial, territorial and municipal infrastructure to \$125 billion. Since the election, there has been some commentary and analysis on ways that the federal government should design an effective infrastructure investment program to allocate money effectively.¹

Another key piece of the new federal government's infrastructure investment program, which has received less detailed assessment, is the development of a Canadian Infrastructure Bank (CIB) to provide low cost credit to projects in

priority sectors such as transit and affordable housing.² By taking advantage of the federal government's strong credit rating and having a centralized agency responsible for raising money, an infrastructure bank can lower the cost and improve the terms of public borrowing for infrastructure.³ An infrastructure bank, as it is currently being conceived, may provide a range of **direct loan** and **credit enhancement facilities** to municipalities, provinces, government agencies and private project sponsors to finance infrastructure projects in priority areas:

Direct loans: An infrastructure bank would provide low interest loans directly to governments and/or private project sponsors to finance infrastructure in selected priority areas. The loan would be repaid to the infrastructure bank by the borrower, either from user fees on the facility, or from other general tax revenues collected.

Credit Enhancement: This refers to a variety of measures that improve the chances that loans will be repaid by the borrower.⁴ They can be used to encourage lenders to lower interest rates, increase the length of the loan term, or support lending to governments or firms with lower than typical credit profiles. A CIB could offer a variety of credit enhancement services to public and private sector infrastructure project sponsors:

- **Loan Guarantees:** a commitment to cover the entire value of a lender's loan should the borrower default.
- **Loan Loss Reserve:** a reserve fund is established which covers lenders for a fixed amount or percentage of a loan should the borrower default. A 10% loan loss reserve on a \$100-million loan would set aside \$10 million to be repaid to the lender in case of a default.
- **Loan Loss Insurance:** a private insurance policy that can be purchased by the infrastructure bank on behalf of a borrower. Loan insurance differs from a loan loss reserve in that the infrastructure bank pays insurance premiums to a private provider as opposed to creating a reserve account to cover potential losses.

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- **Subordinated Debt:** creates two tiers of capital in a loan, so that the infrastructure bank as the subordinated lender is first to take on losses should the borrower default on the loan. This can serve to attract other government or private lenders to finance a project as it makes the loan less risky for them, because the subordinate lender absorbs the first losses.

The purpose of this report is to explore the merits, likely benefits and optimal design of a CIB. The establishment of a national infrastructure bank is an idea that has been floating around Canadian public policy circles for some time. Numerous policy papers published by high profile think-tanks and newspaper articles have identified the merits of such an institution.⁵ In fact, the federal government already provides many of the loan and credit enhancement services that an infrastructure bank would deliver, though these programs are delivered in an *ad hoc* manner by a variety of departments and agencies scattered across the federal government. Consolidating and formalizing the infrastructure financing and credit enhancement services of the federal government in a CIB is a worthwhile endeavour. However, as will be demonstrated, an infrastructure bank that is narrowly tasked with providing loans and credit enhancement services may be useful in somewhat lowering the cost for some public borrowing but will not be a wholesale game-changer on the Canadian infrastructure landscape.

Rather, to maximize the benefit of a CIB, the federal government should provide it with a broader mandate than only infrastructure financing. This can be achieved by creating a single federal institution that is responsible for loan support for public infrastructure through a bank-type facility, and also plays an arm's-length role as a centre of excellence for infrastructure procurement. This arm's-length Crown corporation will bring together

project finance, evaluation and procurement expertise that are currently undertaken by different departments and agencies of the federal government. In recognition of this expanded role, the CIB could be referred to as the Canadian Infrastructure Investment Agency. The CIB or CIIA would create synergies that not only lower the financing costs of infrastructure, but also improve the overall value of the projects that are delivered across Canada.

The remainder of the paper proceeds as follows:

- Section B establishes the context for a CIB.
- Section C examines how much borrowing cost savings may be realized through lending services provided by a federally sponsored infrastructure bank.
- Section D documents the existing Canadian and international agencies and institutions that provide infrastructure bank-type services.
- Section E explores how the lending services provided by a CIB would impact on the balance sheets of the federal government, and the municipal and provincial borrowers.
- Section F examines alternative models of capitalizing an infrastructure bank.
- Section G looks beyond the financial functions of an infrastructure bank, and identifies how national governments globally have created institutions to improve the rigour of project evaluation and delivery within their jurisdiction.
- Section H concludes by making recommendations about the optimal design and functions of a CIB.

B: CONTEXT FOR INFRASTRUCTURE INVESTMENT IN CANADA



This section sets the foundation for a discussion about the need, optimal role and structure of a national CIB. This is done by identifying five key facts about infrastructure finance and delivery in Canada.

① **Accessing capital is not the main problem for Canadian governments; paying it back is**

The popular perception of the global economy is a world of tight financial markets and cash-strapped governments that are unable to entice lenders to take up general obligation public debt and bond offerings, which have historically been the most common methods of financing public infrastructure investments. In fact, for most governments in Canada, their biggest challenge is not finding investors to subscribe to debt and bond offerings; Canadian governments generally have investment grade credit ratings and have not had trouble satisfying their borrowing requirements. Rather, the most daunting challenge is to collect sufficient new revenues or cut existing spending enough to make room to pay back the principal and carrying costs (interest) of any additional money borrowed. Moreover, the world is awash in liquidity, especially institutional investors such as pension funds, insurance companies,

private asset management firms and sovereign wealth funds looking for long-term, inflation-adjusted, stable returns. Increasingly, these institutional investors are turning to infrastructure as an attractive asset class for their vast pools of capital. Large Canadian pension funds and asset management firms, in particular, have become global leaders as direct investors in infrastructure. In 2012, the seven largest Canadian players had more than \$42 billion invested in infrastructure assets worldwide.⁶

Importantly, unlike in Europe where the European Union imposes debt limits on member countries, Canadian provincial and federal governments do not have legal borrowing limits. That means policymakers are unencumbered to take on additional debt without legal restriction, though there are the balance sheet and credit rating consequences of taking on more debt – a lower credit rating which makes it more expensive to service existing and future debt. By contrast, across the country, the amount of municipal borrowing is restricted by a patchwork of provincial debt limit regulations or local conventions that limit borrowing (these debt limits have been identified as a key factor in ensuring the fiscal health and sustainability of Canadian municipalities).⁷ Municipal debt limit restrictions can take one of two forms, and sometimes include both: a total amount of debt permissible as a percentage of total municipal revenues, and annual debt service costs as a percentage of annual revenues. Some municipal governments are nearing their borrowing limit under these regulations, and would not be able to take on the repayments for a large amount of additional borrowing under their current budgetary conditions. This could limit the utility of an infrastructure bank that is designed to provide loans rather than capital grants to finance municipal infrastructure.

