



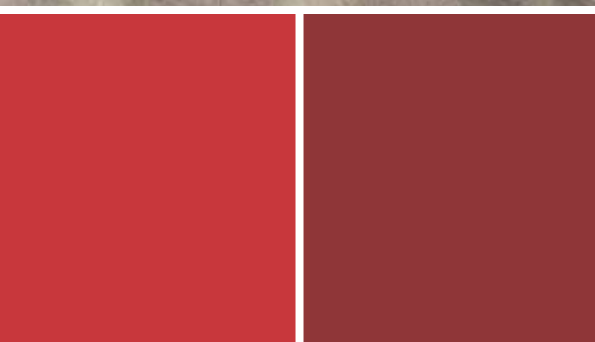
RESIDENTIAL AND
CIVIL
CONSTRUCTION
ALLIANCE OF
ONTARIO
Constructing Ontario's Future

An Independent Study Commissioned by



Unlocking Ontario's Advantages:

Building new infrastructure
on the foundation of
existing public assets





RCCAO

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

RCCAO has independently commissioned more than 30 reports on planning, procuring, financing, and building infrastructure, and we have submitted position papers to politicians and staff to help influence government decisions.

For more information on the RCCAO or to view copies of other studies and submissions, please visit the RCCAO website at **rccao.com**

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

By
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- "*Ontario Infrastructure Investment: Federal and Provincial Risks & Rewards*" by Paul Smetanin, D. Stiff and P. Kobak, Canadian Centre for Economic Analysis (RCCAO: July 2014)
- "*Investing in Ontario's Infrastructure for Economic Growth and Prosperity*" May 2013 Murtaza Haider, David Crowley and Richard DiFrancesco with assistance from Kenneth Kerr and Liam Donaldson (RCCAO: May 2013)

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- “*Detailed SRIO modelling used for the report ‘Investing in Ontario’s Infrastructure for Economic Growth and Job Creation: An Input-Output Analysis’*” by Regional Analytics Inc. (RCCAO: May 2013)
 - “*Alternatives to Development Charges for Growth-related Capital Costs*”, by David Amborski, Ryerson University (RCCAO: March 2011)
 - “*Financing Roads and Public Transit in the Greater Toronto and Hamilton Area*”, by Harry Kitchen, Professor Emeritus, Department of Economics, Trent University, and Robin Lindsey, Professor, Sauder School of Business, University of British Columbia (RCCAO: January 2013)
 - “*Incorporating Sustainability in Infrastructure ROI: The energy costs of deferred maintenance in municipal water systems*”, by Tamer E. El-Diraby, Bryan W. Karney and Andrew Colombo (RCCAO: June 2009)
 - “*Building on Toronto Transit City and MoveOntario 2020*”, by Dr. Richard M. Soberman, Trimap Communications Inc. (RCCAO: January 2008)

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EXECUTIVE SUMMARY

This Study was commissioned by RCCAO with the goal of providing objective and practical guidance to decision-makers on how capital assets held by the province might provide better returns. As such, the Study is intended to build upon a report released by the Mowat Centre in April 2014 on “Recycling Ontario’s Assets” and also to provide input into the Premier’s Advisory Council on Government Assets (“the Panel”), chaired by Ed Clark.

The primary recommendation in this Study is that governments have opportunities to ‘unlock’ the wealth of public assets in order to build infrastructure. Properly structured, asset recycling can be used at each stage of the asset’s lifecycle, from asset acquisition through P3s or concessions, through asset management by private operators, and finally, to the full or partial sale, lease or joint venture as part of a government disposition of non-core public assets.

Many of the capital investments that could be financed from asset recycling could provide ‘public goods’ that would otherwise not be available to the public, as well as delivering significant, sustainable returns for pension funds.

The Panel’s interim report, released in November 2014, has focused on making existing arrangements more efficient and market-competitive, without upsetting the existing, government-mandated oligopolies in energy and beverage alcohol. While these measures are laudable, this approach is too modest, at \$2 billion to \$3 billion per year, to adequately meet the infrastructure commitments made by the Province of Ontario over the next 10 years of \$130 billion.

Ontario’s fiscal challenges are not insurmountable but more aggressive measures are necessary in order to achieve a balanced budget by 2017-18 and to meet the additional commitment of dedicated transportation funding of \$29 billion over the next 10 years. Queen’s Park has correctly placed a priority on making significant infrastructure investments over the next decade but clearly these cannot be financed through traditional sources of capital investment by the public sector.

This Study covers a broad sweep of interconnected issues related to the need for infrastructure investment, the ways to marshal the required resources and to set priorities, and practical measures to ensure success. It looks at case studies in Ontario and Great Britain, to see what worked and what did not. It looks at the way public opinion can facilitate or impair a commitment to innovative methods to finance, build and operate public infrastructure, including private infrastructure that meets public needs.

Even with these increased commitments to infrastructure investments in Ontario and Canada, higher levels are needed to generate urgently required increases in productivity, in both the private and public sectors. The right infrastructure projects can create sustained employment. Further, these projects can anticipate the needs of the future economy and a world afflicted by the effects of climate change, lagging social integration, globalization, and security threats. Above all, major infrastructure investments can contribute to economic prosperity and to directly consequential improvements to the fiscal conditions facing all levels of government.

Infrastructure investment must be done properly. We must ‘slay the myths’, but also deflect considerations of ideology and self-interest. We must learn from our own experience and that of others – both from successes and from hard-learned lessons. We must identify and adopt “best practices”.

To achieve these results, however, we need to mount an infrastructure investment program of a ‘generational’ scale and breadth that exceeds anything to which we have committed ourselves now or in the recent past. It will require financial commitments that exceed the capacity of traditional tax-supported capital budgets and traditional public sector methods.

To fuel large-scale infrastructure expansion and renewal, there must be greater access to financial resources beyond general taxation, in order to create supporting revenues and the critical mass of necessary investment capital. In

addition, these revenues must be dedicated in an infrastructure trust, such as the Trillium Trust, and be beyond the reach of short-term fiscal pressures.

Fortunately, the capital needed to fuel a large-scale infrastructure investment program is available by leveraging existing public assets, by expanding the scope of well-designed public-private partnerships, and by attracting patient investment capital, notably that of public sector pension plans. To realize those opportunities, however, we need to understand and to address the needs of both the public sector and the private sector.

Ultimately, we need to approach the challenges of infrastructure renewal and expansion not with an incremental, episodic, or project-by-project approach. We need “joined-up” policy and programs, reflecting grander scale, quicker delivery cycles, solid intergovernmental collaboration, and above all, with bold vision, clear priorities and a sense of urgency.

STUDY OUTLINE AND OBJECTIVES

The purpose of this Study is to help to frame the ongoing public discussion about investments in Ontario’s infrastructure. The Study aims to put us all on a common footing when we use the term “infrastructure” and discuss our need to invest in infrastructure. Most importantly, this Study aims to propose practical but more substantive measures that are more likely to achieve the results that we need.

In an extended Appendix, this Study will define what we mean – or should mean – when we talk about Ontario’s infrastructure. What does it include, and what does it not include? What should it include? What will it include in the future? It also summarizes the inventory of assets in Ontario’s stock of infrastructure.

Next we will look at a little history. How have we developed the infrastructure on which today's Ontario is built and relies? What approaches have we taken to ensure that we have the infrastructure we need, including new types of infrastructure? What has changed, over time, to create the so-called 'infrastructure deficit'? Most importantly for purposes of this Study, we will identify attitudes and events that have defined the parameters of public discussion of Ontario's infrastructure: Who should own it? How should we pay for it? How should it be built and renewed?

