VITAL CAPITAL:
Using Alternative Procurement and Financing Models to Capitalize on the ‘Infrastructure Moment’ in the Great Lakes and St. Lawrence Region
At the Clinton Global Initiative America (CGI America) meeting in Denver, Colorado in 2014, the Council of the Great Lakes Region (CGLR), in partnership with private sector and nonprofit organizations, committed to launching a study examining opportunities for infrastructure investment in the Great Lakes-St. Lawrence Region using public-private partnerships. This report, in conjunction with the infrastructure modernization and financing panel discussion at CGLR’s first Great Lakes Economic Forum in Chicago, IL, in April 2015 responds to this commitment to action.

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CONTRIBUTORS

SARA DITTA is a Policy Associate at the Mowat Centre. She completed a graduate degree at the University of Toronto’s School of Public Policy and Governance, as well as a Bachelor of Journalism degree at Carleton University. Prior to joining Mowat, she reported on health policy in the United States and worked with federal government departments in Toronto and Ottawa.

MICHAEL FENN was an Ontario Deputy Minister under three Premiers, municipal chief administrator in Hamilton and Burlington, and the founding CEO of both regional transportation authority Metrolinx and regional health authority Mississauga Halton LHIN. He now writes and consults on municipal and infrastructure issues. A certified board director, he serves on the boards of the $72 billion OMERS AC pension fund and the Toronto Board of Education’s realty arm, the Toronto Lands Corporation.

LYLE MCCOY
Senior Advisor (Infrastructure)
Council of the Great Lakes Region

LISA MITCHELL
Director of Strategy and Market Development
PPP Canada

DAVID MORLEY
Senior Vice President
Infrastructure Ontario

MARK ROMOFF
President and CEO
Canadian Council of Public-Private Partnerships

MATTHEW MENDELSOHN is the Director of the Mowat Centre and an associate professor in the School of Public Policy & Governance at the University of Toronto. He has served as a Deputy Minister in the Ontario Government and a senior policy advisor in the Privy Council Office in the federal government. He was a member of the Department of Political Studies at Queen’s University from 1994 to 2004.

ROBERT PUENTES is a senior fellow with the Brookings Institution’s Metropolitan Policy Program where he also directs the program’s Metropolitan Infrastructure Initiative. The Initiative was established to address the pressing transportation and infrastructure challenges facing cities and suburbs in the United States and abroad.

STEERING COMMITTEE

JOHN AUSTIN
Director
Michigan Economic Center

TODD HERBERGHS
Executive Director
National Council for Public-Private Partnerships

DAVID M. LICK
Attorney
Foster Swift Collins & Smith PC

TARA MACKAY
Partner
Torys LLP

LYLE MCCOY
Senior Advisor (Infrastructure)
Council of the Great Lakes Region

LISA MITCHELL
Director of Strategy and Market Development
PPP Canada

DAVID MORLEY
Senior Vice President
Infrastructure Ontario

MARK ROMOFF
President and CEO
Canadian Council of Public-Private Partnerships

TARIQ TAHERBHAI
Senior Director
Aon Infrastructure Solutions

MARGARET TOBIN
Senior Vice President (Development)
Jacob K. Javits Convention Center

DEBORAH ZURKOW
Managing Director and Head of Infrastructure Debt
Allianz Global Investors

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EXECUTIVE SUMMARY

The Great Lakes and St. Lawrence Region (GLSLR) has an immediate need for major new investments in infrastructure renewal. These investments would support a new era of prosperous and sustainable metropolitan areas in the region.

Given the long inventory of projects that need funding, the recognized need for new investment and historically-low interest rates, we should be witnessing a period of extraordinary new building. Yet citizens have often been reluctant to pay the taxes needed to fund the scale of investment that is necessary. On the other hand, the private sector is interested in seeking out partnerships with public bodies and is investing globally in long-term stable investments like infrastructure projects. This paper explores various existing and emerging models of alternative financing of infrastructure in the GLSLR and identifies the most appropriate models for future projects in the region. Specific attention is paid to potential models for projects that involve more than one jurisdiction and their ability to coordinate efforts across borders.

There is significant potential for cross-border collaboration due to the integrated nature of the region and the potential for states and provinces to learn from one another and plan together around energy and transportation. The renewed interest in more collaborative regional work amongst Governors and Premiers reinforces the need to examine how alternative financing can be mobilized to deliver inter-jurisdictional infrastructure projects and finance infrastructure renewal in the region.

The jurisdictions of the GLSLR have increasingly shared interests as part of a post-rust-belt region competing globally with other economic regions. The GLSLR has a compelling value proposition for investment attraction — and the business case for investing in the GLSLR would be more compelling still with modernized, sustainable, technologically-enabled infrastructure. This report concludes that there is value in mobilizing alternative financing mechanisms in the GLSLR to respond to the need for infrastructure renewal and that closer cross-border collaboration is part of the solution to the challenges facing jurisdictions within the region.
However, there are also clear obstacles to closer regional collaboration on infrastructure renewal and alternative financing: planning does not take place at the regional level, regulatory regimes differ, financing rules are not aligned and the self-awareness necessary to think and act at the regional level is not always present. These factors can undermine a collective ability to undertake significant, integrated infrastructure renewal in the region to support its economic, social and environmental sustainability.

To overcome these obstacles, the report concludes with a series of recommendations that are designed to facilitate greater alignment of processes and learning across the region, as well as to position the region as a centre of excellence in deploying innovative financing tools and by modelling best practices and agreements. These recommendations include:

» The establishment of a Great Lakes and St. Lawrence Region Infrastructure Exchange
» A move toward standardization of innovative procurement models across the GLSLR
» More integrated planning and priority-setting across the region
» The certification of socially-responsible investing and other classes of investments
INTRODUCTION
There is a clear need for public infrastructure renewal across North America. The Great Lakes and St. Lawrence Region (GLSLR), with its aging industrial-era infrastructure, is beginning a wave of new building focused on smarter cities, sustainability and renewable energy infrastructure. Despite these positive efforts, the challenge to meet infrastructure needs in the United States and Canada remains quite large — following years of under-investment which has led to crumbling infrastructure and a significant deficit across both countries.1

The case for significantly greater investments has been made repeatedly and globally. The President’s Council of Economic Advisers concluded that “investing in infrastructure is essential to the economic health of the nation,”2 while David Dodge, former Governor of the Bank of Canada, recently encouraged greater infrastructure spending given the current economic environment.3 Notably, it is an issue that has brought together organizations on opposite ends of the political spectrum, including the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) and the U.S. Chamber of Commerce.4 Climate change, digital technologies, urban renewal, deferred maintenance of legacy assets and historically-low interest rates all point to the same conclusion: the time to build and invest is now.

Amid this environment, private organizations are interested in partnering with public bodies to invest in infrastructure. Indeed, there are many established and emerging financing mechanisms and structures to mobilize private sector know-how and global pools of capital to invest in infrastructure — some of which are already in the GLSLR. For example, in Ontario, a single agency was mandated to deliver infrastructure using a variation on the public-private partnership (P3) model known as Alternative Financing and Procurement (AFP). There is a real opportunity for closer collaboration on infrastructure policy and infrastructure delivery methods that serve the public interest.

This paper explores these models and identifies those which are most appropriate for the region as it undergoes a period of economic transformation and urban renewal, all of which requires the successful delivery of infrastructure investments.

» Section I describes the Great Lakes and St. Lawrence Region.
» Section II provides a brief outline of the region’s infrastructure legacy and its emerging infrastructure needs.
» Section III summarizes key lessons learned on inter-jurisdictional infrastructure projects from a number of case studies.
» Section IV describes in detail the emerging models being used to finance infrastructure renewal, with a keen focus on their applicability and use in the GLSLR.
» Section V concludes with a series of recommendations on how the region can move forward to deploy new financing mechanisms to unleash a sustained period of infrastructure investment and renewal while supporting inter-jurisdictional collaboration and enhanced regional integration.
SECTION I
Overview of the Great Lakes and St. Lawrence Region
The Great Lakes and St. Lawrence Region (GLSLR) plays a critical role in supporting North America’s economic growth, serving as a hub to connect people and move goods and services in every direction, and as a centre of world-class industrial innovation. The eight states (Illinois, Indiana, Minnesota, Michigan, New York, Ohio, Pennsylvania and Wisconsin) and two provinces (Ontario and Quebec) in the GLSLR make up nearly one-third of combined U.S. and Canadian economic activity. If the region were a country, its GDP would be the third largest in the world.5

The region also possesses substantial human capital, hosting nearly 20 per cent of the world’s top 100 universities.6 Throughout the 20th century, manufacturing, financial services and integrated industries — such as automobile production, aerospace, life sciences, food processing and metal-fabricating — gave the GLSLR its vibrant cities and dynamic metropolitan economies.

The high proportion and close proximity of many large cities within the GLSLR has led to a high degree of connectivity and reliance on a vast network of infrastructure, including ports and airports, highways and rail lines, water treatment and energy distribution grids, telecommunications networks, and social and knowledge infrastructure.7 This has helped fuel commerce and innovation, while close access to waterways has further strengthened the region’s position as a global economic hub.

To illustrate the importance of infrastructure to the region, the Detroit-Windsor Ambassador Bridge alone carries more than 25 per cent of merchandise trade between Canada and the U.S.,8 with the region accounting for nearly 40 per cent of all cross-border trade by vessel, truck and rail between the two countries.9 Great Lakes waters are also a critical shared resource in the region for energy, transportation and drinking water. The two Coast Guards coordinate their efforts, border agencies and police authorities collaborate closely on security and anti-terrorism, and first responders have memoranda of understanding on how to assist across the border in times of need.

Despite the strong economic capacity within the GLSLR, the region has encountered challenges over the past few decades: economic uncertainty, declines in key industry sectors, growing competition from abroad and, in some areas, urban decay and depopulation. The Great Recession that began in 2008 further compounded these economic challenges. For instance, cities that relied significantly on the auto sector endured major job losses during the recession, which made

While there are certain instances of noteworthy collaboration within the GLSLR, the region also faces challenges due to the lack of institutions and structures that can facilitate coordination and collaboration across the Canada-U.S. border. Different regulatory standards and competition between individual jurisdictions for direct investment can also undermine regional collaboration, although the two federal governments’ efforts through the Regulatory Cooperation Council and the Beyond the Border initiatives should help improve regulatory harmonization and the efficiency of the border. As it stands, U.S. regulations and fees can discourage cross-border commercial use of GLSLR port facilities, to the detriment of all GLSLR ports.

Wait times at the border and supply chain uncertainty are additional problems, although planned infrastructure projects — including the new Detroit River International Crossing (now referred to as the Gordie Howe Bridge) — will help to enhance trade corridors in the area.

Canada’s Continental Gateway Strategy, with a focus on the Ontario-Quebec Corridor, also aims to improve multimodal transportation — linking roads, ports, airports and other forms of transportation.

