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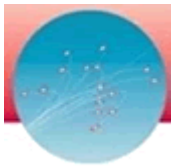

West Coast Infrastructure Exchange

CASE STUDY

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Table of Contents

Executive Summary

In 2012, the West Coast Infrastructure Exchange (WCX) was established through a framework agreement between the States of California, Oregon, Washington and the Province of British Columbia. The WCX seeks to address the estimated $1 trillion gap in public infrastructure over the next thirty years by promoting performance-based infrastructure to attract private investors, while maintaining public ownership.

To succeed in its mission, the WCX must transcend the problems with existing models of private finance of public infrastructure. In particular, while the US tax-exempt municipal bond market has become increasingly unstable, it remains a politically attractive option for financing local infrastructure. Canada has experienced more success with delivering infrastructure through public-private partnerships (PPPs). That said, many local government projects are too small to justify delivery through such an arrangement. Moreover, local governments often lack experience and capacity necessary for delivering larger projects. The WCX responds to these challenges by providing centralized expertise to local and state governments across the three US member states, while also seeking to ensure consistency across the four jurisdictions necessary to support a robust market for public infrastructure.

Beyond addressing problems in the public sector, the WCX must also attract long-term investors to infrastructure projects. Pension and sovereign wealth funds have developed a strong interest in gaining direct exposure to infrastructure assets over recent years, given the ideal match with their long-term liabilities, diversification needs and risk appetite. But this interest has not directly translated into investment. Experienced institutional investors often cite the lack of sufficiently large deals in North America. Smaller funds also face increasing pressure from their boards to gain exposure to these long-term and inflation-linked assets, but prohibitively high transaction costs keep them at bay. Moreover, there are no standards for evaluating the environmental, social and governance risks that are necessary for a full life cycle analysis of a potential project. The WCX intends to respond to these challenges by bundling projects together to achieve scale and providing project certification and an evaluation tool.

This case study begins by identifying the broader challenges related to financing public infrastructure in Canada and the US. The next section considers how the WCX can contribute to matching public infrastructure with long-term sources of private capital. The study concludes with consideration for the challenges facing the WCX and lessons that are relevant for similar initiatives. In particular, it finds that an independent governance framework is important for keeping unwarranted political interference at bay. The case also underscores the importance of maintaining focus on attracting the right type of investors and engaging relevant public and private stakeholders to establish and maintain legitimacy.

1. Public infrastructure gap and the right type of investors

It is widely held that replacement and expansion of public infrastructure in developed economies can no longer be financed with public money alone. An increasingly aging and urbanized population, coupled with extreme weather conditions, has contributed to more rapid depreciation of roads, transit, water and sewer systems, and placed increasing demands on hospitals and other public institutions. At the same time, austerity measures have reduced the federal money available to local (including state and provincial) governments and downloaded an increasing portion of responsibility for the provision of public infrastructure. It is estimated that the infrastructure funding gap under the status quo will reach $1 trillion in Canada over the next 60 years and the same amount in the US by 2020.[1]

As a result, local governments in Canada and the United States (US) are turning to private finance to fill the gap. If done right, borrowing can distribute the cost of assets over their full life cycle and thereby contribute to ensuring intergenerational equity. Moreover, long-term private financing can efficiently transfer risks to the investor and leverage private sector expertise to achieve value for money, ultimately contributing to economic development, enhanced public safety and climate change mitigation and adaptation, among other benefits. But the lure of cheap short-term private finance has driven political officials to chase after the wrong type of investor to fill the infrastructure gap; that is, short-term investors with low risk appetites. Local governments, particularly in the US, have been encouraged by senior levels of government to use a range of investment products, including derivative securities, interest rate swaps and tax-exempt municipal bonds to finance the infrastructure gap.[2] These financial products have experienced little success attracting long-term investors.

More concerning is the fact that many long-term investors - state and local government pension funds - are implicitly used as collateral in these 'innovative' (read risky) financing deals. Under *Chapter 9* of US municipal bankruptcy law, obligations to debt holders take precedence over contractual labour obligations to pay pension benefits (SEC 2011). Local and state governments also face perverse incentives to misrepresent pension funding levels and liabilities to boost their credit ratings and access private finance.

Public sector pension funds can avoid becoming victims of fiscal entrepreneurship by investing in the infrastructure gap themselves. Indeed, public pension and sovereign wealth funds have been identified as ideal investors for public infrastructure, given their long-term liabilities and size. The most recent global financial crisis has left these institutional investors in search of new assets to protect against inflation and provide new sources of diversification. Moreover, while the market for unlisted infrastructure funds has grown over recent years, high management fees have driven some institutional investors to seek alternative ways to gain exposure to infrastructure, such as through co-investments and direct investments in equity (OECD 2014). The idea of infrastructure as an asset class in its own right is gaining traction among these investors. This presents a unique opportunity to match the growing supply of long-term private capital with the growing demand for investment in public infrastructure.

2. Private investment in Canada and United States infrastructure

With over $1.2 trillion in assets under management, Canadian pension funds are among the most active investors in this new asset class, investing 5% and sometimes over 10% of their total portfolio directly in infrastructure.[3] That said, these investors tend to look abroad for infrastructure investment opportunities. In the US, public investors are only beginning to engage in direct infrastructure investments and, until recently, most investments in unlisted infrastructure assets have primarily been made using a fund manager. Given the lack of demand among these long-term investors for infrastructure assets in North America, local and state governments have had to rely on short-term sources of private finance to fill the growing deficit in public capital available for infrastructure investment. This section considers the experience of local governments in Canada and the US with attracting private finance.

2.1 The state of infrastructure financing in Canada

The majority of the burden for infrastructure provision in Canada falls on municipal governments, now responsible for almost two-thirds of the country's total infrastructure capital stock. Municipalities typically use the pay as you go model, drawing from a fixed source of revenue from which to finance capital projects.[4] Since 2000, the deficit in infrastructure funding has been increasing more rapidly as infrastructure from the post-war renewal era is reaching the end of its life cycle (Roy 2008). This gap was further expanded during the most recent global financial crisis and the austerity regime that followed. Transfers from federal and provincial governments contracted at the same time that prices for raw materials for construction were increasing.[5] Left with fewer options to finance infrastructure with traditional sources of revenue, many local and provincial governments are turning to private sources of finance. This has been reinforced by the 2014 amendments to the Build Canada Fund, which requires all municipal capital projects over $CAN 100 million to be evaluated for their suitability to be delivered through a public-private partnership (PPP).