2 Infrastructure delivers major benefits ... but only if the right projects are selected

In an era of economic recession and tight government budgets, the reason that policy makers and politicians are advocating borrowing large sums of money to invest in infrastructure is because of the economic, environmental

and social benefits to society that it has the potential to deliver. Infrastructure provides a short-term stimulus to the economy and is the building block for long-term economic growth, competitiveness, environmental sustainability and social inclusion in Canada. Economic studies have found that every dollar invested in infrastructure provides an economic return of between \$1.11 - \$1.75, depending on the methodology that the study employs.⁸

The key to realizing such favourable economic returns, however, is picking the “right projects,” otherwise infrastructure can actually be a net drain on public finances. According to a study by the Canadian Centre for Economic Analysis, only around 20% of the economic benefit of infrastructure investment comes from the short-term injection of capital during construction, while upwards of 80% of the long-term economic benefits of an infrastructure project come from spinoff growth activities that are supported by the project.⁹ This suggests that to realize the full benefits of infrastructure investment, projects selected must be “shovel worthy.”¹⁰ Projects in the wrong location, in unproductive sectors, or built at the wrong time will not spur economic growth and productivity gains or make society more environmentally sustainable or inclusive, though they will add to the overall debt burden.

Despite the importance of selecting the correct projects, the project evaluation and selection methods vary widely. In some cases, public funds are allocated to projects that are identified as local or provincial infrastructure priorities based on detailed cost-benefit studies that document the merits of the project. However, there are also many cases where large sums of public money have been approved because projects meet political criteria or based on expedience because they are shovel ready, without sufficient evidence documenting the need, priority, or expected benefits and costs of the project. Two recent examples include what the Auditor General of Canada reported was a haphazard selection of infrastructure projects to receive federal funds in preparation for the G8/G20 conferences in 2010, and the approval of the federal funding for the Scarborough subway extension in Toronto without a formal application.¹¹ In the absence of consistent project evaluation and selection criteria it is difficult to ensure that scarce public resources – from

all levels of government – are being allocated to the highest priority projects that will deliver the greatest public good.

3 Be aware of the distinction between financing and funding

An important distinction for public policy regarding infrastructure investment is the difference between **financing** and **funding**.

Financing refers to the money that is borrowed to pay for the upfront costs of building public infrastructure. Typically governments in Canada finance infrastructure projects by borrowing from private investors through the issuance of general debt obligations or bond issues. More recently, there has been a growing trend towards private investors directly financing some or all of the upfront capital costs of large public infrastructure projects through public-private partnerships or privatized infrastructure. Importantly, the creation of a CIB is designed to lower the cost and increase access to infrastructure project financing.

All infrastructure projects that receive project financing, however, require a **funding** source to repay the initial borrowing. The funding sources to repay the initial project finance can come from some combination of user fees on the facility or another type of dedicated revenue stream; or general tax revenues that are then allocated to repay any initial borrowing. Infrastructure can thus be usefully divided into two categories:

- Assets that cover all or most of their capital and operating costs entirely from user fees and other dedicated revenue streams. This commonly includes power projects and electricity grids, toll roads, city parking, seaports, airports, freight railways, telecommunications, and broadband Internet in large urban areas. In Canada, there is a mix of public and private ownership of these user-fee supported infrastructure assets, though the country is distinguished from Australia, as well as European and Latin American countries by having greater share of public ownership of these infrastructure assets.¹²

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- Assets that typically do not have sufficient dedicated revenue streams to cover their capital and operating costs. Significantly, this includes most rapid transit lines and affordable/social housing projects, two sectors that the federal government and civic leaders have identified as urgent priorities in Canada.¹³ It also includes health care and justice facilities, non-tolled roads, water and wastewater treatment facilities, many green energy projects, and broadband Internet in remote communities.

The distinction between user-fee and non-user-fee supported infrastructure has key implications for the structure and utility of an infrastructure bank, and the potential role of the federal government necessarily differs. For user-fee supported infrastructure, a federal infrastructure bank may be able to directly provide loans or provide credit enhancements to lower borrowing costs, with loan repayments being made in part or in full through user fees. It is important to note, however, that user-fee supported infrastructure projects are particularly high-risk deals. As extensive empirical research by Bent Flyvbjerg at Oxford University shows, revenue projections on infrastructure projects have been notoriously inaccurate and systematically overestimated.¹⁴ Moreover, bankruptcies and contract negotiations are frequent on such projects, with lenders often taking considerable losses and governments required to provide bailouts to keep critical infrastructure operational.¹⁵ As a result, there is a strong likelihood that at least some direct loans or credit enhancements provided to infrastructure projects supported through user-fee revenues would enter into default at some stage in the project and thus require funding support from the federal government.

For non-user-fee supported infrastructure, by contrast, a federal infrastructure bank could also provide loans or credit enhancement to the sponsors of public infrastructure to finance the upfront capital costs of a project. Because user fees are insufficient to cover capital and operating costs, governments sponsoring these projects will be required to provide ongoing subsidies to repay the initial borrowing. **In these instances, the services of a CIB do not alleviate the need for cash-strapped municipal or provincial governments to have**

sufficient general revenues to repay any borrowing from the infrastructure bank. Instead, it lowers the cost and increases the access and flexibility of municipal borrowing. Municipal or provincial governments that are provided with loans or credit enhancements through the CIB must have sufficient general revenues (taxes, user fees, levies charges, etc.) in order to repay the debt taken on.

4 Infrastructure operating costs

While an infrastructure bank is focused on financing the capital costs of projects nationally, planners of infrastructure projects must also account for significant facility operation and maintenance costs. In key sectors such as transit and affordable/social housing, these operating costs are often primarily the responsibility of municipalities, and are not covered by user fees alone. Similarly, provincial investments in health care and justice infrastructure also have significant operating costs that are not covered by user fees. Regardless of the favourable interest rates achieved for capital development through an infrastructure bank, municipalities and provinces that take on additional debt obligations to pay for infrastructure assets in these sectors face the double budgetary pressure of having to identify additional revenues to repay the capital borrowing and fund ongoing operating and maintenance expenses.

As an illustrative example, the Sheppard subway line in suburban Toronto was built at a capital cost of approximately \$945 million, of which \$236 million or 25% was funded by Metro Toronto, with the province of Ontario funding the remainder.¹⁶ Once operational, however, the Sheppard subway line has required an annual operating subsidy that one estimate placed at \$10 million per year, or \$130 million since the system opened in 2002.¹⁷ This creates a new financial burden that must be covered from the tight Toronto Transit Commission operating budget, which is comprised mainly of user-fee revenues as well as a significant subsidy that comes primarily from the municipal government. This example is particularly pertinent as many of the new rapid transit lines currently being proposed and built across Canada are in suburban locations that are similar to the Sheppard subway line, and will require major ongoing operating subsidies beyond the capital costs of construction that are primarily borne by municipalities.

5 The current role of the federal government: block transfers and loans

Finally, in order to identify the unique role that a federal infrastructure bank could play in the Canadian institutional landscape, it is critical to understand how the federal government currently participates in provincial and municipal infrastructure projects. The federal government currently participates in provincial and municipal infrastructure projects in three main ways. First, there are long-established programs that provide large block transfers of funds from the federal government to provinces and municipalities. The primary federal block grant programs are the provincial and territorial equalization transfers, the Canada Health Transfer, and the Canada Social Transfer, which together amounted to an average annual disbursement of \$56 billion per year between 2010 and 2015. Other smaller federal block transfers specifically dedicated to infrastructure investment include the \$2-billion per year federal gas tax fund which is distributed to provinces and then flowed through to municipalities, and the Provincial-Territorial Infrastructure Base Fund. Money from these block grants may be spent on infrastructure capital and/or operation costs at the discretion of the receiving government, depending on the general spending criteria of the block grant. This discretion is seen by the receiving governments as particularly important as it enables local decision-makers to take ownership of the incoming funds and allocate these based on locally identified priorities.