— and has the potential to significantly enhance the flow of goods between the U.S. and Canada in the GLSLR. But this is neither a regional nor bi-national strategy. The Continental Gateway also has not received the same level of support from Canada’s federal government as other similar efforts aimed to strengthen trade networks, particularly the Asia-Pacific Gateway Strategy in western Canada.14

Likewise, U.S. trade efforts are similarly focused on Asia.

However, with each challenge comes a corresponding opportunity: new economic activity in older industrial cities, transformation to more sustainable economic activities, and new export opportunities to emerging markets. World-leading research and educational institutions; global centres of capital and corporate head offices; and access to natural resources, water and arable land, all suggest that the region has everything it needs to compete and prosper. There is a widespread belief that investments in North America’s often overlooked “Fourth Coast” or “Freshwater Coast” will be extremely attractive in the coming decade15 (see Appendix I for an overview of market opportunities in the Great Lakes and St. Lawrence Region). A new era of infrastructure renewal is the foundation on which the people of the region can take advantage of this moment and the opportunities that are being presented.


SECTION II
The “Infrastructure Moment” in the Great Lakes and St. Lawrence Region
Infrastructure improvements in the GLSLR are essential for robust economic growth and to enhance productivity, while the return-on-investment from infrastructure is notably high. The Economic Policy Institute concluded that productivity would likely grow by 0.3 per cent per year with a US$250 billion annual investment and potentially add one million people to the workforce each year.  

16 Similarly, the International Monetary Fund found that increasing infrastructure investment by one per cent of GDP can boost output by 0.4 per cent that same year and by 1.5 per cent in four years.  

17 Meanwhile, energy, telecommunications and other critical infrastructure are threatened by changing weather patterns. Flooding is causing increased damage and it is estimated that wastewater infrastructure in the U.S. will require as much US$300 billion to repair — a figure that could grow to nearly US$1 trillion by 2050 due to climate change.  

The recognition in both Canada and the U.S. that renewal is necessary has unleashed a flurry of new programs and initiatives, including those with greater outreach to the private sector. The U.S. Build America Transportation Investment Center program, which was announced in 2014, targets increasing infrastructure investment and economic growth through coordination with local and state governments, as well as private investors.  

19 It leverages private capital in tandem with government funding and involves innovative financing options, including bonds such as the Qualified Public Infrastructure Bond — which aims to give the private sector more opportunities to build, finance and maintain public infrastructure, thereby encouraging more complex P3 arrangements.  

20 Meanwhile, the White House has identified the value of regional collaboration, particularly through regional infrastructure exchanges.  

State and local government leaders also recognize the importance of greater investment and more long-term planning. For instance, there is bipartisan support among the National Governors Association to advocate for greater and more reliable transportation funding.  

22 To compensate reduced funding from the Federal Highway Trust Fund and declining revenues from fuel taxes, there is also a growing willingness to raise taxes, such as the gas tax, at the state level to pay for crumbling
infrastructure.24 Local governments have also taken a leadership role in pushing for increased resources for infrastructure due to concerns about the impact of a lack of investment on their cities.25

In Canada, the federal government unveiled a program in 2014 that provides new funding to support infrastructure, acknowledging that “investments in Canada’s public infrastructure create jobs, economic growth and provide a high quality of life for families in every city and community across the country.”26 The Canadian federal government also foresees a larger role for private capital in building infrastructure, requiring large projects to be examined for possible private investment prior to being built.27 City and provincial governments, however, highlight that there are significant disparities in levels of public funding — as the federal contribution is dwarfed by local and provincial/territorial contributions.28 Similar to the situation in the U.S., approximately 95 per cent of public infrastructure is owned by provincial/territorial and local governments — the majority of which is overseen by the latter.29

In this context, there are many calls and recent efforts for private capital to play a greater role in infrastructure.30

In all of these efforts, there is an implicit or explicit recognition that alternative sources of capital should be leveraged to a greater degree to build public infrastructure, as well as to maintain and repair what has already been built. Indeed, it is often maintenance and state-of-good-repair budgets that are sacrificed in times of financial shortfalls, as illustrated by the growing liability for deferred maintenance on the balance sheets of many public entities. The long-term costs grow, but governments have too often been willing to defer maintenance to some future administration, regardless of the long-term liability created. Private financing — with well-structured contracts and a stake in well-functioning future infrastructure — can have significant benefits, help overcome political obstacles and build-in the long-term costs of infrastructure projects.\(^3\)

Infrastructure is particularly important in the Great Lakes and St. Lawrence Region. Essential infrastructure connects the GLSLR — including gateways, waterways, energy, telecommunications and transportation infrastructure. A substantial number of goods are regularly transported within and through the GLSLR, with the region having major impacts on international trade networks.\(^3\) However, border delays and traffic congestion can result in challenges to this flow of goods.

Key water transport infrastructure in the GLSLR includes the St. Lawrence Seaway system, Ontario’s Trent-Severn-Rideau canal system and the network of harbours around the Great Lakes. The port of Montreal is both a high-seas port and an important trade connection between Eastern Canada and the United States. While there have been some notable recent investments in the GLSLR’s waterway assets,\(^3\) more are still needed. Airports across the region are also increasingly coordinating traffic, with connector flights often located on either side of the Canada-U.S. border and large volumes of Canadian passengers using lower-cost cross-border airports.\(^3\)

Additionally, there is significant interdependence within the energy sector, with a substantial amount of power generated in Quebec fueling the northeastern U.S., as well as integrated systems to deliver oil and natural gas. Nuclear energy generation


capacity in Ontario also offers a clean, environmentally-sustainable alternative to coal-fired electricity generation.

Closer inter-jurisdictional cooperation and priority setting would help address identified challenges and capitalize on opportunities. Provinces, states and cities with very different regulations and priorities currently manage infrastructure in the region. A more aligned and integrated approach to trade, energy and transportation infrastructure across the GLSLR could help mobilize global pools of capital to invest in transformational infrastructure on a scale that will serve as the foundation for regional renewal.

A full picture of the unique and differing infrastructure needs and priorities across the region is not possible in this report, but two observations will shape the analysis:

» Investments in connective infrastructure are crucial to the region, as ports, airports, rail, roads, energy, bridges and waterways are essential to further integration and prosperity of the region.

» Investments in sustainable, adaptive, weather-resistant infrastructure are essential.

Table 1 highlights some of the key gaps and needs in each jurisdiction.

| Illinois | » Illinois government agencies estimated that the state will face infrastructure needs of more than $300 billion over the next 20 to 30 years.\textsuperscript{i} 
| | » Illinois has expected infrastructure needs in several areas, including:\textsuperscript{ii} 
| | • $20.5 billion in rail 
| | • More than $30 billion in transit in the Chicago region alone 
| Indiana | » Indiana has estimated infrastructure needs in several areas,\textsuperscript{iii} including: 
| | • $3.5 billion for bridges 
| | • $4.7 billion for rail 
| | • $3.5 billion to address short-term and $21.3 billion for long-term roadway needs 
| | • $5.86 for wastewater 
| Michigan | » Michigan has estimated infrastructure needs in several areas,\textsuperscript{iv} including: 
| | • $6.1 billion annually for roads and bridges 
| | • $6 billion for wastewater 
| Minnesota | » Minnesota has estimated infrastructure needs in several areas,\textsuperscript{v} including: 
| | • $8 billion in utility infrastructure 
| | • $65 billion in transportation infrastructure over two decades 
| | • Nearly $6 billion in drinking water infrastructure over two decades 
| New York | » New York’s Comptroller estimated that the state will have an $89 billion shortfall for essential infrastructure over the next 20 years, including for sewer, water and transportation.\textsuperscript{vi} 
| | » Other projections indicate that New York’s transportation funding gap could be as high as $175 billion over the same period.\textsuperscript{vii} 

\textbf{TABLE 1: SNAPSHOT OF GREAT LAKES-ST. LAWRENCE REGION FUTURE INFRASTRUCTURE NEEDS (CANADIAN FIGURES REPRESENTED IN CAD AND U.S. FIGURES REPRESENTED IN USD)}
<table>
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<tr>
<th>State</th>
<th>Infrastructure Needs</th>
</tr>
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<tbody>
<tr>
<td><strong>Ohio</strong></td>
<td>Ohio is estimated to have infrastructure needs in several areas, including:</td>
</tr>
<tr>
<td></td>
<td>- $3.6 billion to replace all structurally deficient bridges</td>
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<tr>
<td></td>
<td>- $9.68 billion for water over 20 years</td>
</tr>
<tr>
<td></td>
<td>- $11.16 billion for wastewater</td>
</tr>
<tr>
<td></td>
<td>- $9.32 billion for schools</td>
</tr>
<tr>
<td></td>
<td>- $10 billion for highways at the state level</td>
</tr>
<tr>
<td><strong>Ontario</strong></td>
<td>Ontario’s estimated infrastructure investment gap is more than $60 billion at the municipal level. Metrolinx, Ontario’s regional transportation agency, has stated that it requires $34 billion for projects to increase its capacity where most needed.</td>
</tr>
<tr>
<td><strong>Pennsylvania</strong></td>
<td>Pennsylvania has expected infrastructure needs in several areas, including:</td>
</tr>
<tr>
<td></td>
<td>- $5.2 billion annually for transportation, including $3 billion for roadways and bridges.</td>
</tr>
<tr>
<td></td>
<td>- $28 billion over 20 years for wastewater</td>
</tr>
<tr>
<td></td>
<td>- $13.9 billion over 20 years for drinking water</td>
</tr>
<tr>
<td><strong>Quebec</strong></td>
<td>Quebec has an estimated municipal infrastructure gap of $34 billion. Quebec has a significant gap in water infrastructure — an estimated $7 billion gap to 2020.</td>
</tr>
<tr>
<td><strong>Wisconsin</strong></td>
<td>Wisconsin has an estimated transportation infrastructure funding shortfall of $15.3 billion over the next 10 years.</td>
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Notes:


Success in fulfilling these significant needs will take major new investments. There are wide disparities across the region and no jurisdiction is investing enough, with some woefully under-investing (see Table 2). Indeed, Canada spends less on transportation than counterparts in Europe,35 while federal governments in both countries have pulled back on some key investments that would support regional coordination. For example, the Canadian government has reduced the scale of border infrastructure funding.36 Meanwhile, a U.S. initiative — the US$833 million Coordinated Border Infrastructure program, which provided funding to states close to the border to address infrastructure needs — expired recently. New mechanisms to mobilize more capital are required.

Addressing this under-investment is possible. The funds necessary to undertake increased investment are available through a variety of different financing mechanisms, as outlined in more detail in Section IV. Just as important, however, are issues of inter-jurisdictional coordination, including a lack of integrated intermodal connections, uncoordinated connections and planning across borders, a lack of regulatory harmonization, and the absence of collaborative governance.37 Without proper intergovernmental collaboration across the border, the mobilization and investment of capital will not reach its full potential to revitalize the Great Lakes and St. Lawrence Region.