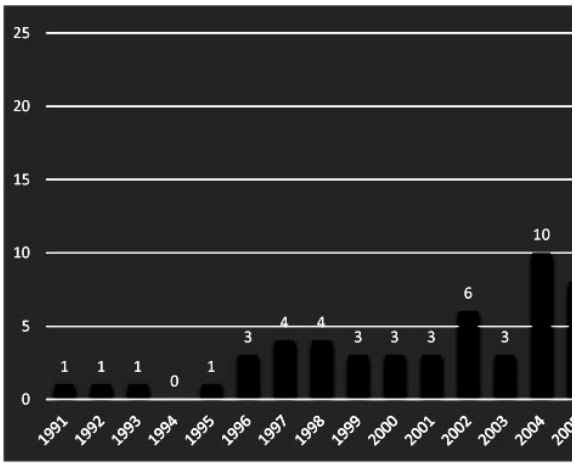
2.1.2 Sources of private financing

Developed PPP Market

Canada has earned global recognition for its PPP market. PPPs are contractual arrangements between the public and private sector, requiring the private sector to deliver some range of services (design, build, finance, operate, maintain) and assume financial, technical, and/or operational risk. In return, the public sector compensates the private partner with a stream of revenues and risk premium agreed to in the contract. PPP investments can take a variety of forms, which can broadly be divided into unlisted and listed investments in debt and equity (Sharma 2013). Canada has a strong project bond market for provincial and federal infrastructure projects, despite the collapse of the mono-line insurance market after the most recent global financial crisis. Low yields on new issues suggest the PPP bond market will continue to play a large role in financing Canadian public infrastructure.[6]

While Canadian investors have emerged as global leaders in infrastructure direct equity investments, the majority is invested abroad. The few investments that have been made domestically tend to be very large provincial or federal projects.[7] As of 2013, 207 PPPs were listed in the Canadian Council for Public Private Partnerships (CCPPP) database. The majority are structured as Design-Build-Finance-

Maintain (DBFM). Over the past 10 years, it is estimated that PPPs have contributed $CAN 9.9 billion in value for money and 500,000 FTE jobs to the Canadian economy (CCPPP 2014). That said, not all infrastructure projects are suited for a PPP. In particular, smaller projects often cannot be justified against transaction costs associated with the partnership. [8] Moreover, PPPs in Canada are often highly leveraged, up to 90% (Inderst and Della Croce 2013).



Source: CCPPP 2014, P3 projects in Canada, in project pipeline or completed

Nascent municipal bond market

Authority to issue municipal bonds in Canada must be granted by the provincial government. Many municipalities lack a credit rating, which prevents them from issuing bonds. Provinces can borrow on behalf of the municipality and, in some instances, provide tax exemptions to subsidize their cost of capital. For example, the Municipal Finance Authority of British Columbia is a centralized agency that borrows on behalf of municipalities at lower interest rates.[9] A private member's bill was introduced in 2009 to establish a market for federal tax-exempt municipal bonds. While the bill did not pass, some larger municipalities issue (provincial) tax-exempt bonds, though the municipal bond market remains small (Munk School 2012). While Canada has become an attractive market among foreign investors in infrastructure bonds in a weak global economy, these investors tend to prefer bonds issued by federal and provincial governments. Municipal bonds are associated with high information asymmetries and low profiles in credit markets, making them less attractive to investors.[10]

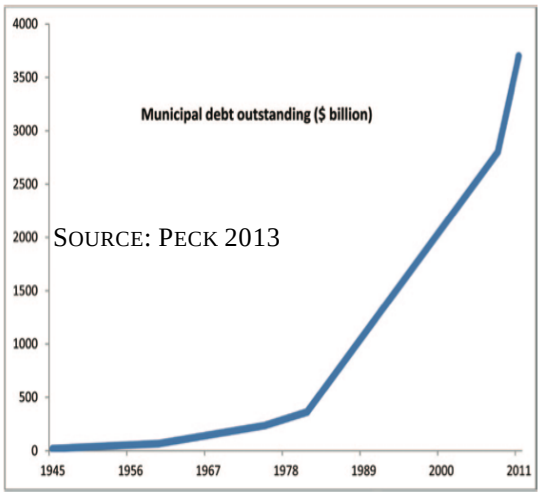
2.2 The state of infrastructure financing in the United States

Like Canada, the US has seen the significant devolution of responsibility to local and state governments for the provision of public infrastructure. Remaining sources of federal money earmarked for infrastructure are increasingly scarce, leaving infrastructure across the US in a vulnerable state (see appendix, figure 2). Highway construction is among the most significant capital expenditure by state and local governments. Local officials rely heavily on transfers from the Federal Highway Trust Fund. In the spring of 2014, the Department of Transportation advised that the Federal Government would be reducing road and bridge reimbursements to local governments by the summer of 2014, due to the Fund's impending insolvency.[11] The need for investment is ubiquitous across various forms of infrastructure. For example, the American Water Works Association estimates that $US 1 trillion investment is needed over the next 25 years to replace existing systems and expand water services to meet demands of a growing population. Accessing long-term sources of finance for public infrastructure is at the top of policy agenda in the US.

2.2.1 Sources of private financing

Municipal Bond Market

In contrast to Canada, the US has aggressively sought to test the limits of fiscal entrepreneurship (Peck 2013). Municipal bonds finance approximately two-thirds of new investments in US municipal infrastructure. In 2012, outstanding municipal debt stood at $US 3.7 trillion (compare with corporate bond debt outstanding: $US 11 trillion), and



SOURCE: PECK 2013

represented 44,000 state and local government issuers (SEC 2012). The majority of municipal bonds (75%) are held by retail investors. High volumes of debt are traded on secondary markets; 3.3 million trades were made in 2011 (ibid 2012).