Second, in addition to the large, regular transfers, the federal government provides grants to offset some or all of the capital cost of thousands of infrastructure projects across the country. Dahlby and Jackson identify 13 federal programs that between 2002 and 2015 together have provided around \$1.2 billion per year in conditional grants to provinces and municipalities to fund a portion of specific infrastructure projects. During this period, the total amount of money allocated was \$20.3 billion, which was distributed to 8,021 projects.¹⁸ The common formula is that the federal government will fund up to a third of eligible infrastructure capital costs, with the remainder

split between the other levels of government.¹⁹ This means that provincial and municipal governments receiving federal capital grants for their projects must still have their own funds available to pay for a significant portion of the project.

Most of the projects receiving federal contributions were small scale: over half had eligible costs of less than \$1 million and more than 90% had eligible costs of below \$10 million. Only 79 projects had eligible capital costs of over \$100 million, and seven had capital costs of more than \$1 billion. Since 2008, the federal government provided funding contributions towards an additional 23 large projects with capital values over \$100 million through the \$1.25-billion P3 Canada Fund. While these grant programs are important, the administrative cost of applying, evaluating, coordinating and monitoring these grant programs between multiple governments for small projects is time-consuming and inefficient. Dahlby and Jackson conclude that the transition to new block grant transfers from Ottawa would better cover these small projects so that lower levels of government can manage the funds.²⁰ This has important implications for the mandate of an infrastructure bank, as it suggests that providing loan and credit enhancement services for small projects nationally is likely to be expensive and inefficient. Rather such services are best concentrated on large cost infrastructure projects, though there are relatively few of these across the country.

Third, the federal government does currently provide credit enhancement to very large federal and provincial infrastructure projects on an *ad hoc* basis, similar to services that would be offered through a national infrastructure bank. In the case of the \$1.3-billion Confederation Bridge linking New Brunswick and Prince Edward Island which opened in 1997, the Department of Public Works and Government Services negotiated a deal whereby the federal government guaranteed the private bridge developer a minimum amount of annual toll revenue for the facility.

More recently, in 2012, the federal government of Canada extended a loan guarantee to cover \$5 billion in borrowing by the province of Newfoundland and Labrador to support the debt component of the \$7.7-billion Muskrat Falls hydroelectric dam project. The federal loan guarantee will enable the province to borrow the money at the federal government's AAA credit rating and secure a 40-year loan at 3.8% interest rate, saving the province an estimated \$1 billion in interest costs. The loan guarantee agreement specifies that any savings from the favourable interest rate must be used to lower electricity rates. However, the terms of the loan guarantee also highlight a potential risk to the borrower from such arrangements, as poor project management and delivery can undo the benefits. In particular, the federal loan guarantee agreement stipulates that any cost overruns are the responsibility of the province of Newfoundland and Labrador, and are ineligible for supplementary coverage by an additional federal loan guarantee. In 2015, this became a significant issue as project construction costs escalated, forcing Newfoundland to exacerbate its existing difficult fiscal position by borrowing more money on its own to pay for completing the dam project. Additionally, the escalated cost of the project will now require higher user fees to repay all of the public borrowing. To be certain, construction cost overruns and delays are not only reserved to the Muskrat Falls Dam project, but are a problem that plague infrastructure projects across Canada and around the world. Poor project delivery and rising construction costs create a major additional stress on the budgets of governments taking on debt to finance public infrastructure, and ultimately can contribute to defaults on loans or credit enhancement services provided by the CIB.

As the above discussion highlights, the cost and availability of capital is only one issue challenging the effective delivery of infrastructure in Canada. Selecting projects that generate the greatest benefit, while ensuring that effective project management techniques are in place are critical to infrastructure investments delivering broad public value. As will be documented below, the preferred design of a federally sponsored CIB addresses both project selection and financing considerations.

C: HOW MUCH FINANCING COST SAVINGS WOULD BE REALIZED THROUGH AN INFRASTRUCTURE BANK



Given the context for infrastructure investment in Canada described above, a key question regarding the value and usefulness of a federal infrastructure bank is how much the services of such an organization would save in borrowing costs. This question is especially relevant since most Canadian provinces and municipalities have relatively strong credit ratings on their own and have not struggled to attract investors to take up their debt issuances (see Appendix 1). The answer in terms of how much cost savings can be created by the lending facilities of an infrastructure bank depends on variations between the credit ratings of the municipalities, the provinces and the federal government. Currently, interest rates are at all-time low levels, yet the borrowing rates do differ by level of government. At present, the federal government has an AAA credit rating, the highest available, enabling it to borrow money at very low interest rates. Table 1 provides a sample of the average interest rates that different levels of Canadian government have borrowed money at in recent years. Appendix 2 provides a sample of current lending rates by provincial municipal finance authorities.

Table 1: Interest Rates on Bonds for Selected Canadian Cities, 2008-2014

Borrower	Mean	Standard Deviation	Median	Min	Max	S&P Rating	Moody's Rating
Toronto	3.96	.65	3.91	2.93	5.57	AA	Aa1
MFABC	3.80	.66	3.74	2.80	5.49	AAA	Aaa
York/Peel	3.92	.65	3.87	2.90	5.54	AAA	Aaa
Winnipeg	3.95	.68	3.88	2.93	5.68	AA	Aa1
Ontario	3.59	.61	3.61	2.60	5.00	AA-	Aa2
Canada	2.70	.63	2.76	1.58	3.82	AAA	Aaa

Source: Hanniman, 2014 ²¹

As can be seen, on average the federal government borrows money at rates that are approximately 1.25 percentage points (125 basis points) lower than large municipalities and 0.9-1.1 percentage points lower than provinces with provincial financing authorities. The infrastructure bank will also charge fees to the municipal borrower to cover their operating and arranging costs, though these are likely to be lower than those charged by commercial financial institutions that currently arrange and place municipal debt. It is interesting to note that the borrowing rates for these large municipalities are fairly comparable to those realized by provincial borrowers as well as the Municipal Finance Authority of British Columbia (MFABC).

The spread is likely to be larger between the borrowing rate of the federal government and smaller municipalities and provinces, which typically have lower credit ratings and higher placement arranging costs, and thus borrow

money at higher costs. In Newfoundland and Labrador, for instance, a province that does not have a municipal financing authority, St. John's pays an average interest rate of 6.12% on \$330 million of outstanding bonds. The rates of return on these municipal-issued bonds vary from 4.5%-9.4% depending on when they were released.²² And in April of 2014, Cornwallis, Manitoba, borrowed \$1.25 million for a road pavement project, which will be repaid over 20 years at a maximum interest rate of 6% per year. The municipality introduced a special property tax levy to repay the borrowing for the project.²³

The borrowing cost savings of a CIB to municipal and provincial governments will depend on the services being offered:

- **Direct loans** from the CIB to municipalities may be offered at or near the federal government-borrowing rate, and thus **provide borrowing cost savings in and around 125 basis points for large municipalities and provinces and considerably more for smaller municipalities and provinces**. For projects being considered that are not assets with revenue streams, it is likely that the loan would be secured against the general revenues of the municipality or province taking on the loan. For projects in user-fee supporting asset classes, the loan could either be secured solely against the project revenue stream in which case it would be a higher risk, or the borrower could guarantee repayment of the loan should revenues fall short of necessary levels.
- **Credit enhancement** programs where the federal government provides municipalities or provinces with a loan guarantee or other types of loan insurance are likely to provide smaller interest rate savings. Loan guarantees from the infrastructure bank for the full amount of the loan would provide the most significant reduction in the rates that municipalities could borrow money at; programs such as loan loss insurance or loan loss reserves that cover only a portion of the loan value would provide smaller savings in interest costs.