SECTION III

Inter-jurisdictional Challenges in the Great Lakes and St. Lawrence Region
Mobilizing financing for infrastructure is an ongoing challenge, but inter-jurisdictional hurdles can be significant as well. Differing interests, competing stakeholders, conflicting regulatory frameworks and varying legal and financial regimes make any cross-border project difficult. These barriers also discourage investors who are looking for consistent and efficient approaches to infrastructure building and finance, particularly in relation to P3s. Currently, it is almost always simpler to undertake a project in just one state or province, but this sacrifices the benefits that accrue from regional collaboration.

Fortunately, several initiatives have taken place that can serve as case studies to identify principles and guidelines for successful inter-jurisdictional undertakings. Certain regions have been very successful in delivering large-scale infrastructure projects across international borders. For example, large European firms involved in building and operating infrastructure in the EU are able to overcome some of the upfront costs experienced in North America. This is due to common financial, fiscal and legal (civil code) regimes, making it easier to do due diligence and price risk more conservatively, and reducing the volume of legal, political and administrative work upfront. This section reviews some of the most relevant case studies in the GLSLR and internationally.

GLSLR EXPERIENCE — DETROIT RIVER INTERNATIONAL CROSSING (DRIC)

Efforts have been underway for years to construct a new, second bridge — known as the Gordie Howe International Bridge — to more easily transport goods and people across the border between Detroit and Windsor. The project was implemented through a P3 process, with Canada playing a central role in decision-making and procurement.

Collaboration among government, private and community stakeholders to identify common interests, create a unified voice, undertake joint planning, and reconcile different regulatory and environmental requirements was essential. To achieve these goals, the Canada-U.S.-Ontario-Michigan Border Transportation Partnership was created to develop a long-term strategy and engage the private sector, First Nations and municipalities. Effective coordination has been challenging, particularly amongst local interests who may possess specific community or commercial interests.

During the DRIC process, environmental concerns were raised about increased capacity at the border due to the proposed location’s close proximity to the fragile environments on and around the Detroit River itself. The Partnership was able to successfully identify relevant challenges, opportunities for innovation and mitigation strategies for the new crossing, including agreement

on a coordinated process for environmental assessment and planning. Capital was particularly challenging on the U.S. side, but due to ongoing collaboration by leadership on both sides of the border, this problem was addressed before becoming fatal, with the Canadian government offering additional funds to purchase the necessary lands in Michigan. In January 2015, a request for qualification was released to create the executive team that will oversee the project.

GLSLR EXPERIENCE — QUEBEC-NEW YORK TRADE CORRIDOR

The Quebec-New York Trade Corridor was developed in 2001 and spearheaded by the private sector through an agreement between chambers of commerce in Quebec and New York State. The initial objective was to enhance the Quebec-New York border crossing at Plattsburgh in order to facilitate trade. This came with commitments from governments in Canada to invest C$75 million and the U.S. to invest US$6 million to improve the infrastructure at and near the border. These initial efforts focusing on border infrastructure soon expanded to include broader integrative planning and economic work for the region.

Momentum for the Corridor has been difficult to sustain. Beyond initial border enhancements, the kind of tangible projects that mobilize interest have not been present. Federal, provincial and local governments have had understandably different priorities and interests, and there was not a sufficiently deep or robust process to overcome these inevitable misalignments. In particular, the goal of deeper economic integration has not been fully embraced by all relevant actors on both sides of the border. Although some engagement from the business community has kept the Corridor process alive, no unified agenda or signature projects have emerged. Nevertheless, the experience provides some lessons learned for future coordination efforts.

“IT IS ALMOST ALWAYS SIMPLER TO UNDERTAKE A PROJECT IN JUST ONE STATE OR PROVINCE, BUT THIS SACRIFICES THE BENEFITS THAT ACCRUE FROM REGIONAL COLLABORATION”

44 Fajer, p. 7.
GLSLR EXPERIENCE —

ST. LAWRENCE SEAWAY

Coordination across Canadian and U.S. governments remains a key component in managing and operating infrastructure in and around the St. Lawrence Seaway. Currently, two entities manage infrastructure along the Seaway based on territorial boundaries — the U.S. Saint Lawrence Seaway Development Corporation (a federal agency within the U.S. Department of Transportation) and the Canadian St. Lawrence Seaway Management Corporation (a non-profit entity, though Canadian assets are federally-owned). These two authorities work in tandem to provide the regulatory framework for transportation across the waterway.

Challenges can occur due to conflicting U.S. and Canadian regulations and taxes. Differing water regulations, emission standards and approaches to security have also created hurdles, as have high fees on the American side of the border. Efforts have been undertaken to align regulatory requirements across the waterway. While some hurdles remain and greater collaboration could be beneficial, the Seaway has also been praised for its governance structure which effectively incorporates stakeholders on both sides of the border.

This approach has been considered particularly beneficial for resolving operational challenges that have emerged. As a result, this may be a useful model for broader GLSLR cross-border collaboration.

INTERNATIONAL EXPERIENCE

— THE ORESUND BRIDGE

One of the most successful international infrastructure projects is the bridge between Copenhagen in Denmark and Malmo in Sweden. The bridge opened in 2000 and is one of the longest bridges for road and rail transportation in the world. Communities on both sides of the border recognized a mutual interest in closer integration, which was crucial for early momentum and successful completion.

The Oresund Committee is a forum that was developed as the bridge was constructed to offer political representation and a voice to communities in both countries. As well, a joint state-owned Danish-Swedish consortium was established to operate the bridge, financed by loan guarantees from governments and user fees.


Since the opening of the crossing, innovative governance practices were developed to support collaborative transportation planning. These include permanent committees with representatives and experts from both countries, as well as informal and ad hoc groups. Over time, transportation planning has become more closely integrated across the bi-national region. As governance practices evolved and formalized, this has allowed both countries to more collaboratively and successfully address issues as they arose, such as differences in energy systems or emergency response planning.51

INTERNATIONAL EXPERIENCE — THE “CHUNNEL”

The Channel Tunnel, or “Chunnel,” linking the United Kingdom and northern France officially opened in 1994 after seven years of construction and was considered path-breaking in terms of its size and governance. It involved bilateral agreement and a network of intergovernmental cooperation and oversight.52 Both national governments cooperated to provide a statutory framework for the project, creating several joint governance bodies with regulation-making powers and oversight authority. The Treaty of Canterbury implemented the statutory regime, which aimed to transfer most of the risk to the private sector.

The Chunnel is one of the most expensive and complex cross-border infrastructure initiatives, with construction financed by the private sector. The contract to build and operate the tunnel was given to a private consortium called Eurotunnel, which included construction companies and financial institutions. It is an example of a P3 model — one in which the design, building, financing, operation and maintenance of the facility is the responsibility of a private consortium.

One of the most significant obstacles was to coordinate many different partners with diverse interests. The project involved shareholders, banks, construction companies, and British and French governments — each with varying levels of financial stakes and indicators of success. As a result, several disagreements emerged which led to delays and increases in costs.53 Regulatory complexities added to difficulties in managing the project.54 The Intergovernmental Commission was established by the British and French governments to manage operation of the Chunnel, including regulatory enforcement on environmental and safety issues.

Overall, key lessons were learned from the process of developing the tunnel — which is now considered a crucial connection

between the two countries — particularly regarding coordination between the public and private sector, and the need for objectives to be defined early.  

The GLSLR already has some perspective on this experience, as Ontario public-sector pension plans for municipal employees and teachers invested more than £2 billion in the Channel Tunnel Rail Link.  

**OBSERVATIONS**

Cross-border infrastructure planning and projects are naturally more complex than if undertaken in just one jurisdiction. When these projects use alternative procurement and private financing mechanisms, the complexity only grows. However, the Great Lakes and St. Lawrence Region has some experience with cross-border projects and a short review of certain efforts and examples from other jurisdictions reveal important lessons. The recipe for success includes:

» Coordinating intergovernmental and inter-jurisdictional mechanisms at the beginning of the process. This usually should take the form of an official planning group with representatives from all jurisdictions with as much delegated decision-making authority as reasonably possible.

» Aligning processes — such as planning, approvals, procurement and environmental assessments — to the greatest extent possible.

» Developing model agreements through the adoption of standard legal, financial, administrative, contractual and other processes reduces costs and increases competition by reducing risk. Centralized procurement also becomes more plausible with standardized processes.

» Pooling resources for operations and maintenance, where possible.

» Ensuring clear leadership and accountability, as well as agreement amongst leaders at an early stage about how to confront and overcome opposition that may arise in a coordinated manner.

» Aligning stakeholders, particularly private-sector stakeholders on both sides of the border regarding objectives and priorities, to move processes and projects along when obstacles are encountered.

» Focusing on specific projects that deliver tangible community benefits to identifiable interests on both sides of the border, such as job training, sustained employment, complementary social infrastructure and enhanced productivity.  

» Minimizing opposition by incorporating at an early stage perspectives that reflect the interests of labour, business and civil society groups, including environmental organizations.

» Capitalizing an entity between two jurisdictions which will undertake financing or planning, when possible.

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55 Anbari, p. 4-6.

An emerging model that should also be taken into consideration is the West Coast Infrastructure Exchange (WCX). The WCX is an independent, non-profit mechanism that provides opportunities for three states (California, Oregon and Washington) and one province (British Columbia) to work together to tackle shared infrastructure challenges. It is still in its early stages, but shows signs of future potential in its efforts to coordinate regionally on innovative financing mechanisms and private sector investment opportunities for public infrastructure. A particular benefit of the approach is its independence from individual governments, which allows it to pursue agendas or projects even if they are not aligned with a particular jurisdictional interest at any one time.58 The WCX is considered a useful forum for investors to prioritize projects, bundle small projects into more cost-efficient offerings, and coordinate funding, processes and approvals across multiple projects and jurisdictions.59

The WCX is one of a handful of infrastructure exchanges that have developed to provide opportunities for greater regional collaboration on planning and procurement and may be a model for a similar Exchange in the Great Lakes and St. Lawrence Region.

SECTION IV

Alternative Financing and Procurement Mechanisms for Infrastructure Investment
Alternative mechanisms to financing and procuring infrastructure have the potential to be an important part of facilitating renewal in the Great Lakes and St. Lawrence Region. This section reviews the most promising models, as well as their experience and applicability to the region. It also assesses whether these models would fill a real and pressing need in the GLSLR.

Any major civil infrastructure project depends on the fiscal capacity to build, as well as the financial capacity to maintain and operate the asset once it is completed. Another important element of large, complex capital projects is the management of project risk. Different financing tools and risk-management solutions are available. In practice, they are an integrated part of any financing arrangement.