About 80% of issues are revenue bonds. Revenue bonds can be issued without electoral approval and are not counted against limits on tax-supported debt, unlike general obligation bonds (Kirkpatrick and Smith 2011). Revenue bonds are paid back from a dedicated stream of revenue. That is, they are not backed by the 'full faith and credit' of the issuing government. Adding further instability to the municipal bond market is the decline in the availability of credit enhancements (e.g., bond insurance) after the global financial crisis.[12] While the municipal bond market has provided a source of cheap capital for local governments, reliance on it has had perverse consequences for local governments as they become increasingly concerned with their credit ratings (Stallmann *et al.* 2012). In some cases, these governments have put at risk their own pension funds to access cheap credit. In recent years, the Securities and Exchange Commission has penalized the City of San Diego, California for 'failing to disclose adequately the city's looming pension fund crisis in connection with municipal bond offerings' and the State of New Jersey for 'misleading disclosure and the creation of the illusion that the public pension funds were being adequately funded.'[13]

Nascent market for PPPs

The market for public-private partnerships in the US is under-developed compared to Canada. That said, as of 2011, at least 32 states have enacted legislation to allow for PPPs to enable private-sector participation in infrastructure projects and several others have expressed interest.[14] While institutional changes are paving the way for greater use of PPPs, significant political challenges remain. In a 2009 US survey, most state and local officials with no experience with PPPs expressed reluctance to use the model to finance new projects, compared with 90% with experience that expressed willingness to use PPPs in the future. Even among those that had experience with PPPs, 75% expressed concerns with implementation, future cash flows and negative public perceptions.[15] Moreover, the subsidies for short-term sources of capital in the form of federal (and in some cases state level) tax-exemptions fuel misconceptions among public officials about PPPs. More

specifically, subsidies increase the *perceived* gap between the cost of short-term capital available on the municipal bond market and the cost of long-term sources of capital. The benefits associated with long-term finance, such as expertise and the ability to transfer risk, are often overlooked by political officials.

3. The West Coast Infrastructure Exchange

While Canada and the US face different political and institutional realities, the broad challenges facing both countries related to financing public infrastructure are converging. The most recent global financial crisis and ensuing austerity have squeezed both economies at the local levels of government. Moreover, the on-going devolution of responsibility for the provision and maintenance of public infrastructure to local governments has led to fragmentation in planning, operating and monitoring. Left with fewer options to finance public infrastructure using traditional sources of capital, local governments are turning to private finance to fill the gap. But as the previous section suggested, local governments have been drawn to short-term sources of capital. In the US, the idea of a national infrastructure bank to leverage long-term sources of private capital has remained in political limbo since President Obama was first elected to office.[16] In Canada, there has been little discussion on national level initiatives for attracting private forms of finance, despite the country's homegrown expertise in direct infrastructure investment.

While national level initiatives have been slow to get off the ground, innovative initiatives at the sub-national and regional levels are emerging to address problems with existing private finance models for public infrastructure (see appendix, figure 3). One example is the West Coast Infrastructure Exchange (WCX). The WCX was established in 2012 by a framework agreement between the states of California, Oregon, Washington and the province of British Columbia.[17] The WCX is premised on the West Coast Action Plan on Jobs and both fall under a long-standing arrangement between the members of the Pacific Coast Collaborative (2008). The PCC seeks to promote opportunities for cooperative action, leadership and information sharing, and 'a common voice among the states on issues facing Pacific North America', including climate change, transportation, unemployment and declining government revenues and investment.

3.1 Function of the WCX

The purpose of the WCX is to identify opportunities for scaling regional, publicly owned infrastructure that promotes public benefit, while also offering viable investment opportunities for long-term private investors. This requires cooperation on two levels. First, the WCX seeks to promote cooperation between local and state governments to share resources and reduce costs related to procurement and on-going monitoring. This includes the provision of technical assistance to public agencies that lack experience in evaluating and executing PPPs. Second, and the focus of this report, the WCX seeks to promote cooperation between the public sponsors and private investors. In particular, it seeks to connect investors to opportunities by helping investors and public sector project owners identify, understand and mitigate risks, and ensure that $1 trillion in future infrastructure investment considers climate risk factors, among other factors relevant for full life cycle analysis of an infrastructure project. These functions are broadly grouped in the section below as responses to institutional investors' concerns with (i)

identifying and mitigating risk; and, (ii) accessing a consistent supply of opportunities that meet their scale requirements. While emphasis is placed on the institutional investor perspective, implications for the public good are also highlighted.

WCX Mission Statement
The WCX Infrastructure Exchange seeks to promote near-term job creation and long-term economic competitiveness by closing the gap between the demand for funding public infrastructure and the supply of funding. We do this by:
• Identifying public project development and delivery methods that yield more measurable value for the public dollar.
• Creating and advancing new mechanisms for project finance, including those that could (be) attractive to private investors that have traditionally not invested in public infrastructure.
• Helping investors and projects sponsors identify, understand and mitigate risk.
• Sharing and developing best practices as well as strengthening public sector capacity and expertise in these new approaches.
• Ensuring that an estimated $1 trillion in future West Coast Infrastructure investment considers climate risk factors.

Source: WCX final report, 2012, updated to reflect current focus

3.1.1 Identifying, understanding and mitigating risk

While many institutional investors now consider infrastructure as an asset class in its own right, significant obstacles stand in the way of integrating infrastructure into their strategic asset allocation and asset-liability management frameworks. In particular, infrastructure lacks performance benchmarks (Blanc-Brude 2014). The lack of performance benchmarks inhibits effective monitoring for those investors that depend on intermediaries to access the asset class. Designing benchmarks for infrastructure is not an easy task. The lack of available data on cash flows presents a significant challenge. Even if this data could be collected, the challenge remains to derive performance benchmarks from it, given the majority of cash flows for infrastructure projects remain in the future. While some investors have relied on a well-rehearsed narrative about the value of project finance for protecting liabilities from inflation and diversification benefits to form their expectations (ibid 2014), infrastructure remains a drop in the bucket in terms of total portfolio allocation, even among those investors with the most sophisticated in-house infrastructure teams.