Finally, we will look at the opportunities that we may be missing and some of the major obstacles to be overcome. Once those obstacles have been clearly identified, the Study will observe ways in which they have been overcome, both here and elsewhere.

We will conclude with a list of practical steps that might be taken now to ensure that we will have the infrastructure that we will need in the 21st century. We will also make the case that a truly substantive, ongoing investment in infrastructure of all kinds is needed to ensure Ontario's (and Canada's) economic prosperity, technological advancement, social and environmental sustainability, and above all, our quality of life.

INTRODUCTION

Few informed observers now doubt the need to step-up and sustain our investments in public infrastructure and in major "government business enterprises", if they are to serve contemporary and future expectations. The infrastructure deficit is well documented and the need for new capital investment in many public and community assets is self-evident.

The challenge increasingly lies in finding ways in which capital investments in new or expanded physical and social infrastructure serving the public can be funded and financed. How can it then be managed with sustainability and optimal productivity throughout the full lifecycle of each asset?

With political and economic pressure to keep general-purpose fees and taxation low for both individuals and corporations, public assets' traditional funding sources for public assets barely meet their annual operating costs and wage inflation, let alone funding major refurbishment or expansion. There is apparently little political appetite for tax increases, road-user charges, or increases in publicly-imposed utility rates, for reasons that range from a legitimate concern over economic competitiveness, through to a growing challenge to persuade taxpayers that government is spending existing taxes and levies wisely and responsibly.

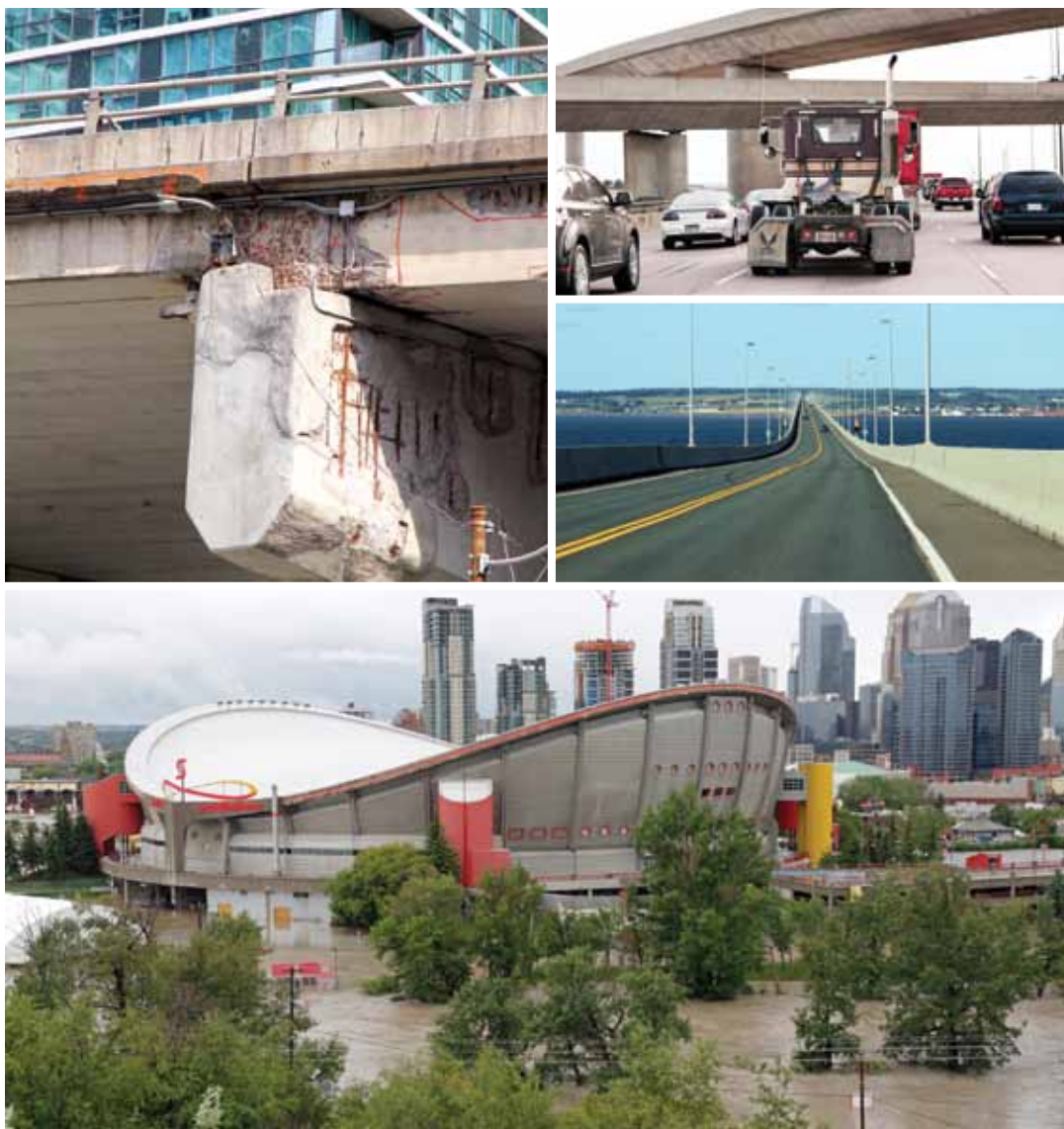
To respond to these severe constraints on governments' ability to fund new or renewed investment in infrastructure and other public assets, some governments have looked at making more productive use of the “sunk” costs in existing public assets. If the value of these public assets could be “unlocked”, is there the potential to fund urgently needed public investment in long-term capital assets to meet public priorities?

Governments have also looked at whether the private sector and private capital could be deployed in partnership with governments, through the model known as public-private partnerships (P3s) or in the Ontario context, Alternative Financing and Procurement (AFP). Could P3s overcome the barriers to timely investment in infrastructure?

In both instances – P3s and public asset recycling – the evidence of best practices from other jurisdictions appears to be positive, although fraught with challenges and opposition.

Before we examine the potential of P3s and public asset recycling, let us explore the context and the realities of building and rebuilding our key infrastructure.

A SHORT HISTORY OF INFRASTRUCTURE – AND PUBLIC ATTITUDES ABOUT INFRASTRUCTURE IN ONTARIO



The debate about investment in infrastructure begins with a debate over what we mean by “infrastructure”. In Appendix “A” of this Study, we suggest the elements that might be captured by a discussion of public and other general-purpose or community infrastructure. It includes an indication of our current understanding of infrastructure, along with speculation on additions to our infrastructure stock in the future, including new kinds of infrastructure arising from technological and economic progress.

It is equally important to build the right infrastructure. Measures of the infrastructure deficit, whether produced by engineers or accountants, can bias our agenda in favour of rebuilding past infrastructure and continuing conventional technologies and ownership patterns. We need to take a future-oriented approach to infrastructure. We need to build now to meet tomorrow's needs, not today's, much less yesterday's. Making those clear-sighted and often difficult choices may even free-up funds in our overburdened government capital budgets, which might otherwise be spent in sub-optimal ways.

Queen's Park has correctly placed a priority on making significant infrastructure investments over the next decade but clearly these cannot be financed through traditional sources of capital investment by the public sector.