To provide a sense of the magnitude of cost savings that could be realized through direct loans and credit enhancement programs provided by a national infrastructure bank, as a rough rule of thumb, every interest rate percentage point (ie. 100 basis points) on a \$100-million loan carries about \$20 million in repayment costs over the life of a 35-year loan. This means that if a CIB can shave 100 basis points off the cost of borrowing \$500 million, it would save the borrower \$100 million in interest payments over a 35-year loan term. On a \$5-billion debt issuance for projects like the Muskrat Falls Dam described above, the savings from a credit enhancement can be quite significant – estimated at \$1 billion by the government of Newfoundland and Labrador.

Lending facilities provided by an infrastructure bank would slightly lower the cost of municipal and provincial borrowing and provide some financial relief in terms of debt servicing for large municipalities and provinces. Borrowing cost savings may be especially significant for small- and medium-sized municipalities, where interest rates and transaction costs are currently particularly high. **But the creation of an infrastructure bank that provides lending services to municipalities and provinces is not on its own a complete game-changer.** It does not alleviate the need for municipalities and provinces to have sufficient revenue sources to repay the initial borrowing, no matter what the interest rate is on any dedicated borrowing for infrastructure. And with the federal government in a deficit position and a bleak economic outlook forecast for the years ahead, taking on significant additional borrowing to finance infrastructure projects could at some point lead to a downgrading of the federal government's top credit rating, thereby increasing the interest rates available through a CIB.

D: EXISTING INFRASTRUCTURE BANKS



Entities that provide similar services to the proposed CIB are common across the country, as well as internationally. In Canada, seven out of the 10 provinces have some type of financing authority or similar body that provides pooled borrowing and financing programs for municipalities and other provincial agency borrowers. Interest rates provided by these institutions depend on the credit rating of the parent provincial government, and these are capitalized by standard government borrowing or bond issues repaid through general tax revenues. These institutions tend to provide financing to projects that range widely in size, but many of which are quite small cost municipal facilities.

Internationally, the United States, Britain and the European Union have programs and facilities that provide similar services to a government infrastructure bank. And most recently China has initiated the formation of the Asian Infrastructure Investment Bank to support infrastructure development in the Asia-Pacific region. These institutions tend to primarily provide financing services to very large infrastructure projects, typically valued at \$50 million or more, and often valued at hundreds of millions or even billions of dollars. A key reason is because there can be significant administrative costs associated with vetting and structuring credit services, and significant savings from credit enhancements are only realized on large tranches of borrowing.

Each of these infrastructure banks and lending programs is intended to finance projects that fulfill broad policy goals that are designated by their government sponsors. These policy objectives include the provision of municipal infrastructure in the case of the provincial municipal finance authorities, green infrastructure, surface transportation, cross-border cooperation, etc. Most of the international infrastructure banks and similarly functioning institutions are designed primarily to finance projects where initial borrowing is repaid through user-fee revenues. By contrast, Canadian municipal finance authorities typically provide low-cost financing to a greater mix of projects that are repaid by user fees as well as from general revenues.

In terms of specific project selection criteria, the infrastructure banks appear to function primarily as financial institutions: provided the designated projects are eligible for infrastructure bank funding under the prescribed terms of the program, they are primarily evaluated based on their creditworthiness. In other words, does the borrower have the financial capacity to repay their loan, either through user fees or general tax revenues? The infrastructure banks do not appear to be undertaking extensive evaluations of the policy rationales, cost-benefit analysis, or business case for the project when making loan decisions.

Below is a description of the services provided by a sample of these public lending institutions.

Municipal Finance Authority of British Columbia (MFABC)

MFABC is an independent authority of the province of British Columbia. Its mandate is to provide low-cost and flexible financing on short- and long-term time horizons to meet the needs of municipal governments in the province.²⁴ The MFABC keeps financing costs to a minimum by pooling long-term borrowing together, maintaining a high credit rating, and offering low administrative costs. It offers a range of services, including lending, investment management and leasing. The MFABC covers its operating costs by charging seven basis points as an administrative fee on loans, and offsets its costs further through revenues generated from investment returns and other financial services provided.

Alberta Capital Finance Authority (ACFA)

The ACFA finances capital projects on behalf of Alberta municipalities, school boards and other local entities. Loans are provided for a range of projects, including airport infrastructure, parks and recreation, sewer and water, and electric, gas and telephone projects. The ACFA has access to lower interest rate loans in the capital markets than individual municipalities, and borrowing that the ACFA undertakes is unconditionally guaranteed by the Province. In 2014, over \$2 billion in new loans were issued.

Ontario Financing Authority (OFA)

The Ontario Financing Authority is an agency of the provincial government that manages the province's borrowing and debt. In 2014, the OFA launched a Green Bond program to raise money at low cost to finance transit and other environmentally sustainable projects in the province. In order to qualify for financing through this program, projects must have environmental benefits that are screened by an independent advisory panel. The Eglinton Crosstown Light Rail Transit project is the first project to receive funding through green bonds. Green bonds in Ontario are not repaid through infrastructure revenues; they are a standard debt obligation of the province of Ontario like other bonds and repaid out of general funds.

Infrastructure Ontario (IO)

IO provides long-term loans to public sector organizations and governments in Ontario, including aboriginal health access centres, universities, municipalities, housing providers, municipal corporations and others. IO provides lower interest rate loans of up to 30 years. (IO has assumed all loans issued under the previous Ontario Municipal Economic Infrastructure Financing Authority.) Since 2003, IO has issued more than \$6.5 billion to nearly 350 public sector clients.

U.K. Green Investment Bank

The United Kingdom government wholly owns the Green Investment Bank. It was established with an initial £3.8 billion in public funds to invest in green infrastructure across the U.K. – primarily offshore wind, energy efficiency, waste and bioenergy. The bank invests in projects that contribute to the environmental objectives of the government, create local jobs, and generate commercial returns commensurate with the project’s level of risk. All projects must be able to repay their initial financing through market rate user fees – the bank does not offer subsidized low-cost financing or grants. The intention of financing a project by the bank is to provide a supplementary source of financing that de-risks new investment sectors and attracts private sector capital. In 2015, the government began to explore the partial privatization of the bank in order to increase its access to capital, especially from institutional investors such as pension funds.