Investors face particular challenges evaluating risk and return characteristics for public infrastructure assets. In the first instance, the procurement process for public infrastructure is often lengthy and varies across jurisdiction. Local government bureaucrats often lack experience delivering large infrastructure projects. Second, public infrastructure often carries significant political risks. PPP contracts are complex and can be laden with ambiguous public policy objectives such as job creation or affordability and equal access. While these objectives do not necessarily conflict with financial returns, and indeed can be critical to long-term financial success of a

project, they can also provide political sponsors with the opportunity to renege on contractual agreements such as blocking an agreed scheduled fee increase (see Torrance 2008) or adding new social or environmental objectives to the project without a sound business case. Third, the public sponsor may also have better information about operational and maintenance risks such as climate change risks specific to the region, which can lead to increased depreciation of infrastructure (see IISD 2013).[18] Institutional investors care about these risks and have expressed the importance of integrating ESG factors in their initial decision to invest and their on-going monitoring of the relationship with the public sponsor and consortium partners as part of a life cycle approach.

The lack of standards for public infrastructure has negative consequences for investors and public tax-payers alike. In the first instance, the lack of standards for evaluating risk contributes to under-investment in public infrastructure by institutional investors that otherwise would like to increase their allocation to infrastructure. Second, private investors often require significant compensation, even for established assets (brownfield), to reflect their perception of average risk-return in addition to a premium for bearing uncertainty associated with procurement. As such, information asymmetries make it difficult to attract private investors while at the same time achieving Value for Money (VfM). In a recent study of 28 PPPs in the Province of Ontario, Siemiatycki and Farooqi (2012) find the projects overvalue the planning risks in VfM analysis, which can lead to an excessive risk premium, ultimately increasing the cost of finance to the public taxpayer. To achieve VfM, this higher cost of capital must be more than compensated by the reduced risks in construction costs, operations and maintenance over the life of the infrastructure asset (see appendix, figure 4). In absence of tools to measure these risks, the perception that private investors earn an excessive risk premium, whether true or not, can perpetuate low public appetite for private investment in public infrastructure.

Centralized expertise, project certification and business case evaluator

The WCX seeks to address challenges related to promoting public infrastructure as viable investment opportunities among private long-term investors. In the first instance, this will require mitigating risks in the procurement process. The WCX seeks to offer centralized expert advice to public sponsors following the model of Partnerships BC (PBC). Since its creation in 2002, PBC has successfully delivered $12.5 billion in innovative financing arrangements in BC. The organization frequently exceeds its target objective to attract a minimum level of private sector bids on each project.[19] "The goal was to explore the feasibility of a stand-alone, self-funded and sustainable non-governmental organization to provide value-add expertise not currently available at most levels of state and local government (WCX 2012)."

Second, the WCX seeks to provide private investors with project standards and evaluation tools that contribute to integrating infrastructure in their investment decisions. Such common resources can make investments in the region more appealing, particularly for private investors that do not have the capacity to conduct this analysis themselves. It is anticipated that project certification standards will provide quality information that is consistent across member jurisdictions to investors to facilitate more efficient risk allocation and transfer.[20] The WCX Infrastructure Project Certification document was finalized in January 2014, after extensive consultations

with industry and public sector experts, including over twenty different representatives from infrastructure fund managers, public sector procurement officials, pension funds, labor unions, among others. The document is not intended to provide specific guidelines, but to identify principles on which to base project certification. The certification will include climate change risk factors among other environmental risks (see appendix, figure 5). Moreover, project certification will include consideration for labour standards, which have been considered essential to successful PPP projects from the outset (see appendix, figure 5). During the consultations, private investors did not object to the proposed labour standards.

To support the translation of uncertainty into risks that are measurable, the business case evaluator tool will help ensure public benefits associated with the partnership are "evaluated in monetary units adjusted for risk and optimized to deliver maximum public and financial benefits", including but not limited to health, safety and environmental improvements, among others. Where it is not possible to translate environmental, social and governance benefits into financial indicators, the business case evaluator (BCE) allows for qualitative aspects to be incorporated into the analysis with specific reference to clearly stated project goals.[21]

Beyond the benefits for the institutional investor, it is anticipated that these tools will promote the development of public infrastructure that delivers public good in terms of VfM. In particular, the WCX seeks to ensure more efficient transfer or risks to the private sector that is critical to the value proposition for private finance of publicly owned infrastructure. Overall, it is anticipated that the project certification standards will promote public infrastructure that is delivered on time and within budget.

Impact investing

While not its primary purpose, the BCE will be useful for those investors explicitly seeking positive social and/or environmental impact alongside financial returns. Infrastructure is an asset that has an inherent positive social impact (see Impact Infrastructure LLC). It is widely held that lack of standardized social impact metrics have been a significant barrier to impact investors achieving double or triple bottom line objectives (Monitor Institute 2009). The BCE offers a potential for reducing costs and information gaps associated with measurement of this impact. Moreover, infrastructure offers an opportunity for larger investors to engage in the impact investing space, which has largely been confined to small foundations and high net worth individuals. That said, problems of scale within the infrastructure asset class presents their own challenges for attracting institutional investors to infrastructure opportunities in general, whether or not impact is explicitly sought. These problems of scale are explored below.

3.1.2. Addressing problems of scale

Most institutional investors require a minimum investment of at least $100 million and often much larger. Compare this with the size of water infrastructure projects sponsored by a local government, which are typically less than $50 million and much smaller in many cases (PPP Canada 2013).[22] Institutional investors often cannot justify the transaction costs associated with smaller deals. Lack of standards and reliable information pose significant obstacles to bundling infrastructure projects together necessary to attract these long-term private investors. More specifically, different requirements related to procurement, operation and maintenance across

jurisdictions make it difficult for large investors to compare projects and bundle them into suitable investment opportunities that meet their scale requirements.