Our evaluation of various financing mechanisms will look at each through the lens of four criteria:

- Which mechanisms are sufficiently established, and well-designed to be deployed quickly to build new infrastructure?
- Is the mechanism well-suited to being used at a regional level across sub-national and trans-national borders?
- Is the financing mechanism efficient and effective from a fiscal, risk and policy standpoint?
- Can the approach contribute meaningfully to sustainable economic development in the region?

In addition to these criteria, as indicated above, it is useful to consider at least five big questions that financing mechanisms should also address if they are to be successfully used to build new infrastructure.

**What are the risks and how can they be managed?**

In undertaking any major infrastructure project, there are a number of risks. Some main ones include:

- **Project risks** associated with defining the scope appropriately or correctly estimating the volume of use or the revenues that could be earned.
- **Technical issues**, such as engineering, project design costs, construction conditions or the need to contain post-construction operating and maintenance costs.
- **Business risks**, such as not completing the project within the budget and/or without unnecessary delay.
- **Political risks** when projects are over-budget and/or overdue, reflecting poorly on the government’s management ability and, of course, the risks arising from changes in policy direction and intervening elections.

Any of these factors, or elements of several of them, may cause public authorities to seek to avoid or manage risks and opportunities to share or transfer these risks to others.60

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How can the privileged borrowing power and sovereign status of government be leveraged?

In some situations, the appeal of alternative forms of financing or procurement is the ability to move infrastructure investments “off the books” of a public authority, so that the investment does not affect the debt or deficit position of the public authority. In other instances, the justification for alternative financing and procurement models is to find investment capital beyond the constrained capital budgets of public authorities. This helps to achieve cost-certainty, meet completion deadlines, stay within scope or seek greater efficiency and innovation in infrastructure design and performance. As an alternative to using their budgets or their tax codes, deficit-sensitive governments can use their balance sheets if their overall fiscal position is strong. Governments can use their credit status (and in the case of national governments, their sovereign authority) to borrow at low rates and to finance projects over long periods of time for very low up-front costs.

Many alternative procurement models, notably those in Canada, require private financing. However, some jurisdictions substitute a similarly performing risk incentive for the private party by placing private-sector revenues or other forms of compensation at risk, in order to use more price-competitive financing from government-secured borrowing. This can include loan guarantees or insurance/indemnification on investments, in order to make projects more attractive to investors. This approach may also include loans that could be repaid at very low rates over long periods of time, or where principal payments are deferred, or even written-off when performance objectives have been met.61

Some of the financing mechanisms that we discuss can be assessed on the basis of how well they take advantage of a government’s status as a sovereign or very secure lender and borrower. Contract terms that guarantee annual or regular “availability payments” from governments may be seen by private lenders as being similar to a “government covenant” and be used by infrastructure builders and operators to secure private financing at much more competitive rates.

What role do pension funds and other long-term funds play in infrastructure investment?

Many large public pension funds want to obtain a greater stake in infrastructure

61 Building American Transportation Infrastructure through Innovative Funding: Hearing before the Committee on Commerce, Science, and Transportation. 112th Congress, First Session. July 20, 2011; The Miami tunnel project was not without its problems but the end product is a good example of proof-of-concept for using government borrowing and lending power strategically. Testimony of Polly Trottenberg, U.S. Senate Committee on Commerce, Science and Transportation hearing on Building American Transportation Infrastructure through Innovative Funding. July 20, 2011.
because infrastructure-generated net revenues closely track the liabilities and long-term payment obligations of pension funds. In fact, some of the world’s largest investors in infrastructure are pension fund investment pools based in the GLSLR. These funds choose to invest around the world but, with the exception of a small number of major energy projects, have found few opportunities to invest in GLSLR infrastructure. The Organisation for Economic Co-operation and Development noted that pooled infrastructure investments by pension funds lower investment costs, but pension funds prefer large-scale investments in infrastructure and neglect smaller projects (i.e., less than $100 million). Funding infrastructure on a regional basis might change this calculus.


What advantages accrue from centralized procurement or the ability to bundle smaller projects?

Centrally-managed capital procurement — using value-for-money analysis and P3 construction and financing methodologies — has been used for nearly a decade in Ontario (through its procurement agency Infrastructure Ontario), as well as in other jurisdictions. The model has consistently produced results that are fiscally, operationally and politically defensible, in the eyes of successive Ontario governments and private-sector P3 partners, although like most innovations, it has its critics. Central procurement allows for the accumulation of expertise, takes advantage of economies of scale and develops standardized processes and contracts.

A regional lens has the potential to provide an opportunity to bundle small, similar types of projects which also achieve economies of scale, as the informal threshold for investment from the private sector is $100 million. In the case of some small projects, this means that work can be commissioned that otherwise would not be undertaken. While there have been successes with such a mechanism and there is the opportunity to customize terms and conditions, there is some criticism surrounding this process as well.


Can alternative financing mechanisms be used to accelerate a process of asset recycling — that is, disposing of legacy assets and investing the proceeds into new ones?

Australia has adopted a formal policy of public asset recycling, establishing a framework through which it partly or fully sells legacy or non-core public infrastructure assets and public enterprises (or awards concessions or very long-term leases). Under an asset-recycling policy, the proceeds from full or partial dispositions are then deposited to an infrastructure trust, infrastructure bank, capital reserve or other financing mechanism to support new infrastructure investment. Asset recycling is employed at each phase in the lifecycle of an asset. It favours acquiring, financing, managing and operating public assets using a P3 model. It creates a pipeline of legacy infrastructure as divestment candidates which can be used to meet new infrastructure priorities.

In this historically low-interest-rate environment, with enhanced leverage and capital investment potential for private investors, the value of public assets in North America will likely never be greater and never more able to unlock new investments and value. A formal process of asset recycling has not yet been adopted in any jurisdiction in the Great Lakes and St. Lawrence Region, although Ontario is applying this approach to some of its asset sales and investments, while some states have explored the concept for transportation projects.

Key models for financing infrastructure

There are a wide range of options available to build public infrastructure, including several alternative financing tools and models. The major categories that are most relevant for consideration in the GLSLR include:

I. Tax-incentive measures
II. Socially responsible investing
III. Arms-length funding and financing mechanisms
IV. Private role in public procurement

In the charts that follow, the degree of congruence with each of the four criteria is


67 Procurement methods that attract private capital and management expertise can be located on a continuum ranging from: (a) a major private role in building and managing a government asset; through (b) a variety of risk-sharing public-private partnership models to build, finance and operate; and ultimately to (c) a full or long-term transfer of a public asset to private hands, typically with some regulatory oversight (e.g., outright sale or divestiture, privatization).
suggested, represented by check marks ranging from zero (indifferent) to three (strong). Given the range of individual projects and their unique conditions, such an evaluation can only be approximate and, inevitably, somewhat subjective. However, these evaluations do allow an easier comparison of the features of the various models and how they might perform in the GLSLR context.

I. TAX-INCENTIVE MEASURES

Six tools were identified for infrastructure funding and financing under tax-incentive measures.

DESCRIPTIONS

Conventional tax-exempt bonds are tax-expenditure mechanisms that were originally aimed at providing an investment incentive to those who might not otherwise consider investing in non-sovereign government debt. Exempt from income and dividend taxation, these bonds have been used in the United States to fund municipal-type activities (both capital and, in some instances, operating deficits or pension obligations) and have contributed to a robust tax-exempt municipal bond market.

Hybrid tax-loan-grant regimes all have common features. Generally, the federal government in the United States offers incentives to invest in infrastructure through grants, tax-exempt designations for financing instruments, and loan guarantees. However, they are administered by a range of federal authorities and with legislative and program provisions that require careful navigation and reconciliation, especially if there is an effort to “stack” the various programs in a way that will afford maximum benefits to both local or state authorities and to private-sector investors, builders and operators.

Tax-exempt private activity bonds (PAB) were initially used in the United States to widen the benefit of tax-exempt municipal bonds to those in the private sector undertaking projects on behalf of public-sector entities. At first, the best candidates were waterworks projects, ports and public airports, which were made more viable to the private sector by having a dedicated revenue stream from rates or fees. This subsequently expanded to other areas through mechanisms such as the Transportation Infrastructure Finance and Innovation Act (TIFIA), the Water Infrastructure Finance and Innovation Act (WIFIA) and Railroad Rehabilitation and Improvement Financing (RRIF).

The next three measures allow public authorities to encourage the creation of property value by installing public infrastructure, often in depressed areas or to revitalize unused industrial sites, and then funding the infrastructure by appropriating a share of the enhanced value and revenues it produces for enterprises

68 For example: TIFIA structure was successfully implement-
ed for the Port of Miami tunnel project. William A. Galston
and Korin Davis, “Setting Priorities, Meeting Needs: The Case
for a National Infrastructure Bank,” The Brookings Institu-
media/Research/Files/Papers/2012/12/13-infrastructure-
that locate to the area. Through tax-increment financing, the increased realty taxes associated with higher property value are earmarked to finance (or reimburse) new infrastructure investment for a limited period, rather than being used for general government purposes. Under land-value capture schemes, the public authority assesses higher taxes or imposes supplementary development charges on properties and businesses made more valuable by the installation of new public infrastructure. With special benefit area levies, property owners on or near certain types of new municipal infrastructure — such as potable water lines, sanitary sewers, storm-water drains — pay higher property tax and/or water or sewer rates based on water consumption.

Under a joint venture shared risk/reward financing model, public sector and private sector parties jointly develop a project which has both public and private benefits. An interesting model, with implications for urban core redevelopment and to re-engineer suburban and ex-urban communities in the GLSLR, is Madrid’s joint-venture gateway mobility hubs, known as “intercambiadores.”

69 Madrid’s experience builds on the great success of Hong Kong’s MTR, with redevelopment around transit terminals. At some major Madrid regional transportation terminals, a development corporation is created, owned jointly by public and private authorities. Through this enterprise, the public and private parties share the commercial risks of building major infrastructure around a transit hub by creating ancillary commercial activity — including retail, offices, residential, and parking. The structure (usually a concession from the regional government) provides mutually-reinforcing incentives to make both the transportation uses and the commercial uses successful from a customer and financial viewpoint. The public sector receives initial private contributions towards the capital cost and also uses the net profits to fund the carrying cost of its infrastructure investments and operating costs are covered from ongoing net revenues. Michael Fenn, “UK/Madrid Study Tour: CEO Report 08-003 to the Board of Metrolinx,” Metrolinx. January 25, 2008. http://www.metrolinx.com/en/docs/pdf/board_agenda/20080124/CEO_08-003_UK_Madrid_Stu...
ADVANTAGES

Hybrid tax-loan-grant regimes and special-area/property-developer levies are potentially beneficial mechanisms for public authorities to improve the leverage and efficiency of public investments. Wide-mandate development corporations and tools using the principle of land value capture are also promising options. Land-value capture could be a particularly valuable tool for infrastructure investment in the GLSLR, as it links economic performance with public demands for infrastructure. It is also an area where inter-jurisdictional consultation across the GLSLR could produce a model that would be suitable for many GLSLR jurisdictions, particularly at the city and metropolitan level. However, it has only been used so far on a limited basis within the GLSLR.70

LIMITATIONS

The most popular devices — tax-exempt bonds and tax-increment financing — do not perform as well as alternative tax-incentive measures. Perhaps because they are well established, they offer the least potential to benefit from a region-wide approach or exchange of expertise. While tax-exempt status may be useful to local jurisdictions for smaller projects, these tools are arguably tax-inefficient for national governments. There are also fiscal and tax equity shortcomings to these instruments. Tax-increment financing was found to be limited because the level of additional, infrastructure-related tax revenue is insufficient to fund most major infrastructure projects for the area being served. Only in jurisdictions with very high property tax yields, such as New York City or Hong Kong, would incremental tax yields fund expensive new infrastructure, like rapid transit.