Asian Infrastructure Investment Bank (AIIB)

The AIIB is a multilateral development bank that was inaugurated in late 2015. Headquartered in Beijing, the AIIB will provide financial support for infrastructure projects in Asia with the purpose of promoting economic development and improving infrastructure connectivity in Asia. The bank was established with an initial \$100 billion from countries within and outside

of Asia, raised primarily through the issuance of bonds in international markets. The AIIB's operations are intended to provide project financing rather than grants, and will include:

- Making direct loans or co-financing projects;
- Investing equity capital in an institution or enterprise that provides infrastructure;
- Providing loan guarantees for economic development;

European Investment Bank (EIB)

The EIB is a multilateral borrower and lender comprising the 28 member states of the European Union (EU). Its mandate is to provide financing and advice to projects that further the policy objectives of the EU. The sectors of investment are wide-ranging, from aviation and education to transportation, health, urban development, maritime and energy-related projects – many of these assets have user fees that can cover capital and operating costs. The EIB provides direct loans, loan guarantees, microfinance and equity investment. Importantly, the EIB also recognizes that a “[l]ack of finance is often only one barrier to investment” and thus they provide project administrative and management capacity to support effective implementation.²⁵

Nordic Investment Bank (NIB)

The NIB is made up of eight Nordic countries, and finances projects that provide environmental and economic benefits, such as infrastructure, energy, research and development. The NIB is an international financial institution, which can facilitate the financing of cross-border projects. The NIB does not provide grants; it provides direct loans and loan guarantees to both public and private sector clients on competitive market terms. It issues bonds and borrows funds from the capital market and holds the highest credit rating by Standard & Poor's and Moody's.

U.S. Transportation Infrastructure Finance and Innovation Act (TIFIA)

TIFIA is a credit assistance program funded through general borrowing by the federal government and administered through the U.S. Department of Transportation (USDOT). Eligible projects include large-scale surface transportation projects (minimum US\$50 million) including highway, transit, rail, intermodal freight and port access. Both public and private sector entities are eligible to apply. Eligible projects are required to provide a credit rating opinion from a recognized organization before assistance can be received. Financial assistance is provided in three ways:

- 1 Secured (direct) loans, in which repayments can be delayed up to five years after construction is complete and must be fully repaid 35 years after substantial completion. Up to 49% of the eligible project costs may qualify for credit assistance.
- 2 Loan guarantees, in which the federal government guarantees a borrower's repayment of loans to non-government lenders.
- 3 Standby line of credit, which provides a federal loan to supplement revenue streams during the first 10 years of a project. The line of credit cannot exceed 33% of the eligible project cost.

Total federal assistance cannot exceed 80% of the total project cost. TIFIA provided a total of US\$1 billion in credit assistance in 2014. TIFIA charges project sponsors for the costs of administering the credit assistance, and annual servicing fees (\$13,000) are charged.

E: BALANCE SHEET IMPLICATIONS



How would increased provincial and municipal borrowing through a CIB capitalized by the federal government impact on the balance sheet of the federal, provincial and municipal governments? And could direct lending or credit enhancements through a national infrastructure bank be accounted for in such a way that lending does not appear on the federal government balance sheet, or enable municipal borrowing above and beyond current debt limit restrictions where they exist? A key goal of accounting treatments should be to transparently report with whom the liabilities for any infrastructure lending and borrowing resides. Below is a discussion of the accounting implications of a CIB for the federal government and the provincial and municipal borrowers.

Federal Government Balance Sheet

Based on the national and international models, a federal infrastructure bank could be structured in a number of different ways. One approach is to follow the norm for public financing authorities across Canada and form the infrastructure bank as an independent authority of the federal government. In this structure, the bank would be granted the authority to borrow money on the capital markets with the full backing of the federal government. This would enable the bank to borrow money at or near the federal government borrowing rate, and thus provide the lowest possible loans to its clients. Under general public sector accounting principles, it is likely that the assets and liabilities of a bank structured in this model would appear on the balance sheet of the federal government. This includes reporting loan guarantee obligations, which would be accounted for as contingent liabilities.

Conversely, the CIB could follow the model of some international infrastructure investment banks and be formed as an independent government business enterprise. Such organizations are wholly owned but separate legal entities from the government that can maintain their operations and cover their liabilities entirely from outside revenue. In this model, the bank could be initially capitalized with a large grant from the federal government that would be made from general public borrowing and accounted for on the public balance sheet. After this point, the bank would be entirely self-sufficient by generating income through its loan services on a commercial basis. However, the credit rating of a bank in this model would not benefit from being backed by that of the federal government, and it would thus pay a premium to raise money directly on the private capital markets.

Municipal and Provincial Government Balance Sheet

If the full amount of municipal borrowing through the CIB is contractually stipulated to be repaid through a **new user fee on the facility without a local government guarantee**, then the borrowing would not have an impact on

provincial or internally imposed debt limits. This is because municipal debt and revenues would increase commensurately, and the infrastructure bank rather than the municipality would bear the risk of revenues not meeting projections. An associated condition of the project not impacting on a locally imposed debt limit would likely be that the risk of additional funds being required to cover cost overruns or unforeseen operating costs is transferred to the infrastructure bank rather than being borne by the local government.

The infrastructure bank could also provide credit enhancements that make it possible for municipalities to access private lending that is backed only by project revenues. Yet lending to infrastructure projects secured only against project user-fee revenues is particularly risky, as revenues on infrastructure projects has often been overestimated. As such, the infrastructure bank would require assessment procedures and highly skilled staff to carefully vet such projects. And the loans would likely be made at higher than government borrowing interest rates to reflect the risk of revenues not meeting expectations, and this additional borrowing cost would be reflected in higher user fees needed to repay the loans than if the money was borrowed at lower government borrowing rates.

However, most municipal and provincial infrastructure projects in priority transit and social sectors do not have user-fee revenues to cover all of the capital and operating costs. In cases where loans from the infrastructure bank are repaid through general government revenues, there would be low risk of default and thus have low interest rates. This would only slightly reduce the financial burden that new borrowing would place on government budgets and would not provide a significant alternative to debt limits that impose a restriction on the share of debt servicing costs as a percentage of annual revenues. To take on significant amounts of additional borrowing backed by general government revenues to fund social infrastructure projects, most municipalities and provinces would need to cut existing expenses and/or raise new revenues. Both of these propositions have been difficult to achieve in practice.

F: PRIVATE CAPITALIZATION OF THE CIB



The proposed CIB, like its provincial counterparts, has been primarily conceived of as an institution designed to provide improved access to capital and lower the cost of borrowing for public infrastructure projects. This entails capitalizing the bank with publicly borrowed money and providing lending to municipal and provincial infrastructure projects at the federal government's superior credit rating.

A question that is commonly raised in discussions about the formation of a CIB, however, is whether an additional benefit of this financial institution would be to augment the total amount of public money available for infrastructure. This can be achieved in two ways. First, the infrastructure bank could be capitalizing with privately pledged equity. These private equity funds would then be invested by the infrastructure bank in equity stakes in infrastructure projects in priority sectors across the country, with investors earning a return on their investment either through user-fee revenues or guaranteed government payments over time.