While finding deals of sufficient scale was not as challenging in earlier stages of infrastructure investing, many consultants and professional managers in the industry have commented on the change in market structure over the past few years as competition has increased for unlisted equity in infrastructure. The most recent OECD survey of global infrastructure investment finds over $70 billion was invested by pension and sovereign wealth funds in unlisted debt and equity infrastructure in 2012. The consequence of this increased demand has been to outstrip the supply of investment opportunities in large-scale infrastructure projects. Remaining opportunities are increasingly concentrated in smaller scale projects and greenfield developments (projects that are in the early stages of planning and development). For institutional investors, individual greenfield projects often do not offer enough equity capital to meet their minimum requirements for investment.

Given the fragmented nature of infrastructure delivery across jurisdictions, coupled with the diminishing supply of viable large-scale investment opportunities, cooperation is needed between municipal and state governments to bundle projects together. Devolution of responsibility to local governments for infrastructure provision means each local government is responsible for their own infrastructure projects. As such, the number of public officials that need to be educated about the benefits of private sector capital in the provision of public infrastructure is much greater than in regions where infrastructure planning and decision-making is centralized. It is not feasible for each local government (in the US this includes counties, water districts in addition to towns, cities) to maintain its own source of expertise necessary to effectively evaluate and structure PPPs.

Project bundling

The WCX is a rare example of cooperation between sub-national jurisdictions in an era characterized by strong inter-jurisdictional competition. In fact, it is the 'first ever attempt by multiple US states to jointly define the types of public infrastructure projects that would be most suitable for engaging private capital and to lay out a framework for how best to structure such investments to maximize public benefits while addressing the needs of investors.' The WCX has convened the relevant public and private actors necessary to transcend challenges related to a decentralized infrastructure delivery, following the example of Partnerships BC, which provides centralized expertise to local and provincial governments on procurement, planning, delivery and oversight and facilitates a more integrated network of infrastructure among BC municipalities. The WCX seeks to extend this model to induce cooperation between states and identify opportunities to achieve economies of scale.

In particular, the WCX seeks to facilitate the bundling of projects across jurisdictions to provide viable opportunities that meet scale requirements of private investors. If done right, bundling projects together can contribute to saving investors operational costs and maintenance, in addition to procurement costs. Moreover, screening projects for feasibility to be bundled can enhance the confidence of private investors (they know what they are getting).[23]

In 2014, the WCX announced its intention to launch a pilot project to bundle local-level water infrastructure projects into a single long-term contract. It is anticipated

that the bundling of smaller projects will translate into reduction in regulatory and investment risks that have typically kept institutional investors from investing in these local-level opportunities in the past. The idea is to aggregate smaller water infrastructure projects in proximity to each other into a single long-term (Design-Build-Finance-Maintain) contract. Projects would be screened for their viability. Such contracts will shift competitive focus of private sector bidders away from construction costs to the project's long-term life cycle costs.[24]

3.2 Structure of the WCX

The WCX framework agreement has no legal authority, meaning member states have no formal obligations to provide financial or other contributions. Members participate in a voluntary capacity. The initial phase of development was supported by two grants from the Rockefeller Foundation totaling $750,000 USD. In 2014, the three US member states have provided, or committed to providing, funds for WCX operations (roughly $1M in state contributions) and the MacArthur Foundation has awarded a grant for $300,000 over two years. The WCX continues to seek additional sources of both public and philanthropic support for its start up phase. Looking forward, over the next three to five years, it is expected that the exchange will generate fee revenue from its services to state and local governments, following the PBC model. The WCX is structured as a non-profit entity under Oregon state law and has received Federal tax-exempt status. The exchange is governed by a board comprised of two representatives from each member state (a senior treasury or budget official and a senior representative of the Governor's office from each state) and the CEO of Partnerships BC serves as an advisor to the Board.

The WCX is constrained by the legal structure of each of its member states. For example, bundling infrastructure projects across state borders may not be an option until legislative authority is passed by member jurisdictions, and some legal and regulatory restrictions limit the potential for PPPs in specific situations in each state. These restrictions are largely related to public contracting or procurement rules that require public agencies to award contracts to the lowest bidder based on bid-cost to construct the project, rather than on the lowest life cycle costs (including the cost of long term maintenance, such as in a Design-Build-Finance-Maintain structure that is common in Canadian PPPs.) The WCX structure allows for the possibility of other jurisdictions to join at a later date.

The WCX has deliberately sought to extend its engagement beyond political and bureaucratic representatives from the four jurisdictions by forming an Advisory Council made up of private sector fund managers, public sector unions, non-governmental organizations, public institutional investors and other key stakeholders with an interest in investing in infrastructure. The Advisory Council is a source of input and market feedback on priorities and strategy and a sounding board as the WCX develops new initiatives. The Advisory Council members include representatives of labour unions, pension funds, infrastructure fund managers and PPP experts. The staff members of the WCX include an executive director, program manager and administrator. Staff are based out of the WCX office in Portland, Oregon but travel frequently throughout the region to meet with project owners and potential partners.

4. The WCX: Challenges and lessons learned

4.1 Political interference and conflict of interest

Many experiments in the past with hybrid public-private initiatives have resulted in perverse outcomes, in the form of "the privatization of gains and socialization of losses (Stigliz 2009)." But equally, attempts by the public sector to leverage market based principles to achieve public policy objectives can lead to political interference in the market. While the state governments have been instrumental in the establishment of the WCX, providing resources in the form of financial support and in-kind contributions, the WCX is not a government agency and has deliberately been created as an independent non-profit organization outside government. The government's role is best conceived of as convening a diverse range of public and private sector actors necessary to establish the norms, principles and standards that constitute the market the WCX is seeking to establish. Private sector actors have been involved in the discussions since the beginning and their suggestions have informed much of the WCX's work to date, including the project certification standards, the water innovation initiative, and the focus on technical assistance. This involvement has been critical for the exchange's legitimacy. That said, any attempt to promote more investment in infrastructure will require cooperation between the public and private sector given the politically sensitive nature of the infrastructure asset (see OECD 2014 case studies on market and government-led initiatives).

