

# Discussion Paper Prepared for the National Executive Forum on Public Property 2012 National Symposium, Vancouver, May 10, 2012

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## Understanding Public Private Partnerships: Emerging Issues in Canadian Infrastructure Delivery

### Introduction

As the need to develop and renew Canada's aging infrastructure increases, so too has public sector interest in using public private partnerships (PPP) to design, finance, construct and maintain a variety of physical infrastructure projects. Over the course of three decades, Canadian PPPs have evolved in scope, complexity and volume. The growing use of PPPs has since led to the emergence of standardized processes and best practices relating to the procurement of public sector infrastructure projects in Canada.

With the continued expansion of PPPs to address a host of infrastructure needs, public sector officials may want to address several emerging issues that are particular to PPPs. These issues are particularly acute in areas where public policy questions have yet to be addressed. As the most recent financial crisis has affirmed, the current form of PPPs used in Canada is effectively a sophisticated project finance model based on assumptions that have not been time-tested over the life span of long-term project agreements. These financial models form the basis of a procurement process that defers to the veracity of the assumption underlying long-term obligations and unstated risks. Risk transfer to the private sector through this financial model involves the pricing of private equity and debt, and raises the question of value for money. PPPs do not transfer all risks and the public sector continues to retain certain risks, possibly at a price premium. Such risks include functional obsolescence or demand risk brought about by significant public policy changes under future governments, some of which may be driven by ideological mandates. This discussion will focus on several issues to bring about a better understanding of the efficacy of the use of PPPs for public infrastructure delivery in the Canadian context.

### The Infrastructure Deficit

The urgency surrounding the dire need for infrastructure investment forms the foundation for the rate and magnitude of public sector adoption of PPPs in Canada. As of 2008, the average age of Canadian civil, water and sanitary infrastructure exceeded its useful life by 16.8 years.<sup>1</sup> The total cost to restore existing social and civil infrastructure across Canadian municipalities is expected to exceed \$400 billion by 2020, notwithstanding to cost of maintaining aging infrastructure.<sup>2</sup> Such figures do not encompass the importance of intangible infrastructure investment required to facilitate systems of service delivery,

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<sup>1</sup> Mychèle Gagnon, Valérie Gaudreault and Donald Overton, *Age of Public Infrastructure: A Provincial Perspective*, Statistics Canada, Retrieved February 18, 2012, <online>  
[http://www.pppcouncil.ca/pdf/statscan\\_age\\_of\\_infrastructure\\_022008.pdf](http://www.pppcouncil.ca/pdf/statscan_age_of_infrastructure_022008.pdf).

<sup>2</sup> Mirza, S. *The Federation of Canadian Municipalities (2007). Danger Ahead: The Coming Collapse of Canada's Municipal Infrastructure*. Retrieved 12 March 2012 from  
[http://www.fcm.ca/Documents/reports/Danger\\_Ahead\\_The\\_coming\\_collapse\\_of\\_Canadas\\_municipal\\_infrastructure\\_EN.pdf](http://www.fcm.ca/Documents/reports/Danger_Ahead_The_coming_collapse_of_Canadas_municipal_infrastructure_EN.pdf).

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such as in health care, education and information transmission. Numerous studies have shown that failure to address the infrastructure deficit will only increase the complexity of reinvestment; thereby jeopardizing Canada's the long-term competitive advantage across regions.<sup>3</sup> The visible impact of aging and inadequate infrastructure has been widely documented, including the prevalence of inadequate facilities, the need for frequent repairs, severe traffic congestion and, in some cases, physical collapse.<sup>4</sup>

The magnitude of the current and growing infrastructure gap is attributable largely to the funding challenges faced by all three levels of government. After 1990, public capital investment in infrastructure began to fall and stagnate. Guided by stabilizing tax revenues, and pressure to eliminate budget deficits, short-term expenditures to maintain existing infrastructure failed to keep up with rates of obsolescence.<sup>5</sup> Similar to other OECD countries, Canadian provincial and federal spending practices have resulted in a 1% annual reduction in GDP spent on infrastructure from 1980 through 2005.<sup>6</sup>