In practice, capitalizing a government controlled infrastructure bank in such a way is likely to be of limited public benefit, as the key barrier to private investment in infrastructure is a lack of access to attractive projects for private investment rather than a lack of funds or expertise. In Canada, there is already a well-established ecosystem of investors with the capacity and expertise to invest directly in infrastructure projects, and therefore there is not a strong need for a new financial institution to serve a coordinating function on their behalf. In particular, large Canadian public sector pension funds and private asset management firms have become among the biggest and most sophisticated direct infrastructure investors in the world. These funds tend to seek to make large equity investments (upwards of \$100 million) in assets that have long-term revenues from user fees, and seek to generate investment returns of between 8%-14%. More so than in Europe, Australia and Latin America, however, infrastructure assets that generate a profit through user fees in Canada – such as major airports, seaports, energy transmission grids, city parking authorities and toll roads – tend to be publicly owned.

There have been proposals that the federal government divest itself of profitable public assets and reinvest the proceeds in infrastructure through a national infrastructure bank – this would avoid the need to capitalize the infrastructure bank through government borrowing. Yet this capitalization approach is a public policy decision that requires careful study. It entails a calculation about the trade-offs between governments generating a one-time lump sum of capital from an asset sale that can be invested in other productive infrastructure through the infrastructure bank, versus government maintaining control of a profitable asset which generates revenues that can be borrowed against to finance other projects over the long term. It also entails an assessment of the public interest trade-offs between public and private ownership and operations. If such a strategy is followed, one clear prerequisite to offset the lost revenues from the assets being sold is that the sale proceeds would be invested by the infrastructure bank in top priority projects that will drive economic productivity, competitiveness and social equity returns. This is something that can only be assured if project selection is based on careful cost-benefit evaluations rather than political expedience.

As can be seen, private equity is not low-cost capital, and thus is not an appropriate substitute for provinces and municipalities seeking to finance public infrastructure through public borrowing at affordable rates. Rather, these private infrastructure investors are likely best suited to invest directly in infrastructure asset classes that are typically provided by the private market in Canada such as green energy production, telecommunications or freight rail, as well as emerging sectors such as privately provided affordable rental housing. An ideal role for a CIB in these asset classes would be to provide credit enhancements to private equity investors to lower project risks and increase the bankability of facilities of national significance that may otherwise have trouble being financed through traditional bank loans. Importantly, however, providing government loan guarantees can distort the rigour of project evaluation and shift risk for cost overruns and poor asset performance from private investors onto government. To ensure that private investors have sufficient incentive to select and complete projects effectively, the infrastructure bank should provide loan guarantees and credit enhancements that cover only up to a maximum of two thirds of the project capital cost. Conversely at least one-third of the private investment in a project should be made without a government guarantee.²⁶

G: BEYOND A BANK: THE FEDERAL ROLE IN PROJECT PRIORITIZATION AND EVALUATION



While finding money for infrastructure projects is a top challenge for governments around the world, a related concern is ensuring that the highest priority projects are selected for scarce resources, and that these projects are then effectively delivered. In response, federal governments in countries globally have developed institutional arrangements and governance approaches to manage political dynamics and improve the rigour of infrastructure project selection and procurement. Examples from the United Kingdom and the United States provide insights into the possible approaches for Canada.

In the United Kingdom in late 2015, the central government created the National Infrastructure Commission. This commission is to be established as a team of 25-30 staff that will be stationed within the national treasury department, and supervised by a board of appointed expert commissioners. It is enabled by statutory legislative authority. The commission's mandate is to provide "unbiased analysis of the UK's long-term infrastructure needs," with a particular focus on reviewing the major transportation and energy system needs of the country.²⁷

Another model of federal involvement in infrastructure project selection is the American Metropolitan Planning Organization (MPO) in the transportation sector, which dates back to legislation from the early 1960s. In this model, the federal government mandates that as a condition for receiving federal infrastructure funding, urbanized areas with a population over 50,000 must form a metropolitan planning organization that is federally funded and comprised of locally appointed officials. The organization is tasked with developing locally sensitive infrastructure investment plans and spending priorities. The production of these plans is a statutory requirement before federal funding is approved. Federal infrastructure spending is then channeled through the MPO, ensuring that the projects selected are based on the “3-Cs” – continuous, cooperative and comprehensive local transportation planning.²⁸ In the American context, the federal government sponsors and mandates the undertaking of a bottom-up approach to transportation planning where priorities are set at the regional scale.

Beyond federal involvement in project selection, the national government of the United Kingdom has been a leader in developing strategies to improve the procurement of projects in their jurisdiction. In particular, the United Kingdom government formed the Major Project Authority. The authority provides national training and certification programs for project managers that deliver large projects in order to improve procurement skills. It also provides Delivery Confidence Assessments to all major infrastructure projects in its portfolio. These assessments serve as a form of independent peer review, where a team of experts reviews the feasibility of the plans for major projects that are proposed. Projects are assessed using a traffic light system: projects given a green light are appraised as having a high likelihood of being delivered on time and on budget; yellow light projects require further scrutiny and attention; red light project are considered unachievable and must be reconceived before final approval is granted. The independent services provided by the Major Project Authority increase the level of staff skill and confidence that major projects can be delivered effectively.²⁹

In Canada's decentralized federalist system, the provincial governments and municipalities have jurisdictional responsibility for planning and providing infrastructure in key sectors such as transportation, housing, water and waste, and energy services. There is little opportunity or appetite for the federal government to take a direct role in project selection or delivery in these sectors. However, a federal infrastructure finance and delivery institution in Canada could play a key role by creating a national framework for effective project selection and delivery of large infrastructure projects across all levels of government. This would be achieved by creating mechanisms to ensure that each provincial or municipal government applying for federal funding for a large project over a specified amount (\$10 million) has a long-term capital plan that establishes a set of priorities in a given sector, and that the project for which they are applying for federal investment is at the top of the list. The federal government could also provide staff training services and project delivery confidence assessments to ensure that all large projects funded by the federal government have the best chance of being successfully delivered. In essence, the federal government would operate with a light touch, creating incentives for provincial and local governments to undertake systematic planning and project assessments as a condition of receiving federal government funding.

H: CONCLUSIONS AND RECOMMENDATIONS



After years of proposal and debate in Canadian public policy circles, the creation of a Canadian Infrastructure Bank (CIB) is an idea whose time has come. Indeed, in 2015 the creation of a CIB was identified as a priority in the mandate letters from Prime Minister Justin Trudeau to the Ministers of both Finance and Infrastructure and Communities.