Looking forward, the WCX discussions have emphasized the importance of an independent organizational structure in order to be more nimble than a state agency and to ensure accountability in its own operations. It is envisioned that the WCX will operate at arm's length from member states in order to maintain credibility and legitimacy among the private sector. The governing board of the WCX is appointed by member state Governors and Treasurers (and the CEO of Partnerships BC serves as an advisor and participates in all board meetings). While the WCX can support and advise public sponsors (local and state governments) throughout the procurement, design and operation stages, ultimately it is the sponsor's decision whether or not to include social or environmental objectives in a project. The WCX seeks to ensure these public benefit criteria are transparent and underpinned by a sound business case.

Another important governance consideration for organizations that have a mandate to promote or support the development of PPP projects and conduct VfM analysis is related to compensation and incentive design. If senior staff and directors of an exchange platform are compensated with performance-based incentives linked to these objectives, this would create perverse incentives to positively inflate the VfM analysis or provide an excessively positive ex post performance analysis of a PPP. The compensation structure of the WCX does not include metrics that could give rise to such conflicts of interest. Ensuring VfM analysis and project evaluations are transparent and standardized across jurisdictions can also contribute to avoiding potential conflicts of interest.

- **The WCX is accountable to the public through a strong commitment to transparency. Emphasis is placed on ensuring public benefit is transparent to private investors.**

4.2 Changes in market structure

The WCX may create a market that is 'too efficient' by the standards of some institutional investors with sophisticated in-house infrastructure teams. By enhancing the quantity and quality of information available to investors, the WCX seeks to ensure that rates of return will reflect only the risk and not an uncertainty premium that could be mitigated through enhancing the technical expertise of the project sponsor. Those investors with sophisticated in-house infrastructure teams may continue to seek opportunities in less efficient markets that offer higher returns.

That said, increasing global competition for suitable investments in infrastructure is expected to drive the premium down as the increase demand stabilizes returns in the long-term. Australian, Dutch and Canadian funds are most aggressive in the asset class, but others are looking to develop infrastructure programs (OECD 2011). The WCX provides a potential advantage over other infrastructure investment opportunities as it builds a reputation for credible, certified and quality projects in a relatively stable political environment. The WCX seeks to send a clear message about the type of financing partners that member states and local governments are seeking to attract. The exchange does not identify a specific target range of returns for projects. The goal is to drive down return targets by increasing investor confidence and reducing the uncertainty involved in the procurement process.

It may be some time before returns stabilize. In-house infrastructure investment teams take significant time and resources to establish. The same is true of public sector education and experience with PPPs. In the mean time, the multi-jurisdictional nature of WCX provides a coordinated platform for member states to advance collective interests at the federal level of government to contribute to enhancing the viability of investment opportunities in the US. This might include encouraging the Federal Government to remove regulatory barriers and provide subsidies and credit enhancements to attract long-term investors to public infrastructure opportunities.[25]

- **The WCX refrains from setting a specific range of returns. Emphasis is placed on the importance of attracting the 'right' investors.**

4.3 Agency problems

While pension funds and sovereign wealth funds are long-term investors in theory, in practice, they depend on asset managers to gain access to infrastructure. These asset managers often do not share the same objectives and long-term horizons as asset owners. Asset managers are often compensated on short-term performance and incentivized to invest close to benchmarks against which they are evaluated. These incentive practices can have perverse effects for asset owners. For example, during the most recent global financial crisis, illiquid assets became cheap, providing an investment opportunity to those institutions with the cash available and a long-term horizon to take advantage of short term myopic investment behaviour. But instead, many investors opted to buy illiquid assets during the boom period and subsequently sell these assets during the crisis, a strategy known as chasing yields (Bolton *et al*. 2011).

The WCX architects recognize that to achieve their objectives of attracting the right type of investors, they must engage with asset managers in addition to the asset owners they are hoping to attract. "One obstacle to institutional investors and matching certain kinds of projects is the

asset managers themselves. We need to be in touch with the people who advise the pension funds. There's a disconnect between investment managers and pension funds and institutional investors and the projects themselves (WCX 2012)."

- **The WCX recognizes the importance of engaging with the full range of actors in the asset management industry, not only in developing certification standards, but also in the on-going management of the exchange.**

5. Conclusion

Canada and the US face different political and institutional realities that have contributed to distinct experiences with public infrastructure provision. But in the current era of austerity, there is some convergence in the challenges facing the two economies. Local governments in both countries are turning to private finance to fund the growing infrastructure gap. While US local officials have financed a large portion of their infrastructure with municipal tax-exempt bonds, the municipal bond market is not a sustainable source of capital for long-term projects and the market itself is becoming increasingly unstable. In Canada, sub-national governments have made significant progress promoting long-term financing arrangements through PPPs. That said, lack of resources at the local levels of government for infrastructure delivery through PPPs can lead to overcompensating the private partners. Moreover, many projects are too small to deliver through PPPs, leaving many local governments dependent on increasingly scarce source of public finance.

Local governments and the investment industry are responding to these challenges in innovative ways. These initiatives are not only seeking to fill the existing gap, but are also seeking to leverage private sector expertise, monitoring, efficient transfer of risk, among other benefits associated with long-term private finance partners. For example, Partnerships BC is recognized as a global leader in providing a centralized source of public sector expertise to local governments and delivering projects on time and under budget. Inspired by this model, the Oregon Legislature established the Public Infrastructure Commission to "research and analyze financing and procurement methods for public infrastructure projects."[26]

The WCX is the first multi-jurisdictional initiative to respond to the infrastructure finance gap in North America. It is currently focused on developing best practices and strengthening public sector capacity and expertise. When fully operational, it is anticipated that the WCX will provide long-term investors with the tools and resources necessary to understand and mitigate risks over the full life cycle of projects. Moreover, the exchange is pursuing the potential to bundle projects together necessary to address problems of scale. As the WCX and similar initiatives move forward with their agenda to match the demand for long-term finance for public infrastructure with supply of long-term private finance, it is important that they are protected against unwarranted political interference at the project level. At the same time, accountability to the public is critical. The WCX case demonstrates the importance of engaging with the full range of actors in the private and public sector to establish legitimacy. Attracting the right type of investor to public infrastructure deals can contribute to mitigating climate change, promoting economic development and job creation and providing a sustainable source of investment opportunities for institutional investors. It is still early days and drawing conclusions about its performance would be

premature. That said, the WCX represents a promising model for collaboration across the public and private sector to address challenges of matching the supply of long-term capital with long-term investment opportunities.