Amidst urban growth pressures and economic productivity losses associated with aging infrastructure,<sup>7</sup> interest in rebuilding Canada's infrastructure has been moved to the top of most political agenda. From 2001-2007, investment in highways, schools, and hospitals has increased up to 2.1% annually across Canada. More recently, government policies to fund municipal infrastructure projects increased substantially, facilitated largely by the Federal government's Economic Action Plan directed to stimulate economic development during the financial crisis.<sup>8</sup> This Plan, however, is not large enough to reduce the size and magnitude of the Canadian infrastructure deficit.<sup>9</sup>

In the context of the expanding infrastructure gap and budgetary pressures, finding practical solutions to fund the infrastructure gap has been of paramount concern both domestically and abroad. For example, the gas tax that is a major funding source for road construction in Canadian municipalities is projected to stabilize and decline as automobiles become more fuel-efficient and the number of cars on Canadian roads stabilizes, at least in the context of the Greater Toronto and Hamilton Area.<sup>10</sup> As well, the opportunity to increase corporate and individual income and property taxes to pay for infrastructure investments is strongly opposed by many municipalities.<sup>11</sup>

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<sup>3</sup> Is Ontario Dropping the Ball on Infrastructure Investment?, Renew Canada, Retrieved March 21, 2012 <online> <http://renewcanada.net/2012/poll-is-ontario-dropping-the-ball-on-infrastructure-investment/>

<sup>4</sup> Quebec calls inquiry into deadly overpass collapse, CBC News, Retrieved March 3, 2012 <online> <http://www.cbc.ca/news/canada/story/2006/10/01/overpass-collapse.html>.

<sup>5</sup> Darrin Grimsey and Meryyn Lewis, *Public Private Partnerships: The Worldwide Revolution in Infrastructure Provision and Project Finance*, Edward Elgar Publishing: 2007.

<sup>6</sup> Raffaele Dellacroce et. al, *Pension Fund Investment in Infrastructure A Survey*, OECD, Retrieved March 28, 2012 <online> <http://www.oecd.org/dataoecd/59/33/48634596.pdf>. The average ratio of capital spent in fixed investment to GDP among OECD countries fell from above 4% in 1980 to approx 3% in 2005.

<sup>7</sup> Ontario is projected to have the worst traffic congestion in the world. See OECD Territorial Review: Toronto, Retrieved February 1, 2012 <online> [http://www.oecd.org/document/1/0,3343,en\\_2649\\_34413\\_43985281\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/1/0,3343,en_2649_34413_43985281_1_1_1_1,00.html).

<sup>8</sup> Canada's 2011 Budget, Federal Government, Retrieved March 12, 2012 <online> <http://www.budget.gc.ca/2011/plan/chap3-eng.html>.

<sup>9</sup> *Supra*, note 5.

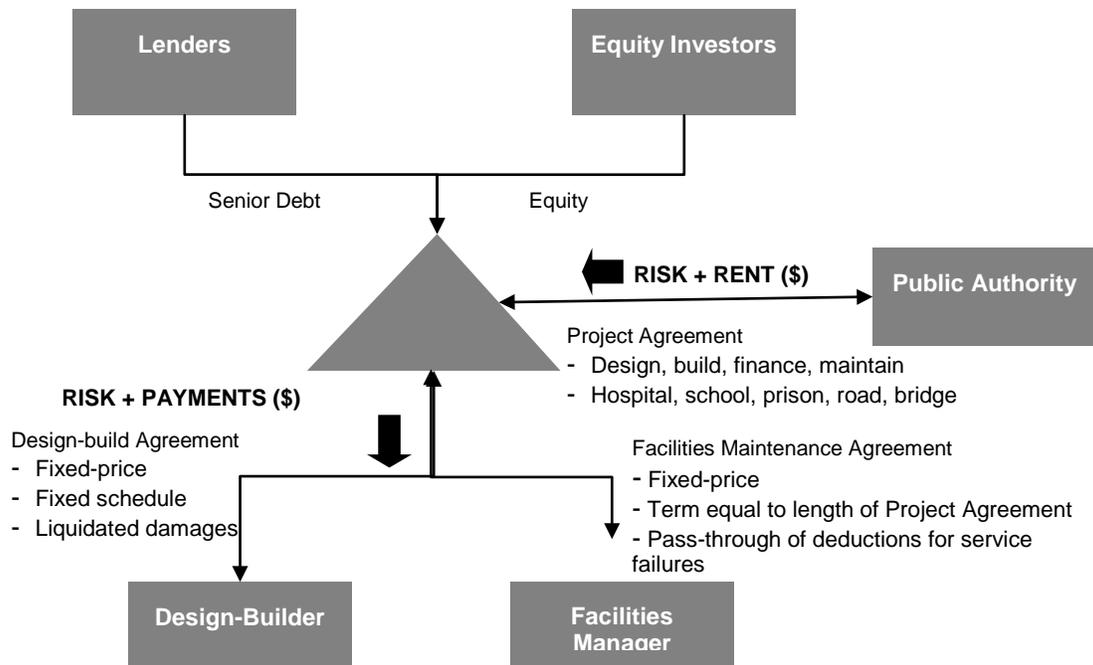
<sup>10</sup> Regional Transportation Plan, Metrolinx, Retrieved February 2, 2012 <online> [http://www.metrolinx.com/en/regionalplanning/bigmove/big\\_move.aspx](http://www.metrolinx.com/en/regionalplanning/bigmove/big_move.aspx).