Taking a global view, we must realize that infrastructure of all kinds can be owned by the public sector, or the private sector and non-profit sector, or some combination. In fact, at some point in history, virtually all types of infrastructure may have been owned and operated by the public sector or the private sector. (Even such public-sector mainstays as fire departments, hospitals and public transit have their eighteenth century roots as private and voluntary-sector infrastructure). In other parts of the developed world, many services that operate in the public sector in Ontario are operated successfully in the private sector. The reverse is equally true.

Our first conclusion is simply this. Infrastructure is important, but who operates it is a matter of choice, based on past and current political judgments about infrastructure's performance and cost, as "filtered" by a society's values and preferences.

Let us begin by looking at a sample of the major individual types of infrastructure, from the perspective of this Study's examination of infrastructure needs, our political and societal constraints and biases, the contribution of existing assets, and alternative models of delivery.



Road infrastructure – and tolling

Road infrastructure was originally a product of the surveying of Upper Canada and the building of key roads, like the Governor’s Road (Highway 5), by the British military. As colonization proceeded, some roads were built by private companies and operated as toll roads, as part of land-development schemes. Unlike much of the United States, however, Canada established early the practice of making roadways, and later, expressways a “public good”, at no cost to the passenger car, commercial vehicle or passenger bus.

Within Ontario, the practice of charging tolls only was applied to a few major bridges on Ontario's first expressway (the Garden City and Burlington Skyways on the QEW) and only for the period during which initial construction costs were amortized. Otherwise, following the American pattern, only border crossings were subject to tolls, for operation and maintenance of bridges and tunnels.

Ontario drivers have long viewed tolls as vaguely foreign. While familiar with American tolling practices, Ontario drivers seem intuitively to have made the assumption that minor tolls were a trade-off that Americans made for their lower gasoline prices (and taxes). In Ontario, no-charge access to expressways has traditionally been seen as a service already paid through income and fuel taxes. Equally, Ontarians' perception of the appropriate level of tolling was influenced by the relatively modest level of tolls imposed by 'border' States for turnpikes, rather than the toll regimes in the UK and Europe.

Unlike other jurisdictions, Ontario's road transportation network has generally had no income stream associated with it. In fact, unlike the US, in Ontario even motor vehicle fuel taxes were traditionally considered general revenues for the Federal and Provincial governments, and not expressly related to transportation. Even the recent sharing of gasoline tax revenues with the municipal sector did not come with an express requirement to use the proceeds for transportation purposes (as the projects winning AMO's annual gas tax awards clearly demonstrate).

We need to mount an infrastructure investment program of a 'generational' scale and breadth that exceeds anything to which we have committed ourselves now or in the recent past.



The ‘public’ in public transit

In common with the rest of eastern North America, urban transit began as commercial franchises in many older Ontario cities, as both street railways and inter-urban bus franchises. At the turn of the last century, most urban transit services went bankrupt, undermined by the rise of the passenger vehicle. They were typically absorbed into municipal transit authorities, such as the Toronto Transit Commission, Ottawa-Carleton Transport (a federally chartered entity), the Hamilton Street Railway, and so on.

With the mid-century decline of passenger rail services, commercial inter-urban bus services had a period of growth. However, faced with taxpayer-subsidized competition on their most lucrative routes, particularly from GO Transit, the commercial passenger bus system declined to a small component of the scheduled passenger transportation system. Finally, with the advent of universal school busing, private bus operators developed a network of bus transportation based on the awarding of contracts for no-charge “yellow bus” transportation.

Until the ‘downloading’ at the turn of the 21st century, when most conditional grants were made unconditional, there was an expectation that transit ridership would be subsidized by the local and provincial taxpayer, for both capital and operating costs, especially for services to the disabled. In contrast, it was assumed that intra-urban taxi services and inter-urban commercial bus services should be profitable, tax-paying entities.

The view that urban transit should be in the public sector has been consistently reinforced by the unchallenged expansion of GO Transit bus and rail services, in direct competition with regulated, scheduled commercial passenger bus transportation services and VIA Rail services.

The Ontario public evidently favours public-sector dominance in transit infrastructure.



Energy infrastructure – two models of ownership and delivery

Ontario's hydro-electricity system

Ontario's electricity system had its origin with hydro-electric power generation, organized in a cooperative venture with municipal electricity distribution utilities. The fact that electrical energy should be a public utility, when in much of eastern Canada and the United States it developed privately, reflected the seminal role of Sir Adam Beck and an early policy decision of the Ontario Government.

To capitalize on a potential competitive advantage during a period of industrialization, to modernize agriculture, and to extend electricity throughout Ontario's vast geography, Ontario made a crucial policy decision. Ontario decided to create a network of hydro-electric energy generation, transmission and regional / local distribution that would allow virtually universal access to electricity, and to high-demand industrial customers at reduced rates. In the rural and northern areas of the Province, electricity would be made available at so-called "postage stamp" rates, under which power was sold to marginal customers without regard to the higher marginal cost of long-distance transmission and extending local distribution infrastructure, to relatively few customers.

These decisions made a public-sector monopoly a virtual necessity at the time. It also doubtless created a labour-relations environment associated with a monopoly. Strikes were politically unacceptable; the resulting compensation and benefits regimes reflected that balance. Over decades, it created a system that depended on government subsidies and a high level of government-supported debt and debt-service.

Ontario's nuclear energy infrastructure

This public-sector monopoly was reinforced in the public's mind when Ontario began to develop significant nuclear-generation capacity, at a time when privately owned nuclear power utilities had celebrated system failures associated with neglecting safety and redundancy (e.g., Three-Mile Island).

Ironically, in recent years, among the biggest investors in Ontario's nuclear power have been private operators, in the form of Bruce Power. Although the management and operation agreement with Bruce Power leaves around 25% of Ontario electricity generation (and half of its nuclear power) in private hands, the public evidently has no disagreement with this arrangement, as long as the title to the facility is in the hands of the public sector and a robust

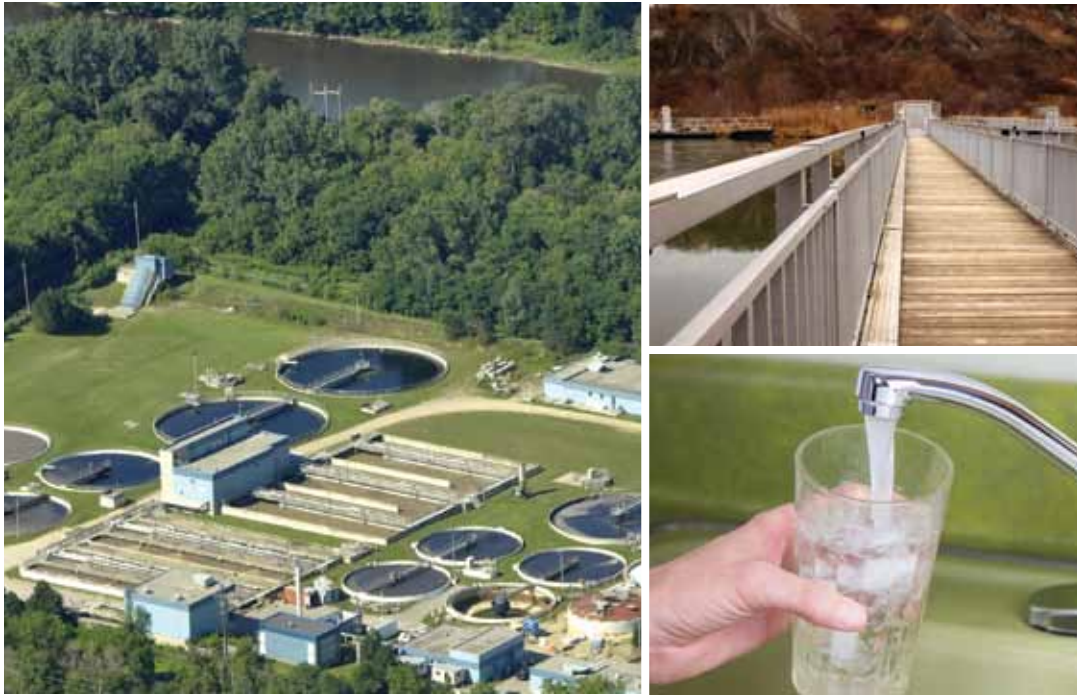
regulatory regime is in place and demonstrably observed by Bruce Power. Of course, it is equally likely that the general public assumes that electricity generation and transmission remain largely the preserve of Hydro One and Ontario Power Generation and is unaware of the extent of the private sector's role in the nuclear power industry in Ontario.