Creating an infrastructure bank that provides low-interest loans and credit enhancement services is a financing strategy that can deliver borrowing cost savings for municipalities, provinces and private sponsors of large public infrastructure projects. Yet this mandate is too narrow given that the national benefit of infrastructure investment is predicated on selecting the highest benefit projects and then delivering them efficiently. Rather, this paper proposes the creation of a broader institution, which could be appropriately called the Canadian Infrastructure Investment Agency (CIIA), which has a mandate to bring together the federal government's involvement in large infrastructure project finance, evaluation and delivery. Based on the information presented above, a CIB or CIIA should have the following characteristics in order to maximize its value:

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- 1 **The CIB must be capitalized with funds that are in addition to rather than a replacement of existing federal capital grants dedicated to infrastructure.** Municipalities and provinces depend on non-repayable matching grants from the federal government to pay for eligible capital costs of infrastructure in their jurisdiction. The budgetary health of these levels of government will be made significantly worse if infrastructure grants that currently amount to upwards of \$1.2 billion per year are replaced by repayable loans.
 - 2 **Focus on large infrastructure projects, with capital values of at least \$10 million and up.** On projects of this size, which account for approximately 10% of all projects that the federal government makes capital contributions, the relatively small interest rate differences between the federal and provincial or municipal borrowing rate will deliver significant savings that outweigh the institution's administration costs. By contrast, the federal government currently provides capital contributions to thousands of infrastructure projects across the country, the overwhelming majority of which are less than \$10 million. As has been noted in studies by Dachis,³⁰ and Dahlby and Jackson, contributions to these smaller projects would be more effectively managed through non-conditional block grants from the federal government: this would reduce the federal government's management costs and also provide greater accountability for project selection to the local or provincial governments. The existing provincial finance authorities are best set up and are already effective at handling pooled borrowing services for smaller scale municipal and provincial infrastructure projects.
 - 3 **Require that provincial and municipal governments applying to the infrastructure bank for federal financing have a credible, independent study of the benefits and costs of the project, and that the project has been identified as a top priority by the sponsor government.** Canadian governments have a mixed record of using evidence-based assessments to make large infrastructure investment decisions in the transportation, housing and green energy sectors. Expedience and politics has sometimes

trumped careful empirical consideration and long-term strategic planning, leading to the allocation of scarce resources to infrastructure projects that do not always deliver the economic, environment or social benefits to warrant their cost. At a minimum capital cost of \$10 million, the scale of these projects warrant the undertaking of a thorough benefit-cost analysis, which should be independently peer reviewed for accuracy by the technical staff of the CIB. The scope and depth of these project evaluation studies should be commensurate with the cost of the proposed project. Employing such a screen during the application evaluation processes does not mean that the CIB will be selecting which projects for the provincial or municipal governments to prioritize; this is an important municipal and provincial responsibility. Rather it is simply a requirement that a rigorous evaluation has been undertaken prior to awarding federal financial support to a large capital project, to maximize the public value of all investment in infrastructure.

- 4 Low interest loans and credit enhancement services should be used as a way to attract private investors or non-profit agencies to invest in high priority sectors that may be deemed too risky or unprofitable to participate in otherwise.** This is especially the case in priority sectors such as affordable housing and green energy, where traditional banks may be reticent to provide loans, and small borrowing cost savings could contribute to making a project viable. Low interest federal loans and credit enhancement programs should be used to encourage experimentation with innovative project financing or public-private partnership arrangements that may not be bankable in commercial markets, but could deliver strong economic, social or environmental benefits. At the same time, to ensure that the private sector proponent continues to bear the risk for effective project evaluation and management, investors should be required to proceed with a project by making an investment of at least one-third of the capital value of the project that is not backed by a government guarantee or alternate credit enhancement. The infrastructure bank should thus provide loan guarantees and other credit enhancement services that cover up to two-thirds of the capital cost of privately sponsored projects.

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- 5 Become a centre of excellence on effective infrastructure project delivery and a convener of federal, provincial and municipal procurement practitioners to develop best practices based on experiences across the country.** Canadian infrastructure projects will not only benefit from low-cost financing options but also improved procurement practices to maximize the value of projects delivered. Indeed, effective lending to infrastructure projects is predicated on successful project delivery and, over time, the bank will be staffed with experts that have extensive experience appraising and procuring infrastructure projects. With this in mind, there are synergies to be experienced by combining the lending mandate of an infrastructure bank with a mandate to create a national centre of excellence on project evaluation and infrastructure procurement. As part of this mandate, the bank could be tasked with carrying out project delivery confidence assessments, establishing national data collection and infrastructure project monitoring standards, providing evidence upon which to make informed decisions about the quality and productivity of Canada's infrastructure.

As demonstrated above, the creation of an infrastructure bank that provides low interest loans and credit enhancement services to projects across the country is not in and of itself a panacea for the challenges that the Canadian infrastructure sector faces. It is a financing scheme that lowers the cost of borrowing for municipalities, provinces and private sector sponsors of infrastructure capital investments in priority sectors. Furthermore, it does not create new funding sources; these must come from either user fees that reflect the complete cost of building and operating the infrastructure, or policy decisions to raise general taxes or cut spending elsewhere. Moreover, an infrastructure bank does not address budgetary challenges that municipalities and provinces will have paying for the additional operating and maintenance costs of new infrastructure, much of which is not covered by user-fee revenues. These are challenges that are systemic across Canada and must be addressed if the country is going to successfully realize productivity, environmental and social gains from what is set to be the largest building boom of infrastructure in a generation.

APPENDIX 1: CANADIAN MUNICIPAL CREDIT RATINGS, FEBRUARY 2014

Issuer	S&P	Moody's	DBRS
Barrie, City of	AA		
Belleville, City of	AA-		
Brampton, City of	AAA		
Brandon, City of	AA-		
Brantford, City of	AA+		
Calgary, City of	AA+		AA (high)
Chatham-Kent, Municipality of	A+		
Durham, Regional Municipality of	AAA	Aaa	
Edmonton, City of	AA+		AA (high)
Essex, County of	AA		
Guelph, City of	AA+		
Halton, Regional Municipality of	AAA	Aaa	
Haldimand, County of	A+		
Halifax Regional Municipality	AA-		
Hamilton, City of	AA		
Kingston, City of	AA		
Lambton, County of	A+		
Laval, City of	AA-		
London, City of		Aaa	
Mississauga, City of	AAA		
Montreal, City of	A+	Aa2	A (high)
MFA-BC	AAA	Aaa	
Muskoka, District Municipality of		Aa2	
Niagara, Regional Municipality of	AA		
Norfolk County	A		
North Bay, City of		Aa2	
Ottawa, City of	AA+	Aaa	
Oxford, County of	AA		
Peel, Regional Municipality of	AAA	Aaa	
Peterborough, City of	AA-		
Quebec, City of		Aa2	
Regina, City of	AA+		
Saskatoon, City of	AAA		
Sault St. Marie, City of	A+		
St. John's, City of	A+	Aa2	
Simcoe, County of	AA-		
Thunder Bay, City of	AA-		
Toronto, City of	AA	Aa1	AA
TransLink		Aa2	AA
Vancouver, City of	AA	Aaa	AA
Waterloo, Regional Municipality of		Aaa	
Wellington, County of	AA		
Windsor, City of	AA		
Winnipeg, City of	AA	Aa1	
Yellowknife		Aa2	
York, Regional Municipality of	AAA	Aaa	

Source: Hanniman, 2014 ³¹

APPENDIX 2: CURRENT INTEREST RATES OFFERED BY PROVINCIAL MUNICIPAL LENDING AUTHORITIES

Below is a presentation of reported interest rates currently or recently being offered by provincial financing authorities. Note that these rates are not directly comparable to the rates identified in the table in Appendix 1 – those numbers represent the average interest rates being offered between 2008-2014, during which time interest rates have declined considerably.

Infrastructure Ontario

Below is a list of the indicative lending rates that Infrastructure Ontario offers for serial loans available to municipal borrowers in Ontario, as of February 7, 2016.