Land-value capture, on the other hand, aims to share the increase in property values, which can be significant. However, with protracted public decision-making and environmental assessment processes, we can lose the opportunity to tie sharing of increased property and business values to infrastructure investment decisions, which typically comes through intervening early or making the investments contingent on contributions. The vast Crossrail transit project in London — and, on a much more modest scale, Detroit’s M1 transit line — attempted to overcome this shortcoming through advanced and ongoing commitments from venture stakeholders. Overall, it has proved difficult in the GLSLR to translate this attractive theory into practical application.

II. SOCALLY RESPONSIBLE INVESTING (SRI)

Two tools were identified for supporting infrastructure through Socially Responsible Investing.

DESCRIPTIONS

Green bonds are debt instruments dedicated to building or refurbishing environmentally-beneficial infrastructure.

70 An example is New York City’s Line 7, which is essentially a TIF scheme involving reimbursement for a subway line and station designed to enable the vast US$20 billion Hudson Yards project, a massive investment by an Ontario-based municipal pension fund and other real estate investors.
and environmentally-friendly infrastructure projects through green bonds.73

In general, green bonds have a high potential for inter-jurisdictional collaboration. More broadly, there is a potential opportunity for the GLSLR to create a viable market for these and related debt instruments, playing the role of independent verifier of complex investment vehicles by drawing on the expertise of agencies throughout the region.

LIMITATIONS

The value of SRI instruments in generating new infrastructure investments is dependent on creating a critical mass of activity. It would need a marketplace for trading these instruments that is standardized and reliably meets investors’ SRI obligations with a minimum of due diligence. The crossover between policy objectives and monetizing policy results in the complex fields of fiscal policy and public policy can also be difficult, with concerns that some initiatives have essentially become marketing devices for grant programs or debt instruments (“greenwashing”).


III. ARM’S-LENGTH FUNDING AND FINANCING MECHANISMS

Three key mechanisms were identified to finance infrastructure through arms-length bodies.

DESCRIPTIONS

Infrastructure banks and infrastructure trusts are typically created by national or state/provincial governments (although Chicago, for instance, is a city with an infrastructure bank) to provide dedicated pools of capital to fund and finance approved infrastructure projects.

**Infrastructure banks** generally fund or finance transportation or other types of infrastructure projects within its scope, which it has reviewed and approved. Infrastructure banks have already been established across the northeastern and mid-western states. Some exist largely as legal frameworks, while others are endowed with significant capital funds and autonomous status. Some infrastructure banks are primarily devoted to a government’s transportation infrastructure programs, while others enjoy a broader mandate.

**Infrastructure trusts** provide dedicated funds beyond government control or through earmarked funding sources. These mechanisms provide eligible recipients with a substantial amount of the initial construction cost of an infrastructure project.

**Central procurement agencies** may have an exclusive or priority right to tender government projects and to require specific models of P3 financing or value-for-money analysis. In the United States, a related objective has been to remove infrastructure debt or funding obligations from the public authority’s balance sheet or from inclusion in the calculation of a public authority’s annual deficit. Typically, procurement and financing authorities are financial and deal-making entities, with planning and priority-setting undertaken elsewhere in government. There are a number of examples in Canada, where six of the ten provinces and three territories, as well as the federal government, have specialized agencies in place to support P3 procurements.

**TABLE 5: ARM’S-LENGTH FUNDING AND FINANCING MECHANISMS**

<table>
<thead>
<tr>
<th>Method</th>
<th>Potential for accelerating infrastructure investment</th>
<th>Potential for inter-jurisdictional collaboration</th>
<th>Fiscal efficiency and effectiveness</th>
<th>Sustained broader economic benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure banks</td>
<td>✓✓</td>
<td>✓✓✓✓</td>
<td>✓✓</td>
<td>✓</td>
</tr>
<tr>
<td>Infrastructure trusts</td>
<td>✓✓</td>
<td>✓✓✓</td>
<td>✓✓</td>
<td>✓</td>
</tr>
<tr>
<td>Central procurement and financing agencies</td>
<td>✓✓</td>
<td>✓✓✓</td>
<td>✓✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
ADVANTAGES

All three of these mechanisms provide significant opportunities for regional collaboration. Infrastructure banks are already established entities in the GLSLR. For example, in Ohio, the State Infrastructure Bank is funded exclusively by the state and pursues objectives defined by state law. There have been calls for national infrastructure banks in both the United States and Canada. In Canada, the new federal government has announced its intent to establish a “Canada Infrastructure Bank,” which would leverage the federal government’s credit to provide low-cost financing for new infrastructure projects and improve affordability for municipal governments.

A regional infrastructure bank across the GLSLR could serve as a repository for the proceeds of capital dispositions, and a source for funding projects within those same jurisdictions, with terms that preserve the sovereignty and policy choices of individual states and provinces. Of equal importance, especially for jurisdictions concerned about balancing budgets and reducing reliance on public debt, is the potential for a regional infrastructure bank to act as guarantor for the jurisdictions collectively.

On the Canadian side of the GLSLR, Infrastructure Ontario — which functions as a central procurement agency — has used its AFP model to bring a total of 76 projects to market with a capital value of approximately C$39 billion. In addition to managing specific risks in individual projects, a central procurement agency makes two other contributions to reduce project risk. Its rigorous value-for-money evaluation excludes projects not suitable for private-sector involvement or that would not derive sufficient financial or operational benefit, as well as leading to cooperative procurement and financing ventures on small but similar infrastructure projects. Additionally, a central procurement authority standardizes procurement procedures and documents them in such areas as financing, contract legal terms and dispute resolution, which reduces entry barriers for bidders on infrastructure projects.

A region-wide procurement collaborative, with responsibility for standardizing documents and conditions, and independently evaluating P3 candidates and financing structures, could serve the interests of individual jurisdictions. Many GLSLR jurisdictions have neither the resources nor the expertise to develop such terms and standards, nor to evaluate compliance. A regional procurement “opt-in, opt-out” cooperative authority or a regional infrastructure bank could also act as a disinterested, arm’s length custodian and manager of specific-purpose


or general-purpose infrastructure trusts, removing state and provincial governments from playing that difficult role. The great investment performance success of the big Canadian pension plans, particularly in infrastructure and real estate, is widely attributed to those plans being insulated from politics and sporadic public policy directives, and functioning primarily as patient investors.

LIMITATIONS

Despite the establishment of infrastructure banks in several jurisdictions, many of these entities are too closely intertwined with political decision-making and annual state and provincial budgets to act in an arm’s length and disinterested fashion. Meanwhile, infrastructure trusts may allocate and insulate funding for infrastructure, but there is no guarantee of on-time, on-budget delivery or appropriate priority-setting.

There have also been criticisms that the accounting and audit criteria for trusts are not being met through existing mechanisms, or that the trusts are not sustainable from established sources of funding (e.g., the solvency of U.S. Federal Highway Trust Fund with inadequate fuel-tax revenues). One of the ways in which these intra-jurisdictional problems might be overcome is by placing more of the responsibility for setting standards, qualifying projects and ensuring solvency at the regional level. An inter-related network of disinterested institutions and standard-setting bodies could serve to marshal resources and standardize approaches to the planning, funding and financing of infrastructure. These mechanisms could be structured as a single GLSLR entity, or if cross-border jurisdictional issues presented obstacles, there could be two mirror-image entities for the U.S. and Canada.

IV. PRIVATE ROLE IN PUBLIC INFRASTRUCTURE

Five key mechanisms were identified to procure infrastructure with the involvement of private entities. The option of full privatization is also discussed. It lies outside the scope of public-private partnerships but has been used around the world when a government wants to sell its stake in an asset or service.

DESCRIPTIONS

Broadly, private sector partners can play a range of roles in public infrastructure projects involving varying levels of risk — from minor to major involvement (see Figure 1).

The following two models follow more traditional approaches to public infrastructure development involving private partners. In a conventional design-bid-build procurement, a public authority issues detailed design specifications. The successful private sector bidder builds the project for a stated price or for an approved time-cost and materials. It is financed by a public authority, through taxation or rates (debt and debt-service or capital grants). Projects begin with an estimated but unknown tender-price budget. They carry higher risks of delayed delivery and in-process change-orders, which add to cost and delay, and they are vulnerable to
The cost of private financing exceeds the government’s cost of borrowing, but savings occur due to reductions in costly change orders, financial incentives for innovation in design, and financial pressure on the private sector to complete the job on time. Risks associated with construction are also transferred to the private sector. However, there can be limitations in certain asset classes, particularly its short-term nature compared to other models.

The **design-build-finance-maintain** model is similar to the design-build-finance model, but with a contractual obligation to maintain the infrastructure over time — generally a 30-year period. This creates incentives for the private sector to build and supply infrastructure with high rates of reliability and operational cost-efficiency. It also promotes appropriate asset-maintenance

### TABLE 6: PRIVATE ROLE IN PUBLIC INFRASTRUCTURE

<table>
<thead>
<tr>
<th>Method</th>
<th>Potential for accelerating infrastructure investment</th>
<th>Potential for inter-jurisdictional collaboration</th>
<th>Fiscal efficiency and effectiveness</th>
<th>Sustained broader economic benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional Design-Bid-Build (DBB)</td>
<td>-</td>
<td>✓ ✓</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Design-Build (DB)</td>
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<td>✓ ✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Design-Build-Finance (DBF)</td>
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<td>✓ ✓ ✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Design-Build-Finance-Maintain (DBFM)</td>
<td>✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Design-Build-Finance-Operate-Maintain (DBFOM)</td>
<td>✓ ✓</td>
<td>✓ ✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Privatization</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>
practices, typically underfunded by public authorities facing budget constraints. The **design-build-finance-operate-maintain** model is similar to the design-build-finance-maintain model, but gives the successful bidder the responsibility for operating the infrastructure and delivering the related services and programs. The public sector specifies a facility’s main features and sets its overall program standards (e.g., equity of access, program pricing conditions/approvals, etc.).