Appendix

Figure 1: Pension funding shortfalls 2007 and 2009, Pew centre on charitable trusts

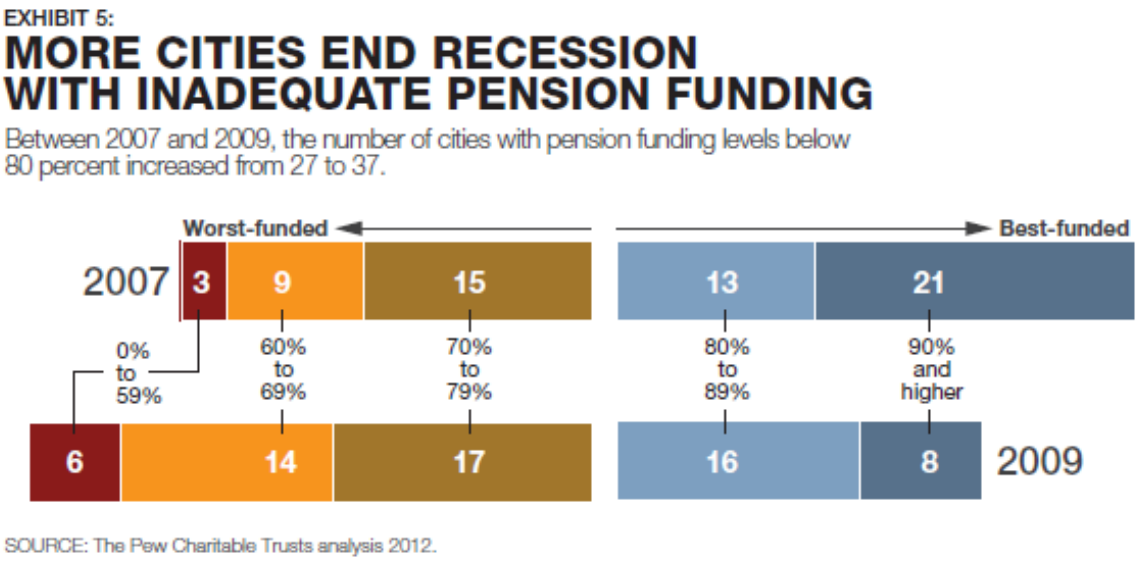


Figure 2: US ASCE Report Card 2013

Category	Grade
Aviation	D
Bridges	C+
Dams	D
Drinking Water	D
Energy	D+
Hazardous Waste	D
Inland Waterways	D-
Levees	D-
Ports	C
Public Parks	C-
Rail	C+
Roads	D
Schools	D
Solid Waste	B-
Transit	D
Wastewater	D

Each category was evaluated on the basis of capacity, condition, funding, future need, operation and maintenance, public safety and resilience.

Figure 3: Examples of new regional infrastructure initiatives

Region	Press Release
Mid-Atlantic: Maryland, Virginia and Delaware Announced 27 June 2014	http://www.governor.maryland.gov/blog/?p=10524 Intention to establish a new public-private regional infrastructure initiative called the Mid-Atlantic Infrastructure Exchange (MAX) "to help address critical transportation needs in the National Capital Region and the Mid-Atlantic."
Inter-Mountain: Colorado, Utah, Arizona	Led by Colorado Governor Hickenlooper
Council of the Great Lakes Region and Great Lakes Hazard Coalition, Announced June 2014	http://councilgreatlakesregion.org/council-of-the-great-lakes-region-to-lead-clinton-global-initiative-commitment-to-action-on-modernizing-infrastructure-in-the-region/ "the Council will lead a CGI Commitment to Action to examine the ability of public-private partnerships (P3) at the state, provincial and municipal level to address infrastructure investment challenges with respect to modernizing public infrastructure in the Great Lakes region."

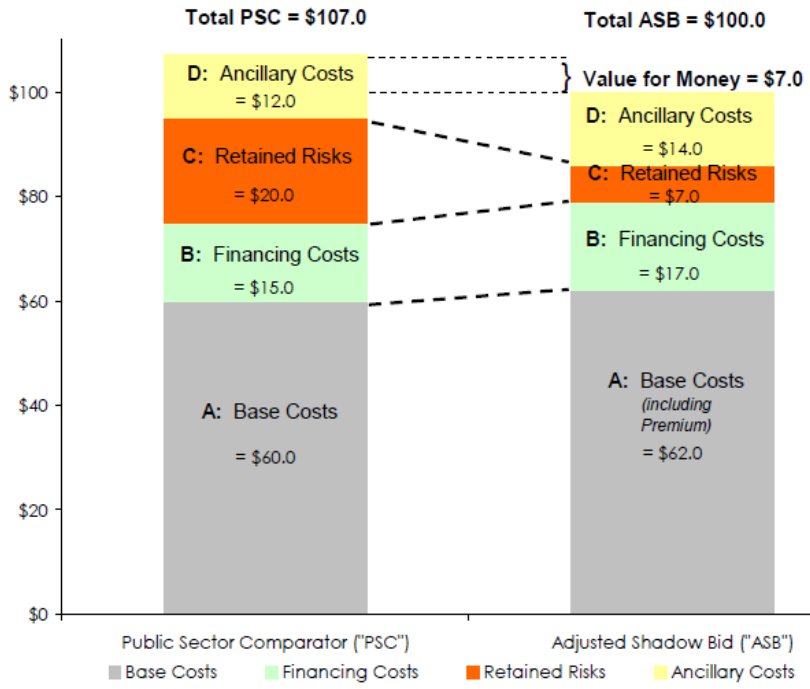


Figure 4: Example of Value for Money analysis

Source: Infrastructure Ontario

Figure 5: Excerpts from WCX Project Standards

1.6.6 Climate Change and environment	Climate Planning and execution of long term infrastructure investments should address resilience to future conditions. In other words, the increased risk of flooding, drought, high water levels, hotter temperatures, seismic events and other external events appropriate should be factored into decisions about where and what type of infrastructure should be built.
1.6.7 Labour Standards	Projects executed through IIPs or PBISs should adopt labor standards as would be afforded under the traditional public procurement and operations model, providing comparable wages, benefits, and worker protections, including the right to organize and collectively bargain, as well as ensuring that contractors have a history of compliance with community health and safety, wage and working hour standards. All projects should follow the relevant labor requirements of the sponsoring jurisdiction, including working with labor representatives to provide continued employment opportunities for the existing workforce and to maintain wages and benefits where relevant.