TERM	RATE
5-Year	1.64%
10-Year	2.34%
15-Year	2.83%
20-Year	3.15%
25-Year	3.34%
30-Year	3.46%

For further information on Infrastructure Ontario's lending program and interest rates offered to various types of borrowers and projects, see: <http://www.infrastructureontario.ca/Templates/RateForm.aspx?ekfrm=2147483942&langtype=1033>

Alberta Capital Finance Authority

Interest Rates as of February 1, 2016

LOAN TERM	RATE
3-Year	1.023%
5-Year	1.376%
10-Year	2.073%
15-Year	2.593%
20-Year	2.935%
25-Year	3.153%
30-Year	3.284%

For further information on the Alberta Capital Finance Authority lending program and interest rates, see: <http://www.acfa.gov.ab.ca/nav/rates.html>

Nova Scotia Municipal Finance Corporation

Interest Rates for serial, fixed loans based on October 22, 2015 debt issuance

TERM	RATE
5-Year	1.76%
10-Year	2.43%
15-Year	2.90%
20-Year	3.13%
25-Year	3.23%
30-Year	3.29%

For further information on the Nova Scotia Municipal Corporation lending program and interest rates, see: <http://www.nsmfc.ca/fall-2015-debenture-results.html>

ENDNOTES

- 1 See: Speer, S. and Flemming, B. (2016). *Avoiding Short-Cuts on the Road to Investing in Canada's Infrastructure*. Macdonald-Laurier Institute Publication;
Dachis, B. (2016). *Getting More Buildings for our Bucks: Canadian Infrastructure Policy in 2016*. C.D. Howe Institute.
- 2 The prime minister confirmed the urgency of this pledge in his mandate letter to the ministers of finance and infrastructure, where he tasked them to “develop the Canada Infrastructure Bank to provide low-cost financing (including loan guarantees) for new municipal infrastructure projects in our priority investment areas.”
- 3 For a clear and concise definition of an Infrastructure Bank, see Cautillo, C. Zon, N. and Mendelsohn, M. (2014). *Rebuilding Canada*. Mowat Centre., p12.
http://mowatcentre.ca/wp-content/uploads/publications/92_rebuilding_canada.pdf
- 4 For a glossary of credit enhancement tools, see: U.S. Government Office of Energy Efficiency and Renewable Energy. <http://energy.gov/eere/slsc/glossary-terms#L>
- 5 See: Flemming, B. and Cooper, M. (2014). *Catching Up: the Case for Infrastructure Banks in Canada*. Calgary: Van Horne Institute;
Galston, W.A. and Davis, K. (2012). *Setting Priorities, Meeting Needs: The Case for a National Infrastructure Bank*. Washington: Brookings Institution.;
Fenn, M. (2014). *Unlocking Ontario's Advantages: Building new infrastructure on the foundation of existing public assets*. Vaughan: RCCAO.
- 6 See: Infrastructure Investor 30, Infrastructure Investor.com
https://www.infrastructureinvestor.com/uploadedFiles/Infrastructure_Investor/Non-Pagebuilder/Non-Aliased/Widget_Content/II_30.pdf
- 7 Amborski, D. (2013). *The Context of Municipal Borrowing in Canada*. Presentation to the Institute on Municipal Finance and Governance, Munk School, University of Toronto. http://munkschool.utoronto.ca/imfg/uploads/226/context_of_municipal_borrowing_in_canada_col.pdf
- 8 Conference Board of Canada (2010). *The Economic Impact of Public Infrastructure in Ontario*. Economic Performance and Trends Report.
- 9 Canadian Centre for Economic Analysis (2015). *Investing in Ontario's Public Infrastructure: A Prosperity at Risk Perspective*. RCCAO: Vaughan, Ontario.

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- 10 The term "shovel worthy" came to prominence after being used in a speech by Canadian Infrastructure Minister Amarjeet Sohi to the Toronto Regional Board of Trade, January 21, 2016.
 - 11 Auditor General of Canada (2011). G8 Legacy Infrastructure Fund. Spring 2011 Report, Chapter 2. http://www.oag-bvg.gc.ca/internet/docs/parl_oag_201104_02_e.pdf
 - 12 See: Bazel, P. and Mintz, J.M. (2015). Optimal Public Infrastructure: Some Guideposts to Ensure We Don't Overspend. School of Public Policy SPP Research Papers. Volume 8, Issue 37. University of Calgary.
 - 13 The majority of the urban rapid transit projects currently being proposed across the country are located in suburban locations. While these projects may deliver social benefits, there is little chance that they will recover their costs from user fees or land value capture mechanisms.
 - 14 Flyvbjerg, B., Bruzelius, N., and Rothengatter, W. 2003. *Megaprojects and Risk: An Anatomy of Ambition*. New York: Cambridge University Press.
 - 15 Guasch, J.L., Benitez, D., Portabales, I. and Flor, L. (2014). The Renegotiation of PPP Contracts: An Overview of its Recent Evolution in Latin America. Discussion Paper 18. Washington D.C.: The World Bank.
 - 16 Toronto City Auditor (1998). *Sheppard Subway project cost overruns*. Toronto, Canada: City Auditor.
 - 17 See: Mizera, N. (2012) Subway subsidized to tune of \$10 mil a year. <http://www.postcity.com/Post-City-Magazines/October-2012/Subway-subsidized-to-tune-of-10-mil-a-year/>
 - 18 The largest federal conditional grant programs for infrastructure in Canada are the Build Canada Fund, Canada Strategic Infrastructure Fund, and the Infrastructure Stimulus Fund.
 - 19 While the convention is for the federal government to provide matching grants of up to one-third of the capital costs of municipal or provincial infrastructure projects, there are numerous federal infrastructure programs that have permission to provide contributions of up to 50% of eligible capital costs. This includes the Border Infrastructure Fund, the Green Infrastructure Fund and the Infrastructure Stimulus Fund.

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- 20 Dahlby, B. and Jackson, E. (2015). Striking the Right Balance: Federal Infrastructure Transfer Programs, 2002-2015. School of Public Policy SPP Research Papers. Volume 8, Issue 36. University of Calgary.
 - 21 See Hanniman, K. (2014). A Good Crisis: Canadian Municipal Credit Conditions After the Lehman Brothers Bankruptcy. IMFG Papers on Municipal Finance and Governance. No. 22.
 - 22 See St. John's Budget, 2014: <http://www.stjohns.ca/sites/default/files/files/publication/Budget%202014%20Internet.pdf>
 - 23 See Cornwallis Notice of General Borrowing By-Law: http://www.gov.cornwallis.mb.ca/notices_detail.asp?notice_ID=229
 - 24 The City of Vancouver is the only municipality in British Columbia that has access to but does not borrow capital through the MFABC.
 - 25 See: EIB About Us: <http://www.eib.org/about/index.htm>
 - 26 See: Flyvbjerg, B. Holm, M.S. and Buhl, S. (2005). How (In)accurate Are Demand Forecasts in Public Works Projects? The Case of Transportation. *Journal of the American Planning Association*, 71(2), 131-146.
 - 27 Rhodes, J. (2015). Infrastructure Policy. House of Commons Library. Briefing Paper Number 06594.
 - 28 For a description of the history and current practice of American Metropolitan Planning Organizations, see: <http://www.ampo.org/about-us/about-mpos/>
 - 29 See Rhodes (2015).
 - 30 Dachis, B. (2016).
 - 31 Hanniman, K. (2014).