Ontario's natural gas infrastructure

Interestingly, there was a very different public perception about the private sector's role in the other main model of consumer energy distribution: natural gas. While recognized as requiring monopoly distribution rights, linear infrastructure and utility corridors, natural gas has been traditionally provided as a commercial service under an exclusive municipal franchise (following a model franchise agreement), with costs and charges being regulated by the Ontario Energy Board.

While franchises and concessions were a model used extensively to develop the original transportation and energy infrastructure of Upper Canada and Ontario, the model seems to have survived only in connection with natural gas and very modestly, with inter-urban commercial bus transport. Concessions have much to recommend them and in recent years, there are experiments with their use, such as with the 50-year Hamilton International Airport concession.

Infrastructure is important, but who operates it is a matter of choice, based on past and current political judgments about infrastructure's performance and cost, as "filtered" by a society's values and preferences.



Water infrastructure – the surprising legacy of the Walkerton tragedy

In Ontario, the infrastructure used for water and wastewater treatment, and the related network for distribution and collection, represents the second-largest element of the municipal infrastructure portfolio, after roads and bridges, and the second largest asset class on many larger municipalities' balance sheets. To this could be added the annual levies of conservation authorities, for regional stormwater management and related activities. In many European jurisdictions, however, including the UK, the private sector plays a predominant role in providing the infrastructure and technological depth needed to provide safe drinking water and to treat sewage. In addition, in other developed countries, most water utilities are organized on a regional or watershed footprint, which is generally accepted as the most efficient way to organize, deliver and finance water and wastewater services to urban and suburban consumers.

In the UK, water utilities were late to move to a full private-sector utility model. Only when the state of advanced disrepair of the infrastructure collided with a perceived inability to find the necessary government financing to rebuild them, were municipal authorities withdrawn from the operation of water and wastewater systems. The determined water privatization program of the Thatcher regime, beginning in England and Wales in 1989, was certainly a deciding factor. By 1997, the World Bank Group was crediting water privatization with having “...delivered an impressive volume of new investment, full compliance with the world’s most stringent drinking water standards, a higher quality of river water, and a more transparent water pricing system. But experience during the first regulatory cycle also reveals some lessons about the information requirements of effective regulation and the risks to the political independence of the regulator.”¹

In parallel and at the same time, much of Ontario’s water and wastewater network was facing similar pressures. Waterworks were often old and leakage was consuming a significant percentage of the water being treated and sold. In their June 2009 Report for RCCAO, El-Diraby, Karney and Colombo summarized the challenge of water loss and wasted energy.² (*See also Appendix B – Note A*) Waterline and sewer pipe failures, especially in the winter months, were damaging the integrity of the piped network and causing road collapses. Millions were being spent on an ineffective whack-a-mole game of trying to stay ahead of chronic deferred maintenance, rather than systematic, large-scale investing in sewer separations, water line upgrading, and modernizing treatment facilities. Small community-based municipal water and wastewater systems were the norm outside of major metropolitan areas and large cities.

At considerable expense to the Provincial taxpayer, the Provincial water agency, now called the Ontario Clean Water Agency (OCWA), built and held title to several very large operating systems, notably the South Peel system serving the rapidly growing cities of Mississauga and Brampton. OCWA was also frequently the inheritor or default builder and operator of

water and wastewater systems in small centres where there was no history of municipal water utilities or where the existing systems were distressed, obsolete or overwhelmed by population growth.

The Hamilton P3

The stage was set for serious consideration of using the P3 model in Ontario, just as it was being used globally. The harbinger was the Regional Municipality of Hamilton-Wentworth (now the amalgamated City of Hamilton) and its huge water and wastewater treatment facilities, newly upgraded combined sewer overflow systems, and extensive network of mains, pipes and pumps. In 1994, the municipality entered into a ten-year renewable concession agreement with a private operator. (Following several changes in corporate ownership, the operator became the German utility conglomerate RWE AG, which operates American Water Works Co. Inc. and the UK water utility Thames Water Plc).

Despite being accepted by the local municipal Operating Engineers union, the Hamilton P3 agreement was vigorously opposed, at least on a Provincial level, by the public-sector trade union movement and several environmental groups. These opponents saw the Hamilton experiment as the precedent for “privatizing” other municipal water systems.

The initial Hamilton P3 agreement was attractive. The P3 promised major infusions of private capital, a share of reduced operating cost to the municipality, municipal control over water rates, local economic development measures (a training facility) and strict adherence to environmental standards. The unionized workforce, which voted to accept the P3, saw an opportunity to evade the multi-year impact of the Rae Government’s Social Contract wage controls. Some employees were also intrigued by the opportunities provided by a major international employer, committed to respecting their collective agreements, enhancing training, and offering employment experience and opportunities in other jurisdictions. The environmental conditions were especially important,

as the sewage treatment plant had a troubled history of combined sewer effluent overflows into the already contaminated Hamilton Harbour.

Over the course of its ten-year life, the Hamilton P3 agreement met many of its objectives but failed to realize others. It was arguably an operational and financial success, but a political and public relations failure. A financial scandal in an unrelated business division, and a subsequent “distress sale” to a firm soon after caught up in the Enron meltdown, dogged the initial local ownership and the successor firm, until the agreement was taken-over by an operator with international credentials and experience. The trade-union movement continued its relentless opposition throughout the term of the agreement. Environmentalists pointed to a number of sewage back-ups, effluent overflows, and several environmental rule violations. Ultimately, the municipal government did not renew the P3 agreement, taking the infrastructure back under direct municipal operation.

Despite its troubled history, an objective assessment might, however, conclude that the P3 was an overall success. When the privatization occurred, the municipal workforce was over 125 and plagued with employee grievances, absenteeism and low productivity. When the facilities were returned to the municipality, a combination of private-sector management practices, upgraded training, and labour-displacing technology had reduced the workforce requirements by half. The municipality enjoyed a reduction in its former costs, saving nearly 10% during some years of the agreement, a pattern it managed to sustain once the leaner, re-engineered system was re-acquired.

By shifting from operator to regulator, the municipality was much more politically willing to support vigorous policing of environmental regulations related to such things as effluent discharges into the Harbour. In fact, the record of environmental violations in the early years and subsequent improved environmental practices can be seen as evidence of the long-avoided need for investments in mitigation. It could be argued with considerable justification that the progress made possible by the P3 improved the environmental track

record, rather than being evidence of a shortcoming of the P3 arrangement.