<sup>11</sup> See for example the projected consequences of leveraging disproportionately higher taxes on the most wealthy, and the influence of this view in North America: Diving into the Rich Pool, Economist, Retrieved February 27, 2012 <online> <http://www.economist.com/node/21530093>.

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In addition to changes to accounting methods that permit the use of accrual accounting, in lieu of cash accounts within the public sector,<sup>12</sup> transactions that permit deferred payments have been identified and utilized to fund infrastructure delivery. While a 'build now-pay later' mechanism is a tempting solution to funding infrastructure projects, to do so in a fiscally responsible manner requires public entities to structure the transaction without adversely affecting their debt rating. PPPs may be more politically expedient than borrowing the full amount of the capital improvement.<sup>13</sup> To accomplish this, Canadian governments have looked to project finance principles to facilitate infrastructure delivery, as depicted below.

### Typical Contractual Structure for PPP Project



<sup>12</sup> Elizabeth Woodman, *The Market for Financing of Infrastructure Projects through Public-Private Partnerships: Canadian Developments*, Bank of Canada, Retrieved March 1, 2012 <online> <http://www.bankofcanada.ca/2012/01/fsr-article/the-market-for-financing-of-infrastructure-projects-through-public-private-partnerships-canadian-developments/>.

<sup>13</sup> Timothy J. Murphy, *The Case for Public Private Partnerships in Infrastructure*, *Canadian Public Administration*, 51(1) 2008.

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## Public Private Partnerships

PPP is defined by the Canadian Council of Public Private Partnerships (CCPPP) as a venture between public and private sector parties established to deliver public sector objectives through the allocation of risk, reward and resources.<sup>14</sup> Additional definitions from PPP procurement agencies similarly define PPP in terms of risk and capability sharing. Underlying this definition are several principles of project finance adapted to procurement practices, whereby clearly defined contracts based on projected cash flow and performance obligations form the basis of the partnership model.

Canadian interest in PPPs is founded primarily on the benefits related to risk allocation and potential efficiencies that can be captured in both capital and operating costs. In contrast to traditional procurement process, PPPs are structured to allocate risks associated with infrastructure design, financing, construction and maintenance of infrastructure projects to private sector consortiums to the extent that they can more efficiently manage such risks relative to its public sector counterpart over long-term horizons. This process is facilitated by the adoption of life-cycle costing, private sector innovation, and rigorous and holistic project scope descriptions, although onerous prescriptive requirements can curtail new thinking. Project agreements also introduce financial penalties to incentivize on time and on budget construction and reduce operating costs, and there is the enforced discipline of the equity sponsor, concerned about financial return and satisfying private lenders requirements. The PPP financial model has the built-in capacity, to enforce performance obligations among various parties to the agreement. These agreements can also be structured to satisfy a public entity's tolerance to private ownership of constructed/existing assets, as well as involvement in the operation of facilities/processes. The degree of "privatization" in agreements is more of a political question than a practical consideration.

The positive benefit of using a PPP relative to traditional procurement is numerically calculated as Value for Money, derived largely by the cost savings that a public sector entity generates by allocating various project risks with the private sector for the capital asset. This risk transfer should outweigh the higher borrowing costs a private consortium faces relative to the generally higher credit ratings of government entities in order to generate positive Value for Money.

Before public sector officials consider the use of PPPs across various infrastructure projects, there are several emerging issues that should be considered that relates to performance and the narrow scope of performance measures that are applied. It should be noted very little independent research has been undertaken on the performance of PPPs in Canada such that some of these issues are not broadly recognized, nor well understood.