Lastly, **privatization**, which falls outside the spectrum of public-private partnerships, is the full transfer of an asset or service from the public sector to the private sector. It is included here to highlight that selling a service or asset to the private sector, with or without ongoing regulation, is often an alternative that is debated and weighed against the benefits of other options. The full transfer of an asset or function can lead to new revenue or reduced operations and maintenance commitments that can be applied to other public infrastructure priorities.

In general, certain types of projects have been more likely to involve private partners. For instance, a 2013 review of infrastructure in the United States found that private involvement was particularly beneficial for improving the country’s rail and bridges.76 In Canada, P3 projects with the private

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sector have concentrated on new roads, bridges, hospitals, schools and public places like municipal buildings and courthouses, although sectors such as water, wastewater, public transit and telecommunications have recently become more active in the P3 market. Case studies on specific projects using P3 models in the United States and Canada can be found in Appendix II.

**ADVANTAGES**

There is considerable potential for P3s in the GLSLR, overall and from a regional perspective. In general, key benefits that have been identified include:

» Combining design, build, finance, operation and maintenance obligations transfers the maximum risk to the private sector and amortizes costs more reasonably over the life cycle of an asset, but also gives the private sector greater scope to offset risk impacts among those categories.

» Encouraging innovation in design can and does translate into better prices and/or better long-term performance (especially in the latter case, if the builder becomes responsible for ongoing operation and maintenance).

» Clear expectations (and penalties) are set for on-time, on-budget and high-quality project completion.

» Encouraging a bidders’ consortium structure ensures that there is capital at-risk by all parties, which provides an incentive for compliant operations and allows for deductions to monthly service payments for non-compliance.

» Providing important incentives to design-in efficiency, quality and timely targeted maintenance in a manner that is unlikely to happen in conventional tendering and construction.

Additionally, a well-performing piece of public infrastructure, especially with either a proven track record (reducing patronage risk) or with a predictable revenue stream, holds considerable interest for patient investors, such as pension funds, whose benefit-payment liabilities often closely parallel infrastructure returns.

Among the key issues in any discussion about managing a long-term performance-based contract involving private partners is the degree to which government will continue to be involved, whether through contract obligations or regulatory control of issues such as fees for the use of the infrastructure (water rates, tolls, passenger fares, energy rates).

There are key differences in the various models including the degree of private sector involvement and approaches to paying back private sector investments. For instance, in the DBFM and DBFOM models, the private sector is paid back over time, typically with availability payments sourced from infrastructure operations or by government. Since the operators are subject to deductions for non-performance for the duration of the concession, it likewise puts private capital at risk over the full operating

period. The structure of some P3s and other innovative financing structures may also afford states, provinces and municipalities, and their federal partners, the opportunity to use loan guarantees or principal-deferred loans to leverage public funds in a way that makes projects more viable for construction firms and infrastructure investors.

Overall, all models benefit from a standardized procurement approach and a predictable risk-transfer and regulatory environment. Specific projects may perform well under different base conditions and other assumptions.

Privatization also offers potential benefits, such as in cases where funds from privatizing a public asset are used to finance other important infrastructure initiatives.

In the GLSLR, certain jurisdictions have proven experience with P3s. Using a DBFM model, Pennsylvania finalized arrangements in 2015 on the largest private activity bond (PAB) project in U.S. history (US$721 million), with the biggest road-building project in the state’s history (558 bridges in 36 months). In Ontario, the Herb Gray Parkway was the first transportation project delivered through Ontario’s alternative financing model and is one of the largest highway infrastructure projects in the province. The DBFM project valued at C$1.4 billion is part of the Detroit River International Crossing plan. The final stretch of the project opened to traffic in November 2015.

**LIMITATIONS**

Inherently, conventional design-build models have less potential for cost-saving and innovation than alternative non-traditional options. This is partly because their scope is narrow, the specifications are rigid and largely predetermined, and the disincentives for cost-control and avoiding change-orders and scope-creep are fewer.

While there are many identified benefits and successes involving P3s, challenges still remain. For instance, concerns have been raised in Canada about the potential for cost overruns and the lack of transparency in infrastructure projects involving P3 models. Despite these criticisms, results have generally been impressive, with one assessment noting that the majority of 45 infrastructure projects developed through alternative financing models in Ontario were completed on-budget and on-time. In the United States, there are many notable examples of successful P3 projects, but progress has been slow — partly due to perceptions that private-sector institutions will profit to the detriment of the public. Indeed, some states still lack authorizing

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legislation to pursue P3s, though most in the GLSLR are able to use P3s to pursue infrastructure development.

Privatization also has limitations, as its value is influenced by whether the infrastructure will continue to enjoy preferential tax or subsidy arrangements. The groundbreaking and largely successful 407 electronic toll road (ETR) project produced some tough lessons for successive Ontario governments.82 The impact of private operators increasing tolls to the dissatisfaction of the public is one of many examples that has fueled an ongoing debate in Canada about the value of transferring revenue risk to the private sector. In other instances though, the value of assets sold by a public authority has risen. Risks can also fall on the private sector if it misjudges the value and economic opportunities of an asset, as the initial privatization of the Indiana East-West Toll Road demonstrated.83

Overall, the degree of risk in projects involving private partners can vary based on the scope of the project, such as whether it is a new construction project, as well as the type of mechanism for payment. Ultimately, the focus should be on selecting the right infrastructure candidates, ensuring that the negotiations are conducted in a competent and objective fashion and, above all, that the terms reflect the hard-won lessons of experience around the GLSLR and beyond.

In the end, our conclusion is that the value of a P3 project or program depends largely on the context and the terms negotiated, which is why governments must subject potential P3 projects to a rigorous screening process to ensure they provide the best public value to taxpayers. When P3s work, it is because they have successfully engaged the expertise and innovation of the private sector and the discipline and incentives of capital markets.

SECTION V
Recommendations
There is clearly value in mobilizing alternative financing mechanisms in the Great Lakes and St. Lawrence Region to respond to the need for infrastructure renewal. Is closer cross-border collaboration part of the solution to the challenges facing jurisdictions within the region? This paper has concluded that it could have major benefits.

However, it is critical to overcome the identified obstacles to closer regional collaboration on infrastructure renewal and alternative financing. Planning does not take place at the regional level, regulatory regimes differ, financing rules are not aligned and the self-awareness necessary to think and act at the regional level is not at all present. These all undermine a collective ability to undertake significant, integrated infrastructure renewal in the region to support its economic, social and environmental sustainability. But concerted regional action on infrastructure would yield benefits across the GLSLR.

As a starting point, learning from one another about the successful ways to plan and set priorities for infrastructure, and to deploy new innovative financing mechanisms, would deliver benefits to public, private and civil society interests on both sides of the border. A regular, senior-level forum to address infrastructure planning and project issues that cross boundaries and work through problems would be beneficial. With a longer-term goal of widespread joint and coordinated planning for infrastructure across the Great Lakes and St. Lawrence Region, we can begin with modest initiatives. More information sharing is possible, as is closer alignment on planning and regulations.

It is also possible to achieve closer collaboration on individual projects that have cross-border implications, learning from the lessons of efforts such as the Detroit River International Crossing. The promise of innovative financing mechanisms to accelerate these processes and to make projects more affordable to local taxpayers makes it all the more likely that regional collaboration could be realistic and successful.

The top recommendations that have emerged from this study are outlined below. It should be noted that they are not a package and some could move ahead more quickly than others.

**Establish a Great Lakes and St. Lawrence Region Infrastructure Exchange**

The Great Lakes and St. Lawrence Region is just beginning to establish a forum for discussing issues of shared regional interest through the Council of the Great Lakes Region (CGLR) and its annual Great Lakes Economic Forum. Even as these mature, there is still a need for more regular opportunities to discuss, learn, market and structure emerging infrastructure projects and the available financing mechanisms that could get them built. Thus, there is a solid case for developing a regional Infrastructure Exchange, similar to the one evolving in the U.S. Pacific.
CONCERTED REGIONAL ACTION ON INFRASTRUCTURE WOULD YIELD BENEFITS ACROSS THE GLSLR.

Northwest (and British Columbia) and as proposed for the Mid-Atlantic States. Indeed, an Exchange could promote a more coherent approach to the use of some of the discussed innovative financing mechanisms, such as green bonds.

A **Great Lakes and St. Lawrence Region Infrastructure Exchange** (GLSLRIE), which could be established by CGLR in partnership with the Great Lakes Legislative Caucus of the Council of State Governments, the Great Lakes and St. Lawrence Cities Initiative and the Conference of Great Lakes and St. Lawrence Governors and Premiers, would serve as a source of expertise, advocacy, networking and information-sharing — as well as acting as an inventory of projects and experts. It would promote the regional market for financing of infrastructure projects and products. As it develops, it could help accelerate best concepts, practices and approaches, and eventually prioritize various projects and deals. It could also take on additional roles, as will be discussed below in other recommendations.

A GLSLRIE should include independent governance and include representation from provincial, state, municipal, federal and Aboriginal governments. It should also include participation from financial services, insurance industries, the legal and civil engineering professions, urban planners, pension funds and other pools of investment capital, the construction industry, organized labour, and public interest and environmental groups. A well-designed Exchange would strengthen the power of individual jurisdictions and allow them to more properly implement their plans.

One of the biggest challenges in alternative financing efforts in many jurisdictions is opposition from public interest groups, environmental organizations or organized labour. Sometimes these concerns have weight and considerable merit; but often these groups raise legitimate concerns that can be addressed through obligations on contracting, fair wages, environmental guarantees, governance structures or community benefit agreements. A GLSLRIE would be a forum for networking, identifying concerns, and establishing best practices and model agreements that respond to legitimate citizens’ concerns, but also offer an evidence-based bulwark against local- or special-interest opposition that threaten infrastructure measures with broad public benefit.

As an arm’s-length third party, the new **Great Lakes and St. Lawrence Region Infrastructure Exchange** operating under CGLR could also potentially conduct independent assessments of projects and financing models from the perspective of public interest and public value. While individual firms undertake their own assessments of what went well and what did not on any project, the evaluation of projects from a public value perspective is often
overlooked — or takes place within a charged political environment. The GLSLRIE could fill an important gap by conducting evaluations of projects once they are complete, along with formulating recommendations on how to extract maximum value and minimize risk for the public.

**Move toward Standardization of Innovative Procurement Models across the GLSLR**

Standardization or harmonization on just about any issue is likely to be challenging across the 10 jurisdictions of the GLSLR. But moving towards greater alignment and common practice is possible. This process would not only take advantage of best models, it would also decrease transaction costs for all parties as they begin to use standardized approaches with fewer jurisdictional idiosyncrasies.