The pattern in Hamilton's P3 is also worth noting, as it is a recurring one with P3s generally. The P3 was used by the public authority to achieve progress in a number of areas where it was not able, for a variety of reasons, to do on its own. When the P3 had run its course, and the assets and operations were reacquired, the public agency benefitted from the capital investments, productivity improvements, more sustainable revenue-generation, and better management practices brought to bear by the private-sector partner.

If, on balance, the experiment proved positive from the perspective of the municipal government, why did the P3 model for water not spread in Ontario, as it did in the UK? The answer is: Walkerton.

The impact of the Walkerton tragedy

In common with many non-metropolitan water systems, the Brockton/Walkerton water treatment and distribution system was small, informal and undercapitalized. Unlike some of their immediate municipal neighbours, costs and water rates in Walkerton were kept low by minimizing both capital investment and the use of technical expertise. Oversight fell to a single local supervisor (supervising his brother) and periodic "paper" reviews by the Health Unit, with occasional confirmatory water-quality testing by a private lab commissioned by the Ontario Government. It was a system vulnerable to undetectable fraudulent reporting and negligence.

In May 2000, the Walkerton water system suffered a catastrophic failure due to contamination, which those monitoring the system failed to recognize or report, leading to a number of deaths and long-term illnesses. The Commission of Inquiry into the tragedy found many culprits, but the media and the trade union movement focused on the privatization of water-quality testing and related inspection. The fact that the Walkerton water utility was operated by a public authority, and represented by CUPE, did not deter the prevailing public perception: government had abandoned its responsibilities

to ensure a safe, dependable drinking water system, by involving the private sector in its operation and reducing the size of the public bureaucracy regionally responsible for overseeing this function.

Much effort was put into rebuilding the local Walkerton water network and other, similar, small water utilities across Ontario. Public efforts went into upgrading regulations and improvements in contracted testing services, and into training, ultimately by creating a major water research facility in east Walkerton.

Interestingly, however, no serious effort was put into regionalizing the water and wastewater utilities, as was the model elsewhere, in order to ensure cost-effective operation, technological capacity and redundancy, and in-house expertise. Despite several decades of upgrading regulations and technical training, no institutional reforms are yet evident in the municipal water and wastewater function. OCWA adopted a hub-and-spoke model (based on the incidence of their assets), rather than a regional model, which would have seemed more realistic in light of the experience elsewhere.

It is equally notable that despite the Walkerton tragedy, Ontario moved by regulation and bureaucratic enforcement. It did not use the regulated utility model, as Canadian governments have done with electricity or gas utilities, and as others do with public utilities such as water. Perhaps this is because of the preferences of the influential Ontario public-sector trade union movement or perhaps because the utilities are so small that conventional utility regulation is a burden local utilities cannot easily support or resource.

Meanwhile, the water and wastewater systems in the UK pursued a course of P3 upgrading, along with a strategy that had been politically unacceptable to municipal water utilities: increasing consumer water rates to reflect the true cost, including the cost of rebuilding the infrastructure. While it was initially quite unpopular, the creation of this sustainable, regulated revenue stream had two effects: first, it offered a way to pay the debt-service costs or

dividends that would have to be paid to attract major capital investments; and, second, it opened the water and wastewater industry to investment by the kind of “patient” capital that would be needed. With a proven business model, an essential commodity, and a dependable source of revenue, the proof-of-concept hurdle could be cleared.

The P3 model also allowed UK utilities to move away from government debt financing as the primary source of capital for water system renewal. Equity investments were now possible, paying dividends and offering the potential of capital gains on water utility stock issues. Major investors could remove the “uncertainty premium” that often makes uneconomic for public authorities the cost of private capital investment in new or “greenfield” infrastructure.

Has it worked? UK water utilities have rehabilitated a vast network of infrastructure on an accelerated schedule, often using foreign capital. Despite fears about water utility P3s in Canada, British customers seem satisfied. In April 2013, the UK Water Services Regulation Authority awarded “privatized” Anglian Water the best customer satisfaction rating of 19 regional water authorities in England and Wales.³ Ironically, while Canadian public sector pension funds find few opportunities to invest their billions in non-energy utilities in Canada, the Canada Pension Plan Investment Board owns one-third of Anglian Water and helped to finance the upgrade in this major UK water utility, earning solid returns for the CPP in the process.

Despite the Walkerton tragedy, Ontario moved by regulation and bureaucratic enforcement. It did not use the regulated utility model, as Canadian governments have done with electricity or gas utilities, and as others do with public utilities such as water.

INFRASTRUCTURE AND ECONOMIC PROSPERITY – HOW BIG IS THE CHALLENGE?

There is a fundamental relationship between enabling infrastructure and economic growth. One estimate suggests that projected global GDP growth will require an estimated \$57 trillion in infrastructure investment before 2030.⁴ The North American share of the infrastructure investment challenge is equally dramatic. Some estimates suggest the need for infrastructure investment in the United States approaching \$1.6 trillion by 2020, and a corresponding \$171 billion in Canada.⁵ In their 2013 study for the RCCAO, Haider, et al., outlined the infrastructure deficit and its impacts on economic productivity. (*See Appendix B – Note B*)

To describe the challenge in national terms can also obscure the location of the burden. A 2014 report commissioned by RCCAO unpacks the allocation of risk for investment in infrastructure, among Ontario's three levels of government. According to Paul Smetanin et al., fully 88% of the investment risk falls on the shoulders of either the Ontario Government or its local governments, with a mere 12% being allocated to the more fiscally robust Government of Canada.⁶ It is, of course, important for governments to spend the inevitably limited pool of available capital in the right places and on the right things.

As *The Economist* recently observed in its series on productivity and the future of employment, simply repeating the pattern of past investments, both in the private sector and the public sector, is unlikely to produce the results they did in the past.⁷

Fortunately, the capital needed to fuel a large-scale infrastructure investment program is available by leveraging existing public assets, by expanding the scope of well-designed public-private partnerships, and by attracting patient investment capital, notably that of public sector pension plans.

P3S FOR ONTARIO? DOING IT THE WRONG WAY, AND DOING IT THE RIGHT WAY

Understanding P3s

The RCCAO's May 2013 Report *"Investing in Ontario's Infrastructure for Economic Growth and Prosperity"*, describes P3s and their implications:⁸ (See also Appendix B – Note C)

"Public-Private Partnerships

"Noticeably absent from the ideas floated around revenue tools is the opportunity to invest in new infrastructure using public-private partnerships (P3s) or alternative financing and procurement (AFP) methods, in the Ontario context. The operating and capital costs associated with large infrastructure development projects are often incurred by municipal, provincial, and federal governments. In times of fiscal austerity, the funding available for these projects at all three levels of government is sparse. When public sector funding is lacking, governments often turn to the private sector to provide resources, skills and expertise in delivering and financing infrastructure services. This partnership, between public and private sectors, has been envisioned as a method to bridge infrastructure deficit and sustain economic growth (Narayan, 2013).

"A P3, as it relates to the development of infrastructure projects, can be defined as:

A long-term contract between the public and private sectors where mutual benefits are sought and where ultimately the private sector provides operating services or puts private finance at risk (Garvin, 2009).

"Inherent in this definition is the notion that the private sector contributes to P3s in two ways: 1) providing the public sector with funding to satisfy infrastructure needs, and 2) optimizing the time and cost efficiencies in service delivery (Abdel Aziz, 2007). P3s have been used in a variety of contexts including large transportation projects (roads, rail, public transit, seaports, airports), utilities (power, water, waste), and other industries (health care, education, defense) (BC Ministry of Finance, 2002)."