## PPP as a Procurement Process

In contrast to initial thoughts that a PPP is a tool to harness private sector expertise and attract private equity and debt, the implementation of the PPP model to deliver Canadian infrastructure projects has focused primarily on standardization of the procurement processes across the country. Canadian

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<sup>14</sup> Definitions, Canadian Council for Public Private Partnerships, Retrieved March 30, 2012, <online>  
<http://www.pppcouncil.ca/resources/about-ppp/definitions.html>.

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provinces have largely influenced this focus; for example, Infrastructure Ontario defines itself as a procurement and delivery agent on behalf of its client base.

With significant planning and diligence conducted by public sector entities to develop a project's scope, performance obligations and construction cost prior to releasing a project for tender, the procurement of infrastructure projects using PPP require more time and development costs relative to traditional procurement methods.<sup>15</sup> Upfront professional fees for space programmers, engineers, architects, lawyers, cost estimators, and a whole host of professional talent are substantial. The procurement stages are also influenced by project finance principles whereby most Canadian infrastructure projects are tendered through a pre-qualification stage at which point a short list of consortiums are eligible to bid on the project agreement once specifications are more clearly defined. Lenders are often present during the finalization of the project agreement to define performance obligations and allocate risks. Bid evaluation revolves around the capability of private sector consortiums to effectively assume transferred risk at the lowest price as measured against the financial model developed for the project. In fact, it is not uncommon for bids to be evaluated with upwards of 60% of points allocated to a consortium's fixed price and strength of its financial assumptions. This value varies as procurement agencies vary their evaluation metrics.

The high transaction costs associated with this procurement process makes the current model of PPP unsuitable for small projects and prohibitive for many municipalities beyond simple recreational structures. Due to the extensive use of financial, legal, engineering and cost consultants, larger, more expensive projects are best positioned to recover procurement transaction costs and derive positive value for money. Unless more effective techniques are introduced to procure a project using a PPP, the current template of PPP infrastructure delivery will remain best suited for large capital-intensive projects. It is also at this end of the spectrum that the capital markets have the greatest interest.

### **PPPs as Long Term Obligations**

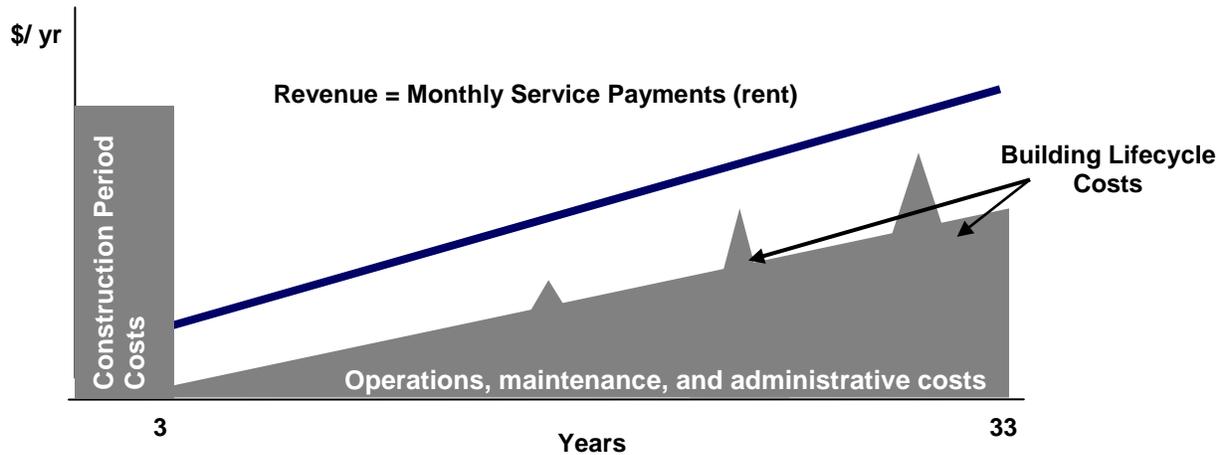
Through the assumption of long-term obligations, the current payment structure applied to Canadian PPP infrastructure projects can be characterized as a fixed payment mortgage. In Canada, it is typical for governments or their procurement agencies to offer consortiums a substantial lump sum payment upon the completion of construction, ranging as high as 50% of the construction cost. This contribution, which essentially "crowds out private money", is one way for governments to bring down the cost of capital and make the Value for Money figure more attractive. This initial payment is followed by annual service payments that are paid to the private consortium for the contract term. While this model provides transparency in terms of the full life-cycle cost of infrastructure, it is essentially a financing tool to allow public sector entities to build infrastructure that it can repay over the course of many years. The benefit of having maintenance and repair costs, typically subject to annual appropriations, tied to contractual obligations over the span of the contract cannot be underestimated.