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Notes

[1] The American Society of Civil Engineers (ASCE) Report, Failure to Act, suggests that $2.7 trillion is needed in investment in US infrastructure by 2020, and estimated that $1.6 trillion is available, leaving a $1.1 trillion gap. The Canadian Council for PPP, citing research by Mizra, S. (2004) "The Urgency of Addressing Canada's Infrastructure" estimates a $1 trillion gap in 60 years under status quo. The Federation of Canadian Municipalities has estimated the existing gap to be $200 billion for repairs to existing infrastructure and financing new projects. McKinsey Global Institute (2013) has recently projected the global infrastructure investment of $57 trillion is needed between now and 2030.

[2] See discussion on evolution of municipal bond market in the US, Hildreth, B and Zorn, K. (2005). The Evolution of State and Local Government Municipal Debt over the Past Quarter Century, Public Budgeting and Finance 25(4): 127-153.

[3] Benefits Canada, 'The real deal: Infrastructure and real estate investing', February 18, 2014 http://www.benefitscanada.com/investments/alternative-investments/the-real-deal-48944. Accessed April 20, 2014

[4] Sources of municipal revenue include: property taxes, operating grants and transfers from senior governments and service fees and development fees and by law are required to balance their budgets.

[5] See for example Engineering News-Record construction and building cost index and material cost index historical data published in 2011 http://enr.construction.com/economics/. Accessed April 14 2014

[6] See Canada as a Safe Haven: Implications for Municipal Credit, Munk School of Global Affairs, University of Toronto, Available on-line at: http://munkschool.utoronto.ca/imfg/uploads/248/imfg_presentation2___kyle.pdf Accessed September 20 2014.

[7] Some domestic investments have been made in infrastructure in recent years, including CPPIB's investment in 407 toll road (Ontario) and BCIMC and Caisse de depot investment in the InTransit BC Canada Line (BC), OMERS Borealis in Bruce Power (Ontario) and the Confederation Bridge (PEI). Various annual reports 2013, CPPIB, BCIMC, CDPQ, OMERS.

[8] The overwhelming majority of the 207 projects are provincially sponsored (153), followed by 45 municipal and 9 federal.

[9] Another example is the Ontario Municipal Economic Infrastructure Financing Authority, which issues (provincial) tax-exempt Ontario Opportunity Bonds.

[10] See Canada as a Safe Haven: Implications for Municipal Credit, Munk School of Global Affairs, University of Toronto, Available on-line at:

http://munkschool.utoronto.ca/imfg/uploads/248/imfg_presentation2___kyle.pdf Accessed September 20 2014.

[11] The Congressional Budget Office (2012) attributes the insolvency to rising fuel efficiency standards and political infeasibility of raising fuel taxes or in the very least, linking it to inflation.

[12] Since 1980 there have been on average, only about 7.5 municipal bankruptcy filings per year. Only 17% of the municipal securities principal issued in 2009, 2010, and 2011 had a credit enhancement SEC 2012. (SEC 2012)

[13] SEC 2012 Municipal bond market report. Also see appendix figure 1, decline in pension funding levels, Pew Centre

[14] See PwC 2010 PricewaterhouseCoopers 'Public Private Partnerships, The US Perspective' http://www.pwc.com/en_US/us/capital-projects-infrastructure/publications/assets/Public_Private_Partnerships.pdf Accessed April 4, 2014.

[15] McGraw-Hill Construction, with support from Halcrow, Public-Private Partnerships (PPP) Smart Market Report. (2009) http://www.prnewswire.com/news-releases/experienced-us-officials-support-ppp-according-to-report-from-mcgraw-hill-construction-and-halcrow-61787617.html

16 Aspirations for a national infrastructure bank have recently been revived in the form of the Building and Renewing Infrastructure for Development and Growth in Employment (BRIDGE) Act, which has bi-partisan support to establish a national Infrastructure Finance Authority.

[17]See: http://westcoastx.com/assets/documents/WCX_framework-agreement.pdf

[18] It is estimated that the Port Metro Vancouver strike cost the Canadian economy $850 million per week, and lasted 4 weeks, Feb 26, 2014- March 27, 2014.

[19] PBC also advises governments outside of the Province. For example, it has advised the province of Nova Scotia and is managing the procurement and delivery for the Iqaluit Airport in Nunavut.

[20] See WCX Project Certification Standards, Section 1.6.5 available at: www.westcoastx.com

[21] See WCX Project Certification Standards, Section 1.6.2 available at: www.westcoastx.com

[22] Public Private Partnerships Canada (PPP Canada) Water/Wastewater Sector Study. January 2013. Examples of DBFOM projects in Canada: $4 million (Port Hardy BC), $23 M (Sooke, BC).

23 For example, the WCX is currently working with public and private sector partners to develop specific criteria for bundling water and wastewater projects. See https://www.clintonfoundation.org/clinton-global-initiative/commitments/west-coast-water-infrastructure-innovation-initiative

[24] See Clinton Global Initiative Commitment to Action, https://www.clintonfoundation.org/clinton-global-initiative/commitments/west-coast-water-infrastructure-innovation-initiative

[25] The WCX has been involved in the Federal Government's Build America Initiative and provides input on how the Federal Government could do more to promote private investment in public infrastructure.

[26] Oregon State HB 4111 (2013) created a project screening requirement for infrastructure projects that exceed $50 million to consider alternative delivery and finance methods. This legislation also ratified Oregon's participation in the WCX (seehttps://olis.leg.state.or.us/liz/2014R1/Measures/Overview/HB4111).