The London “Tube” – four experiments from a P3 ‘laboratory’

Like the Canadian Pacific Railway, some significant elements of the London UK subway system (known officially as “the Underground”, and unofficially, as “The Tube”) were built using residential property sales to finance construction and operation. (The largest east-west lines known as the Metropolitan, a private company until the mid-19th Century, operated a residential subdivision development arm known as Met-lands). Subway lines extended the ‘commutershed’ of London beyond the range of horse-and-buggy and primitive trams.

The Met had acquired surplus lands in the course of building its subway lines and realized that these assets could be leveraged to advantage. Suburban residential subdivision development could assist with defraying the capital costs of new subway construction, as well as generating the higher levels of fare-paying ridership needed to cover ongoing operating costs. The model was largely successful; London grew to be one of the great metropolises of the world and its subway system became the template for subways the world over. It was one of the earliest examples of a process that we now call “land value capture” (and asset-recycling).

A century later, the Underground was old and decrepit, with any available capital going to ventures such as electrification. It had been bombed in World War II and stretched to the limit with London’s continuing growth and intensification. While routine maintenance and periodic refurbishment had occurred, the system reflected its age. Existing lines were in great need of major rehabilitation. Dependent on cash-strapped national and local governments, the system had little reason to expect relief from traditional sources. Public-private partnerships held some promise, but they were unproved in the UK and opposed ideologically by many.

And then, in 1979, Margaret Thatcher’s government came to power.

The Tube saw four interesting experiments with the P3 model.

The overall program of system refurbishment was awarded to two, parallel consortiums (“Tubes Lines” and “Metronet”). The design of the contracts included a huge and largely unknown set of risks.

It is also interesting to look at the approach taken with two extensions to the rapid transit system (“Docklands Light Rail” and “Crossrail”), neither of which could be built or financed through regular means.

There is not space here to describe these four initiatives in detail, but the lessons learned from those four experiments should be known to anyone considering P3s. Let us look at them, in turn.

Docklands Light Rail (DLR)

The London Docklands Development Corporation (LDDC) was created by the Thatcher Government in 1981. The LDDC was mandated to manage a huge inventory of derelict industrial lands in London’s inner-city east end. The LDDC had a great deal of planning authority and owned a lot of brownfield building sites, but had little money of its own. It approved the vast Canary Wharf development, but recognized that a rapid transit connection would be essential to its success. The result was the Docklands Light Rail (DLR) line.

The Docklands Light Rail story has some interesting dimensions for our consideration. Faced with the need for a low-cost transit service to support the development of Canary Wharf, under construction by Olympia and York in 1988, the LDDC commissioned a driverless light-rail transit service, known as the Docklands Light Rail, similar to the Vancouver SkyTrain system, which began partial operation in 1987. Not having full heavy rail integration with the main Tube network, the DLR was also liberated from costly, decades-old technical requirements and operating systems. Without the safety blanket of the Underground’s capital budget, the DLR was forced to ‘value-engineer’ everything from its right-of-way and its stations, to its rolling stock and technological systems.

The result was a link that used lighter rail technology than the railway-based London Tube, which in turn resulted in a system that was less expensive to build and to operate. The ability to amortize lower capital costs more quickly produced a profitable transit line in a timeframe that would never have been achieved using conventional subway technology. By using ‘driverless’ trains, DLR was able to use technological investment to reduce its staffing costs (as well as its exposure to the traditionally challenging labour relations environment of ‘public’ transit). While its workers were unionized through the big UK transport workers union, it awarded the operating contract to out-sourcing giant Serco, which operated the system for DLR for 17 years, until it was displaced by another major private-sector transit operator, the French state-owned conglomerate, Keolis.⁹

Perhaps most significantly, since the DLR was a key part of an overall Canary Wharf development project, the DLR was built and in operation much more quickly than would have been the case using conventional, government-built subway extensions. The result was an ability to offer rapid-transit access to support the recovery of a troubled office and residential complex, changing the perception of east London from a decaying industrial near-suburb, to a logical, convenient extension to London’s booming mid-town. Finally, with the “proof of concept” clearly established and carrying over 100,000,000 paying passengers each year, the DLR could be fully integrated into the now refurbished London Underground network and Oyster-card fare-paying regime.

Metronet and Tube Lines

Next, we will examine the 30-year P3 contracts that were let in 2003 to two consortia to renovate and maintain the vast London Underground network of stations, tracks, tunnels, and technology.

One of the two 30-year contracts for the delivery, maintenance and repair of rolling stock, systems, stations and tunnels in the London Underground involved the Metronet consortium that included Canada’s Bombardier and water utility Thames Water Plc and a number of other corporate partners.

Over the course of the contract, Metronet was to invest £17B in station rehabilitation, with 150 subway stations to be refurbished by 2012. Metronet's maintenance and capital-project management contract covered 347 trains, over 471 miles (758 km) of track, 155 stations, 77 miles (124 km) of deep tubes, and over 2000 points, crossings, and bridges.

The contract was terminated after only five years of operation. It was a huge operational and financial disappointment for all concerned.

When the dust settled, despite the many unforeseen problems renovating a century-old network, the primary fault was attributed to the structure of the Metronet consortium. Under the Metronet structure, efficiency and profitability of the overall enterprise appeared to have taken a back seat to the opportunity for the individual consortium partners to bill the consortium in an almost unrestricted fashion for their work, without much fear that the penalties would exceed the profits. The failure of this project and the bankruptcy of the private consortium have been routinely and widely cited by P3 opponents, as ample evidence that P3s do not work in public rapid transit projects.

Rarely referenced internationally was the experience with the other London “tube” contract for facilities, maintenance and refurbishment, with “Tube Lines Inc.”, a consortium involving the Spanish infrastructure giant Ferrovial and America's largest engineering firm, Bechtel. Under its 30-year contract, Tube Lines was responsible for 200 miles (322 km) of track, 255 trains, 100 stations, and over 2,500 bridges, lifts and escalators.

Tube Lines was a more integrated bid corporate consortium than Metronet, and it had a P3 contract with incentives and penalties that more effectively favoured innovation, efficiency and timely results. The Tube Lines P3 achieved most of its objectives, between 2003 and 2011, at which point the contract was effectively bought-out and repatriated within the public sector (Transport for London). As with Metronet, many unforeseen engineering and operational issues were encountered with the existing, century-old

network, resulting in controversial funding arbitrations. As a result, disputes related to construction delays and costs eventually drove the flamboyant Mayor of London Boris Johnson, who has responsibility for Transport for London (TfL), to buy-out the equity partners who were awarded the original P3 contract and to continue Tube Lines work within the TfL.

An impartial evaluation of the Tube Lines P3 suggests that venture succeeded in revitalizing a significant component of the London “Tube” for the growing volume of fare-paying passengers, in a fashion that the public sector (TfL) had been unable to do.¹⁰ (*See also Appendix B – Note D*)

For purposes of this review, two lessons are clear:

(a) As the result of eight years in private hands, for the Tube Lines portion of the Underground, the TfL was able to reacquire the network and continue with a substantially refurbished infrastructure capable of supporting the exploding demands of the London metropolis. Even with a relatively time-limited use of P3s, the final position of the public authority was better, as subsequent owner and operator, provided that the structure of the deal was carefully and effectively crafted. Conversely, as with Metronet, a poorly constructed P3 can leave the public authority with a loss of in-house capacity, a poorer financial and / or operational position than if the function had been retained internally, and little leverage to correct unsatisfactory performance.