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<sup>15</sup> Young Hoon Kwak, et. al., Toward a Comprehensive Understanding of Public Private Partnerships for Infrastructure Development, California Review of Management, 51 (2) 2009.

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## Project Cash Flows



Credit downgrades are a risk that public sector entities involved in PPPs must now be cognizant of. One of the benefits associated with the PPP model relates to the flexibility of payment mechanisms to apportion public sector capital and maintenance obligations over what are often thirty-year time periods. This payment structure can affect the magnitude of liabilities reported on public sector balance sheets. While this can provide short-term reporting benefits relative to the traditional capital budgeting process, the contingent liabilities related to PPP projects are increasingly under inspection by rating agencies as they determine the credit rating of a government body.<sup>16</sup> Recent pronouncements from the rating agencies to downgrade some provinces give potency to this issue. Should a government body experience a credit downgrade, the quality of PPP cash flows becomes questionable to lenders of a private sector consortium, resulting in higher lending costs and subsequently increased project costs.

Moreover, payment obligations introduce constraints on the operational budgets of public sector entities that are bound to make annual service payments until the contract expires. Hospital units, for example, may need to restructure variable costs in order to ensure that budgets can accommodate such annual service payments to avoid defaulting on their obligations. This may in turn have repercussions on health care delivery. Jails are another example where the rate of incarceration is influenced by legislative changes to the Criminal Code. In the absence of provincial and federal policy frameworks to address this tension, public sector entities are best to be cautious of the obligations and public policy commitments that are assumed when using PPPs.

## PPP and the Business Cycle

While there are benefits associated with PPPs, underlying each partnership are financial models that examine project cash flow, risk allocation and performance obligations. This financial model is often based on a variety of assumptions that may come into question as the business cycle and social environment changes. This was seen in the recent financial crisis whereby concerns about market

<sup>16</sup> Rating Canadian Public Private Partnerships, DBRS, Retrieved March 30, 2012 <online>  
<http://www.dbrs.com/research/244126/rating-canadian-public-private-partnerships.pdf>.

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liquidity and the stability of lending institutions led to a contraction of available credit, including long-term debt that is critical to funding a private sector consortium's involvement in PPP projects.<sup>17</sup> With the uncertainty associated with available credit, PPP projects were facing the prospect of being postponed or attaining financial close subject to high credit spreads that compromised the extent that PPP could derive positive Value for Money relative to traditional procurement.

Over a thirty-year contract period, changes in demographics, technology and facility use can jeopardize the feasibility of the risk transfer and contractual obligations underlying the PPP financial model. For example, rapid obsolescence of traditional forms of health care delivery could be precipitated by efficiencies created in the digital world, resulting in so called "functionality" risk. However, fixed budgetary constraints would restrict the flexibility of public sector entities to adapt to new service obligations. Perhaps in the near future we will see some social infrastructure procured with a PPP, such as a hospital, used for suboptimal purposes in order to justify the continuation of annual service payments. This effect on the operating environment may not be captured in the assumptions underlying the financial model. Such risks may not be effectively transferred to the private sector and will be retained at the expense of the hospital, or other user group. Public sector officials must question assumptions and consider the need to maintain flexibility when committing to long-term project agreements. There is already evidence that we cannot afford our current system of health delivery, predicated on large hospitals. Similarly it is questionable whether urban mobility systems that are largely automobile dependent will remain viable in the medium to long term, but this discussion is not part of the current PPP debate.