In several GLSLR jurisdictions, procurement agencies have a thorough process for undertaking value-for-money project analysis and for assessing and allocating risk (financial, market patronage, engineering, liability, etc.). If these protocols (and proprietary models) could be reconciled and used on a consistent basis across the GLSLR, it would simplify the process for soliciting bids for P3 projects and sharpen competition, reducing both the transaction costs and risk-premiums currently incorporated into bidders’ prices.

It is possible that this evolution toward standardizing best practices could be led by the GLSLRIE. Since the Exchange would be a cooperative, rather than a decision-making body, important local factors can be included in the planning on behalf of individual jurisdictions. Decisions can be designed into a cooperative procurement and financing framework, even across political jurisdictions, such as priorities for individual projects, provisions to ensure competitive availability of work among suppliers and construction firms, protection of local trade-union jurisdiction and provisions for minority hiring/contracting.

Ongoing assessments and continuous improvement in project management and deal structure from a public interest perspective would help catalogue lessons for financing infrastructure. It could also play an important communications role by providing the public with independent evaluations of projections and their public value.

**More Integrated Planning and Priority-Setting Across the Region**

It is not realistic to expect planning to occur on a consistent basis across jurisdictions and international borders, although some regions around the world are able to overcome local politics, competing stakeholders and differing interests to engage in planning on a consistent basis. However, these real challenges do not mean that no progress can be made on information-sharing and joint planning where possible.

As we documented in Section III, the region has experience with designing, building and maintaining large cross-border infrastructure.

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85 For example, regions in the EU, as noted in: “The Vital Commons,” p. 21-22.
projects. A host of large and small projects would benefit from some form of cross-border planning and integration, including: high-speed rail transportation; short-distance water-borne shipping and ports; telecommunications networks and provision for the advent of the “internet of things”; electrical, petroleum and natural gas distribution infrastructure; boundary-crossing infrastructure (bridges, tunnels, pipelines); airport strategies; and a host of infrastructure-related measures to mitigate the impact of severe weather events, climate-change impacts, and invasive species.

Many GLSLR jurisdictions have adopted Smart Growth planning principles or other priority-setting processes to guide their public policy and infrastructure decisions. There is obvious potential to expand the use of these mechanisms across the GLSLR to guide jurisdictions. The GLSLR has a long history of urban and community planning success, from Daniel Burnham’s Plan for Chicago to the Ontario government’s American Planning Association award-winning sustainable Growth Plan and Greenbelt. There is a wealth of experience within the GLSLR in building and revitalizing urban regions and their evolving economies. The Brookings Institution has been documenting the re-birth of regional metropolitan areas86 and the cities of the region have a great deal to learn from one another, given their similar historical trajectories, as they continue their path to urban renewal. Actions on one side of the border can have an impact on the other and sharing development plans and priorities could highlight opportunities for improved coordination that will deliver better outcomes. Subject-specific meetings and fora would be useful to accelerate this process.

Certification of Socially Responsible Investing and Other Classes of Investments

GLSLR jurisdictions can generate more momentum by working collaboratively to promote socially responsible investing through vehicles such as green bonds. These investment vehicles have the potential to attract both investor and political support for socially responsible public and private capital expenditures. There is a useful, related role for the GLSLR to lend support to these investment vehicles by verifying their integrity and sustainability,87 and by facilitating the creation of a market for them within the GLSLR.

The GLSLR can play a role in pooling expertise and facilitating arm’s-length evaluations of various infrastructure investment vehicles and programs. This might include applying the Global Impact Investing Rating System (GIIRS) and Impact Reporting and Investment Standards (IRIS) to eligible instruments/prospectuses. This could also include a process for designating projects as eligible for tax-exempt bond status, tax-increment financing, or PAB/TIFIA/WIFIA/RRIF financing.


CONCLUSION
While the Pacific Northwest cooperates closely across the Canada-U.S. border, this cooperation has not occurred historically in the Great Lakes and St. Lawrence Region. However, jurisdictions have increasingly shared interests as part of a post-rust-belt region competing globally with other economic regions. The GLSLR has a compelling value proposition — and the business case for investing in the GLSLR would be all the more compelling with modernized, sustainable, technologically-enabled infrastructure.

There are range of positive outcomes that could flow from a Great Lakes and St. Lawrence Region Infrastructure Exchange, including standardized practices, formal evaluation of projects, summaries of key lessons, bundling of projects, inventories of experts and expertise, along with recognized existing expertise, pools of capital and financial and asset management institutions. An Exchange could help situate the region as a key global hub for the alternative financing of infrastructure deals.

Many of our most pressing challenges are shared across communities on both sides of the border. Social exclusion, population aging, infrastructure failures due to weather events and digital opportunities can all be addressed by infrastructure renewal using alternative financing approaches. Individual jurisdictions will, of course, decide when and where they choose to cooperate regionally, but success will attract joiners, and potentially generate significant increases in the number, size and direction of collaborative initiatives.

Positioning the region as the heart of infrastructure renewal through innovative financing tools and by modelling best practices and agreements on new sustainable infrastructure would have benefits to communities across the Great Lakes and St. Lawrence Region. Achieving this goal will require leadership at the federal, state/provincial and local levels, as highlighted in the recent House of Representatives’ Transportation and Infrastructure Committee’s Report of the Panel on Public-Private Partnerships. Above all, it will require legislative leadership. As a first step, the creation of a Great Lakes and St. Lawrence Region Infrastructure Exchange, incubated within the existing structures of the Council of the Great Lakes Region, would advance this process and provide leadership to allow the work to begin.

The Great Lakes and St. Lawrence Region (GLSLR) offers significant market opportunities, and infrastructure will play a key role in its revitalization — especially at a time of increasing debt and tighter controls on operating budgets.

While manufacturing fell in the region amid the 2008 financial crisis, some observers suggest it may surge once again in GLSLR cities.89 Technology is expected to play a key role in such a resurgence. For instance, in Ontario, there are calls for the province to leverage its background in automobile manufacturing — which continues to be its leading export to states in the GLSLR — to support research and development of emerging transportation technologies such as automated and electric vehicles.90 Infrastructure is closely tied to advances in such technology. Other sectors that have grown in the region in recent years include education, health care and professional services while key exports are transportation equipment, machinery, agricultural and food products, metals and chemicals.91

On the U.S. side of the Great Lakes, growth in sectors such as energy, health care, advanced manufacturing and global trade may overshadow resurgent legacy industrial sectors such as automotive and natural resources by 2023.92 Energy is considered to be a sector with high potential for infrastructure development in both Canadian and American parts of the GLSLR, including for clean and renewable energy providers in light of concerns about environmental emissions.93

Infrastructure renewal presents significant opportunities in particular for Canadian and American businesses involved in public-private partnerships — project management, financial services, engineering, accounting, construction, legal services, architects, etc. In terms of projects, the greatest potential for private sector involvement in modernizing the region’s public assets will likely be where it exists today — principally, the renewal of roads and bridges, drinking water, wastewater and storm water systems, energy production and distribution networks, ports and waterways, government buildings, hospitals, and post-secondary institutions.

These opportunities could be amplified. For example, a recent report noted that major “megatrends” could affect both the economy and infrastructure renewal in the foreseeable future. In particular, the accelerating pace of technological change will have a major impact on the next generation of infrastructure, affecting sectors such as transportation, health care and energy. Infrastructure will become more adaptable, convergent, integrated and flexible to cope with developments ranging from automated vehicles and high-speed trains, to new models for delivering health care, education, municipal services, telecommunications, and energy. The innovation needed to meet these challenges opens new, global market opportunities for the region’s economy.

Failure to understand these trends and make the required infrastructure investments — locally, regionally and nationally, will not only cause significant drag on economic growth in the U.S. and Canada, it will position both countries further behind major competitors in the global economy.

94 Fenn, September 2015.
95 Fenn, September 2015.
APPENDIX II
Case Study:
Elgin County Courthouse, Ontario

Known as the “gem of St. Thomas,” the historic Elgin County Courthouse is a striking structure in a parkland setting near the city centre. It was constructed in 1853 to house courts and government offices for the newly formed Elgin County. The historic courthouse was one of the first of fourteen courthouses built in Ontario in the mid-19th century, and was a prominent example of the combined courthouse, jail and county buildings erected by communities before Confederation, which, at the time, they were required to do to achieve full county status.

This historic building was the centerpiece for the new Elgin County Courthouse complex (the new courthouse), which consolidates the Superior Court of Justice (SCJ) and the Ontario Court of Justice (OCJ) under one roof by integrating two heritage buildings with a new, modern, multi-storey structure. These court services had previously been provided to the citizens of the region at two separate locations in St. Thomas.

Infrastructure Ontario (IO) worked with the Ontario Ministry of the Attorney General (the Ministry) to deliver the project using a design-build-finance-maintain (DBFM) public-private partnership (P3)/Alternative Financing and Procurement (AFP) model. This is the fifth courthouse project in Ontario to be completed under Ontario’s AFP model, and is the first to include heritage restoration.

Integrated Team Solutions (ITS) was selected in April 2011 from three shortlisted proponents as the private-sector partner and delivered the project to the province on time and on budget, despite a province-wide elevator strike and some challenges presented by the heritage aspect of the project.

The two heritage buildings involved were the historic Elgin County Courthouse and the former Land Registry Office, located on the same parcel of parkland. The unexpected challenges of restoring 19th century buildings, which included finding building materials and products that respected and complied with heritage conservation principles, required patience and ingenuity. The restoration and conservation of the buildings had to be achieved while meeting modern-day structural, barrier-free and energy efficiency requirements.

The design also had to allow for flexibility, so that courtrooms and settlement rooms could be used for either Superior Court of Justice or Ontario Court of Justice proceedings, and for expansion, so that the facility could serve the region for the next 30 years and beyond.

Under the terms of the project agreement, ITS was responsible for design, construction, financing and long-term maintenance over a 32-month construction period and remains responsible for a 30-year maintenance period. The complex remains government-owned. The design developed by ITS exceeded the project’s barrier-free requirements and by achieving LEED Gold certification exceeded the minimum requirement to achieve LEED Silver certification.

Source: Canadian Council for Public-Private Partnerships
Case Study: Biosolids Management Facility, City of Greater Sudbury

For over 30 years the City of Greater Sudbury used the tailings ponds of an international mining company as a disposal site for sludge from its wastewater treatment facilities. While this was once an acceptable practice, changing environmental standards and recurrent episodes of foul odour made this disposal method unsustainable. Both the Ontario Ministry of the Environment and Vale Canada Limited, the mining company, asked Greater Sudbury to find an alternative solution.

After several years of research and public consultation regarding options and the application of technologies to manage the problem, the City chose to use a design-build-finance-operate-maintain (DBFOM) public-private partnership (P3) procurement model to build a new biosolids management facility. The new facility will convert the sewage sludge into a stable and beneficial end product that can be used in agriculture and mining reclamation applications and will provide economic and environmental benefits to the community.