(b) Tight specifications, avoiding change-orders, and an attractive price, even a notionally “firm fixed” price, are not a sufficient assurance of transfer of risk to the private sector. There must be both positive and negative incentives that respond to the business dynamics of the bidders. They need to be able to motivate the winning bid consortium: to innovate, to pursue contract goals, and to avoid lack of performance. Moreover, those incentives and penalties must apply not only to the project and the bid-consortium entity, which may be shallow and with limited resources, but also through the consortium to the equity owners and the investors.

Crossrail

With the experience of the DLR, and with the cautions of the Metronet debacle fresh in their minds, a number of major business and government stakeholders began a renewed effort to promote an ambitious proposal for a badly needed east-west line across London. Crossrail would serve travel patterns and business locations that were not anticipated when the Tube network developed more than a century earlier. Crossrail proposed to build a new line across all of central London and beyond, serving the congested business heart of Britain, based on the concept of the benefitting property owners and other stakeholders assuming much of the risk and the cost.

In 2001, London's public transit authority Transport for London (TfL, reporting to the office of the Mayor of London) and the National Department for Transport (DfT) created a joint venture company (Crossrail), which was ultimately made a subsidiary of TfL in late 2008, coincident with the meltdown of Metronet. In October 2007, the funding structure for Crossrail was approved by the National Government, totalling a staggering £15 billion (~C\$26 billion).

The dimensions of the project are impressive. The new subway / railway for London and southeast England will run 118 km, east to west, with 24 trains hourly in each direction. On completion, it will carry an estimated 200 million passengers. Over 35% of future employment growth in the Greater London area, especially in East London, will be served by Crossrail. In addition to secondary employment impacts, the construction program alone will employ 14,000 people at peak.

For P3 contracts to work well, there must be both positive and negative incentives that respond to the business dynamics of the bidders.

The business and government coalition that lobbied for Crossrail developed a funding scheme that reflects shared government and commercial interests. The project allocates the nearly £15B cost of construction among public entities and private property owners and enterprises: £2B from TfL (London's transit authority); £4.1B in special levies on existing and new businesses and commercial property owners, especially those located near the new lines (essentially a land-value uplift profit-sharing levy); £2.3B from Network Rail (London's GO Transit / VIA Rail equivalent); and one-third (£4.7B) from the National Government. The balance of the £14.8B cost is made-up by a variety of miscellaneous multi-million pound contributions from other benefiting parties, such as Heathrow Airport, Canary Wharf, a London borough, a major housing developer, sale of development rights at 14 stations, and so on.¹¹

The P3 element of Crossrail built on the hard-learned lessons from Metronet, but was encouraged by the positive experience with the DLR and Tube Lines. In July of 2014, after a fierce competition among a variety of experienced private rapid transit system operators, TfL selected Hong Kong MTR's transit outsourcing arm for a £1.4B contract, 8-year (renewable) contract to operate Crossrail, subject to bonus and penalty adjustments. MTR is expected to employ around 1,100 staff (including 400 drivers). As well as running Hong Kong's subway system, MTR operates Metro lines in Beijing and has interests in Sweden, Australia and other cities in China.¹² For its part, now with considerable good and painful experience of P3s, TfL appears to favour a model where it owns the assets and leverages them to its financial advantage, but contracts on a long-term basis for their operation, rather than operating them itself.

There are several important lessons to be learned from London's experience with transit P3s.

First, the structure of the deal must be well-conceived and project governance well-executed. Competitive procurement, tight specifications, best price and penalty clauses are not sufficient.

Second, there is merit in using the private sector to achieve things that are unlikely to be achieved by the public sector. However, that does not necessarily mean entirely disposing of an asset, nor does it require an open-ended commitment to a particular private operator.

Third, while in theory public-sector organizations should be able to match the performance and innovation of the private sector, in practice public sector organizations are likely denied the mandate and the environment to do so. A period of time in private hands, or an ability to use the private-sector on a targeted or time-limited basis, can achieve major performance and productivity results that out-live the contract.

In all these lessons, the common conclusion is that human nature and the profit motive need to be considered: the P3 deals must maintain a degree of creative tension and ensure that the risk falls where it should, based on expertise, interests, performance assurance and financial exposure.

While in theory public-sector organizations should be able to match the performance and innovation of the private sector, in practice public sector organizations are likely denied the mandate and the environment to do so.

THE “ELEPHANT IN THE ROOM” – THE IMPACT OF ONTARIO’S HIGHWAY 407 ELECTRONIC TOLL ROAD EXPERIENCE



Credit: 407 ETR

In Ontario, no discussion of private investment in infrastructure to serve the public can proceed very far, before the experience of “privatizing” Highway 407 is introduced. For many, the perceived 407 experience is sufficient reason, on its own, to retain public assets in public hands and to avoid public-private partnership arrangements, much less a policy of asset recycling. These views may ignore the alternative outcomes: Would the road have been built-out otherwise? Would tolls have risen to pay its full cost? Still, until the 407 experience is addressed forthrightly, factually, and dispassionately, broader discussions in Ontario about private-sector investment in public infrastructure are likely to be cautious, contingent, and inconclusive.

We should therefore turn our attention to the actual events leading up to that privatization, the way in which it was done, and the legacy that it has left.

The 407 highway was built by the public sector, eventually through a special purpose Crown corporation, with preliminary construction beginning in the 1980s and the central section being completed in 1997, at a reported cost of \$1.5 billion. The objective of the Rae Government, while it managed the project from 1992-95, was to create a fully electronic, no-reduced-speed, barrier-free toll road, using unproved technology (interestingly, based on then-new cruise missile guidance technology). In addition to building a transportation artery to relieve the Greater Toronto and Hamilton Area's traffic problems, it hoped to stimulate the regional economy and showcase Ontario's engineering expertise with a groundbreaking technology with global application.

The award of the construction contract and the tolling technology contracts, by the Rae Government, was complex. The highway construction project was nearly 20 times larger than any contemporary Ministry of Transportation construction contract and used a concrete road surface (rather than conventional asphalt) to reduce ongoing maintenance, a novel approach at the time. The license-plate reading, transponder and billing technology was also untried and complex, although ultimately, that technology proved to be a public-sector innovation success story.

Despite these challenges, the tendering process was viewed as a success and work proceeded apace. When the Harris Government was elected in 1995, it committed itself to completing the project on time and on budget, despite the residual challenges. Ultimately, there were implementation problems with the technology. There were also late-stage criticisms of the value-engineered roadway-access design standards, which it was alleged created tight turning and merging demands for motorists, although independent review and audit rectified these problems. (The subsequent safety record has been exemplary). The Harris Government also repeated a campaign promise to "privatize" the road under a long-term concession agreement, anticipating significant financial returns from a competitive auction.

Since the tolling technology was not working properly when highway construction was completed, the highway was opened as a no-charge facility in June, 1997, with modestly priced tolling beginning late in the year. Interestingly, the period of no-charge use, coupled later with initial low tolls, created a big customer market for the new road (although it may also have established a long-term consumer expectation of low toll rates for its use).

Negotiating the sale and sale conditions for the 407

By 1999, facing an election and a commitment to balance Ontario's books, Premier Harris and his Finance Minister and ultimate successor, Ernie Eves, pressed to have the 407 sold. An accelerated sale process was initiated, aiming to complete the sale before the end of the 1998-99 fiscal year. The successful bidding consortium incorporated as "407 International" was a joint venture of experienced domestic and international interests.