### PPP for Low Risk Projects

Public sector officials should be aware of the influence lenders have on the suitability of PPP projects. Through the adoption of project finance principles, private sector consortiums rely upon private lenders to commit sufficient debt to finance an infrastructure project over the course of the project term. In order to maximize equity returns, project sponsors often use as much leverage as possible.<sup>18</sup> Lenders and related credit agencies assess the commercial viability of a project and conduct extensive diligence of a project's risk in order to determine the quantity and price of debt that can be forwarded to a consortium.<sup>19</sup>

This risk assessment has contributed to the type of PPP projects that are typically financed in the Canadian market. Most Canadian infrastructure projects using the PPP model have been "availability" projects. Availability projects are those in which the public entity is responsible for making payments to a private sector consortium on the basis of a facility/project's availability for its stated use.<sup>20</sup> In contrast, volume-based PPP projects are subject to payment by end users that are not completely guaranteed by public sector entities. Volume-based projects generally include toll roads, transit systems, or bridges that are subject to risks associated with the quantity of riders and their willingness to pay. These risks

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<sup>17</sup> Tim Murphy, Financing challenges for P3 projects after the credit crisis, 2009.

<sup>18</sup> E. R. Yescombe, Principles of Project Finance, Academic Press: 2002.

<sup>19</sup> Rating Project Finance, DBRS, Retrieved April 1, 2012, <online> <http://www.dbrs.com/research/239401/rating-project-finance.pdf>.

<sup>20</sup> *Ibid.*

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are often borne by the private sector consortium.<sup>21</sup> To assume such volume risks, lenders must be satisfied that a project is commercially viable and higher borrowing premiums can be covered by project cash flows. In Canada, however, lenders have been generally unwilling to supply capital of this form without some guarantee of volume levels.

Governments in Canada have stayed clear of fee-driven infrastructure, with a few exceptions, primarily for political reasons. They have relied upon the availability model in which payments are guaranteed and made from the General Revenue Fund. Volume-based payments can be construed as indirect taxation and opposed as “privatization” of public services that were formerly a “free good”. One might argue that the applicability of PPPs in Canada is effectively constrained by the dedication to the availability approach and it is not until some form of a revenue-based model gains political acceptance that a whole range of infrastructure needs can be addressed.

The good news in Canada is that a vibrant institutional bond market sustained the Canadian PPP market following the retrenchment of long-term bank financing in the aftermath of the financial crisis.<sup>22</sup> However, institution such as life insurance companies and pension funds, generally possess lower risk tolerance to volume-based projects.<sup>23</sup> Even if such bondholders did possess higher risk tolerances, the elasticity of users to payment has yet to be developed for certain PPP projects.<sup>24</sup> Moreover, project agreements are also generally structured to afford bond lenders make-whole payments upon project default such that sensitivities of user assumptions can have significant repercussions on the viability of the financial model. Should public sector decision makers decide to use PPP for non-availability infrastructure projects, they will need to first rethink the current financial templates and project agreements that are widely used across Canada; and second, consider how user behaviour can be modified to make such projects financially feasible.

In the absence of a unified policy framework that defines the scope of private involvement in Canadian infrastructure delivery, decision makers ought to be aware of the emerging issues associated with using PPPs. While PPPs are a proven technique to finance long-term infrastructure projects, the model establishes obligations that may not be sufficiently flexible to changing environments, new forms of service delivery, or advancements in technology that change spatial relationships. As Canadian infrastructure continues to age, the incentive to rethink and reshape the PPP model becomes even stronger.

### Moving Forward

Most urban infrastructure today is based upon technologies and facility requirements that were developed over a century ago including roads, subways, street cars, water and sewer systems, communication networks, and even hospitals and schools. The question is whether these systems are still relevant and can carry forward into the next 100 years. The PPP model can be improved to deliver more innovative and adaptable infrastructure, but will it be the right infrastructure? Smart PPPs are not

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<sup>21</sup> *Supra*, note 16.

<sup>22</sup> Infrastructure Investor, Canada: An Intelligence Report, January 2010.

<sup>23</sup> *Supra*, note 17.

<sup>24</sup> The Canadian Council for Public-Private Partnerships, The impact of global credit retraction and the Canadian PPP market: Deliberations by the industry members of the Canadian Council for Public-Private Partnerships, 2009.

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likely to tackle a fundamental barrier to embedding a public interest in the overall long-term performance of public-private partnerships. This will only happen when a model is derived that incentivizes the use of new technologies, promotes quality and efficiency improvements, captures the innovative potential of the private partner, and measures service delivery according to appropriate performance metrics. For example, a new model for hospitals should connect the design and construction of health care facilities to clinical outcomes if the real value for money exercise is to have relevance to society. With the current PPP model, it will be 30 or 40 years hence when the asset is taken back into public ownership that we will know if the model did deliver as promised, has proven capable of adapting to the change, and it has justified the long-term strategic investment of public funds.