Under the terms of the P3 agreement the private partner, N-Viro Sudbury LP, will design, build, finance, operate and maintain the Greater Sudbury Biosolids Management Facility (the project).

Construction will take approximately two years, followed by an operations and maintenance period of 20 years. The facility will be owned by the City throughout the duration of the project with operations being transferred to Greater Sudbury at the expiration of the O&M period. Construction began immediately after the project reached financial and commercial close on June 13, 2013.

This is the first P3 for the City and the first P3 biosolids project in Canada using the PPP Canada funding structure. The project agreement is performance-based, with a guaranteed completion date. It was a steep learning curve for City staff as they adapted the P3 procurement process to the needs of a mid-sized municipality and learned about transferring certain risks to the private sector while maintaining public-sector accountability.

The project will allow the City to meet its future wastewater disposal needs using a method that is both environmentally responsible and sustainable. It is expected to provide $11.1 million NPV in cost savings to taxpayers and will improve residents’ living conditions.

By choosing a P3 approach, Greater Sudbury learned how to balance the risks and rewards of building and operating a community asset in partnership with the private sector and achieved its financial and environmental objectives. The City also created a modified P3 procurement model for small to mid-sized municipalities.

The project received funding support from the Government of Canada through PPP Canada and the P3 Canada Fund in the amount of $11 million.

Source: Canadian Council for Public-Private Partnerships
Case Study:
L’Adresse Symphonique, Quebec

In September 2011, a new state-of-the-art 1,900-seat concert hall for the Orchestre symphonique de Montreal (OSM) was opened that exemplified the highest standard in world-class acoustics. This $259 million project was the culmination of a five-year process incorporating a public-private partnership (P3) model of procurement, financing and construction, which was a relatively new approach to building cultural facilities for the Province of Quebec. This partnership brought together the Ministry of Culture, Communications and the Status of Women (The Ministry), Infrastructure Québec (IQ) and Group Immobiler Ovation (GIO, a consortium led by SNC-Lavalin). Each partner had a unique role in the development of the business case, analysis of the project, the qualifying and selection of bids as well as in the financing and construction elements of the project.

The project includes the 2-year design and construction period and a 27-year operations agreement (DBFM) with GIO. L’Adresse symphonique was financed through an optimal mix of debt and equity. GIO provided 100% of the equity in the amount of up to $16 million, and the remainder ($137 million) was financed through a long-term bank loan, a unique achievement given the uncertainty created by the global financial crisis of 2008. While GIO was responsible for the construction, financing and ultimate operation of the facility, the Ministry retained responsibility for acoustics and stage design.

Because of the complicated nature of the project’s specifications as well as the desire to provide a facility with state-of-the-art acoustic sound and design, the Ministry also hired a multi-disciplinary engineering firm, Cima Plus, prior to the bidding process. This allowed the Ministry to create the proper specifications that were eventually communicated to potential bidders, thereby attracting the appropriate bidders for this type of project.

The new concert hall forms part of the Place des Arts, a cultural complex with five other halls located in the heart of Montreal’s entertainment district, the Quartier des spectacles. L’Adresse symphonique is LEED certified and will save Quebecers an estimated $46.8 million over the lifetime of the operations agreement. The facility was completed on time and within budget.

Source: Canadian Council for Public-Private Partnerships
Case Study: Centre Hospitalier de l’Université de Montréal Project, Quebec

The Centre Hospitalier de l’Université de Montréal (CHUM) is a world-class university hospital providing specialized and ultra-specialized care in 36 medical disciplines. Its mission includes patient care, teaching, research, the assessment of health-care technologies and intervention methods and the promotion of health. Every year approximately 520,000 outpatients, 24,000 inpatients and 65,000 emergency patients are seen at the CHUM.

The CHUM was created in 1996 with the merger of three of the oldest hospitals in Québec. A modernization program was launched in 2000 to consolidate the activities of the CHUM in one location. The modernization project is a massive undertaking and will result in a multi-building health-care complex covering four city blocks in downtown Montréal integrated with heritage buildings and public-transportation links.

The first step in the modernization involves the Centre de recherche du CHUM4, currently under construction at the southern end of the site. The second step involves a new CHUM hospital complex which will be the anchor and driving force of an entirely new health-care district: the “Quartier Santé Montréal”.

The design, construction, financing, facilities maintenance and lifecycle management (DBFM) of a health-care complex to replace the three existing hospitals – Hotel-Dieu, Notre-Dame Hospital, and Saint-Luc’s Hospital was a big focus of the project. The new facility will have 772 beds in single rooms, 39 operating rooms and an automated guidance vehicle system (AGV) never before used in Canada. It will be approximately 332,655 m² in size and will act as a tertiary referral centre for 1.7 million people in the province.

The project is the largest P3 hospital venture in Canada’s history and the first Canadian P3 project rated in the BBB category. Despite the higher risk of a long construction period (almost nine years) the private infrastructure bonds were oversubscribed. The risk profile was lowered by dividing the project into two phases, with almost 100 per cent of the clinical program being delivered in the first phase. This innovative phasing approach allowed for operations, and distributions to the private partner, to begin during the Phase 2 construction period.

The P3 agreement between the CHUM and Société en Commandite Santé Montréal Collectif (Collectif Santé Montréal) is for a period of 38 years and 10 months. The total project cost over the life of the concession is $3.1691 billion and was the largest P3 project in the world in 2011. It was awarded the 2011 North American Project Bond Deal of the Year and 2011 Overall North American Deal of the Year Awards.

Compared to delivery by a traditional procurement model, the project will achieve value for money of approximately $376.3 million NPV and will deliver 85 per cent, rather than 55 per cent, of the total program area in Phase 1.

Source: Canadian Council for Public-Private Partnerships
Case Study: PortMiami Tunnel Project

The $1 billion project consists of twin tunnels built under Biscayne Bay that link port facilities on Dodge Island with MacArthur Causeway and Interstate 395 and added capacity on each direction on the causeway. The goal was to divert 16,000 vehicles — 28 percent of them trucks — from downtown Miami streets to the tunnels and reduce travel time. Since the tunnels opened in early August 2014, their performance has significantly exceeded expectations. A Florida Department of Transportation (FDOT) traffic study commissioned shortly after the tunnels opened showed that weekly average volume for overall traffic entering or exiting the port through downtown streets had dropped by 35 percent and weekly commercial truck traffic was reduced by 77 percent. Vehicle emissions in downtown streets have diminished greatly as well.

The tunnel project was the second availability payment-based concession agreement to be executed in the United States. FDOT negotiated the 35-year agreement with MAT Concessionaire, LLC in 2009, which included a 30-year operations and maintenance period. MAT consists of equity members Meridiam Infrastructure Finance S.A.R.L. and Bouygues Travaux Publics S.A. The lead design-build contractor was Bouygues Civil Works Florida, Inc.

MAT financed the project with $80 million in equity, $342 million in loans from a group of 10 banks and $341 million in long-term subordinated debt provided by the U.S. Department of Transportation through the Transportation Infrastructure Finance and Innovation Act program. FDOT made $450 million worth of milestone payments to MAT — $100 million during construction and $350 million upon acceptance of the construction work — and is continuing to pay the concessionaire through availability payments. At financial close, the annual availability payment was set at $32.5 million. The payments, which are subject to escalation tied to inflation, can be reduced in response to performance deficiencies, including unauthorized tunnel closures.

The tunnels have greatly reduced traffic congestion and air pollution around the Port of Miami, helped to decrease wear and tear on area roadways and addressed safety concerns, all while preventing the types of environmental damage that accompany major infrastructure projects, thus improving in many ways the area’s quality of life.

Source: National Council for Public-Private Partnerships
Case Study: Northern Virginia’s 495 Express Lanes Project

The express lanes comprise 28 miles of four high-occupancy toll lanes (two lanes running 14 miles in each direction) on heavily traveled Interstate 495 from the Springfield Interchange to just north of the Dulles Toll Road. Opened in 2012, they introduced new traffic patterns, entry and exit points, an exclusively electronic toll collection system (via E-Z pass transponders), dynamic tolling and ways to monitor and manage traffic flow along the lanes.

The express lanes are equipped to closely monitor traffic for the purpose of setting toll rates based on user volume to ensure that they do not become congested. Microwave traffic sensors located at one-third-mile intervals along the lanes collect real-time data on traffic speed, volume and other statistics and send them to an operations center that feeds the data into a dynamic algorithm. The algorithm sets toll pricing based on the number of cars that are using the express lanes. Message signs on each approach to the lanes inform drivers of the current toll rates, allowing them to decide whether to use the express or non-toll lanes.

The express lanes also feature electronic toll collection, which eliminated the need for traffic-snarling toll plazas. Instead, drivers must use E-Z Pass transponders, certain types of which allow vehicles carrying three or more people to ride for free. Tolls are collected by one of nine toll gantries located above the lanes as vehicles move under them. This electronic tolling system allows the express lanes to accommodate more than four times the amount of traffic per hour than do roads with toll booths.

Technology also is used to detect accidents that could disrupt traffic flow. The continuously operated express lanes operations center has a traffic control room with a dedicated video wall that displays live feeds from cameras monitoring the lanes. The data center and control room constantly send and receive information to manage traffic and tolling activity. The center communicates with VDOT’s traffic management network to share information and incident management responsibility and taps into VDOT’s Traffic Management System, 511 Virginia and the shared VDOT/Fairfax County Public Safety and Transportation Operations Center to keep traffic moving on the Beltway.

This project also made a significant contribution to the Beltway’s 45-year-old infrastructure by replacing more than 50 aging bridges and overpasses, upgrading 10 interchanges and improving bike and pedestrian access.

The partners behind this project are: Virginia’s Department of Transportation (VDOT) and Department of Rail and Public Transportation, the Federal Highway Administration, and Transurban, which develops and manages urban toll roads in the United States and Australia. The concessionaire agreed to operate and maintain the lanes for 80 years in return for collecting toll payments.

Source: National Council for Public-Private Partnerships
The Council of the Great Lakes Region (CGLR) is a member-based organization with a mandate to collaborate with the many successful organizations already working in the region to highlight, enhance and support their projects. The Council also looks to inform state, provincial and federal decision makers in both countries about the region’s long-term economic, social, and environmental goals. Finally, the Council is also working to play a leadership role in connecting private, public, and not-for-profit actors across the region, cultivating a strong regional voice to promote shared interests and solutions to our common challenges.

The Mowat Centre is an independent public policy think tank located at the School of Public Policy & Governance at the University of Toronto. The Mowat Centre is Ontario’s non-partisan, evidence-based voice on public policy. It undertakes collaborative applied policy research, proposes innovative research-driven recommendations, and engages in public dialogue on Canada’s most important national issues.