By paying \$3.1 billion for the concession, the winning consortium in the public bidding process paid more than double the construction cost booked by the Ontario Government. For the moment, it looked like a major financial coup for government. Any debate on whether the proceeds of a capital asset disposition should be used to fund an operating budget shortfall was overtaken by the desire to balance the Ontario Budget in anticipation of the election. That election returned the Harris Government to power with a second majority government, in June of 1999.

In any P3 or public asset sale, two issues predominate.

The bidders need to include in their bid some allowance for uncertainty. Despite due diligence and even with as-full-as-possible disclosure by the owners, bidders may not have confidence in the state of the asset, its projected maintenance and repair needs, the reliability of market and revenue projections, and the business assumptions asserted by asset's owner. Those concerns are elevated for asset sales involving unproven technology, new markets, or so-called "greenfield" infrastructure, and when the business

assumptions are being done by the public sector, rather than the private sector. The 407 project had all four risks.

If there had been an extended track record of toll-road use, or if the seller used the same accounting and operating assumptions as the purchaser, the price paid for the highway would likely have been higher, since the built-in “uncertainty discount” would have been lower. Nor are these theoretical concerns on the part of bidders. If you guess wrong, your financial position can be seriously undermined, as Metronet and Tube Lines proved, and as some of the 407’s original owners learned subsequently with the Indiana turnpike.¹³

For their part, those selling the asset or concession need to balance any ongoing interests in the performance of the asset against the need to make the offer attractive to bidders. In the initial discussions about privatizing the 407, Ministry officials were evidently very conscious of future Provincial transportation considerations and skeptical about vehicle volumes of the 407, as a toll road, especially after overdue investments were made on parallel routes.

Ministry transportation planners wanted the toll-road to siphon-off traffic from parallel routes, like the 401 and the QEW. On those parallel highways, vehicle volumes were beyond road capacity for large parts of weekdays. Demands for repair, rehabilitation, widening and HOV lanes would cost hundreds of millions, some of which could be phased-in more slowly in a tight fiscal climate, if the 407 shared the traffic burden. But like the bidders, Ministry officials were unsure of the motoring public’s likely response to road tolls. Is it likely that passenger vehicles would pay a toll, when a no-charge parallel expressway is nearby, even if it is congested? Is motorists’ time valuable to them?¹⁴

When viewed in those terms, the prospect of very high tolls seemed remote. There was a greater perceived risk that cost-recovery tolls would cause traffic volumes to be too low to attract and financially sustain successful bidders,

ultimately rebounding on the Province. This risk would be intensified, as the successful bidders assumed the cost and risk of additional capital investment, which formed part of the concession agreement's requirements.

Likewise, considerations of road surface maintenance made the engineers from both bidders and the Ministry agree on one thing: if trucks were going to use the toll road in any volume, they would undermine the integrity of the road surface and shorten its useful life, especially in the non-concrete portions. The Government therefore insisted on a punitive double (or even triple) toll for classes of heavy trucks, which the successful bidders were pleased to implement to preserve their asset. If taxpayers and Toronto-area drivers had been given a vote, it seems likely that they would have favoured getting heavy trucks off highways. Indeed, that would have been a powerful selling feature for the toll road. But the negotiations were conducted in secret, so that policy option was not aired. Ironically, the low volume of truck traffic has enhanced the attractiveness of 407 ETR to motorists, as well as reducing dramatically the typical number of major traffic incidents, which disproportionately involve trucks. The lack of major incidents allows 407 ETR to market itself as a road with guaranteed travel times, one of its most attractive features in an otherwise gridlocked metropolitan area.

The terms of the agreement focused on finance and engineering: the risks associated with engineering, technology, policing and transferring the full financial risk to the bidders. There was less attention to economic and customer-satisfaction implications. There appears to have been even less attention to 'good governance' of the ongoing relationship between the 407's operators and the Provincial Government, over the next century. Contract negotiations were conducted in secret, citing proprietary information as justification, and contract documents were not publicly scrutinized or peer-reviewed by impartial experts. In fact, the contract documents themselves were not released until years later. There were recurring suggestions that political staffers and private-sector advisors to the government of the day drove much of the agenda and that commercial deal-making was the focus. It

was asserted that senior public servants – and public policy questions – were not prominent in the political decision-making processes. One informed observer described the process as “creating policy by contract.”¹⁵

The 407 privatization deal surrendered control over the setting of toll rates, lent the power of the state to the unique revenue-collection requirements of the electronic toll-road, and paid scant attention to customer-service standards. All of these decisions would come back to haunt the Government and plague the reputation of the successful bidders, at least among those who did not use the roadway regularly.

Shortly after the contract was let, the toll rates began to rise, and continued to rise on a rate that far outstripped the rate of inflation. Motorists were outraged and those ideologically opposed to P3s enthusiastically took up their cause. To compound public dissatisfaction with the level of tolling, the customer-service dimension of electronic tolling and billing generated a large volume of complaints, first to 407 ETR, and in the frequent absence of an adequate response, to the Government and the Official Opposition, soon to form the Government. The incoming Liberal Government promised to lower tolls and to champion motorists in their dealings with the 407.

With no effective governance relationships in place, the only resorts were to the courts, and to the court of public opinion. There were calls for abrogating the contract or for expropriating the right to set tolls, despite the statutorily recognized contract. Such talk did little to endear Ontario as a jurisdiction to the investment community, who express their displeasure with the prospect of political intervention, by adding to risk premiums and by making fewer investments.

The resulting feud between the McGuinty Government and the 407's operators also had the effect of delaying progress on the long-awaited easterly extension, which will serve the growing Durham Region and finally make 407 ETR a Toronto by-pass.

Many in the public and the media came to view all P3s and road-pricing as anathema, making both of those potentially worthwhile policy options hard to discuss objectively. This, in turn, made it more difficult for Infrastructure Ontario to undertake its initial round of “alternative financing and procurement” (AFP) projects for hospitals and other social infrastructure. In fact, the scope of early P3s was narrowed on individual projects, to the point where many of the opportunities for synergy, scale and ongoing operation were considerably reduced.

To compound the problem, the ownership of 407 ETR consortium changed, as equity partners withdrew or added to their ownership stake. A little over two years after the Ontario Government celebrated getting \$3.1 billion for the 407, a part interest in 407 ETR was sold for a price that suggested that the valuation had more than doubled from its recent price. Suddenly, even the most positive aspect of the 407 deal – a 100 percent profit on book value – looked more like a case of selling the 407 at a ‘fire sale’ price to cover a budget shortfall in 1999.¹⁶ In 2010, the Canada Pension Plan Investment Board bought 10% of 407 ETR for \$894 million, suggesting that the value of the toll road continues to climb as construction is completed and technology is refined. In fact, customer volumes continue to rise and remain predictable, despite regular increases in toll rates.¹⁷

How has 407 ETR performed over time?

The 407 ETR now extends 108 km from west to east, with 1,178 lane km of roadway, 41 interchanges and 208 bridges and overpasses, with nearly 200 tolling gantries.

Opinions on the 407 are still easy to secure in the GTHA and those discussions are often spirited. Interestingly, opinions reflect a dichotomy between those who use the roadway, and those who do not, or have no reason to do so. Much like opinions about police or fire suppression services, motorists’ and taxpayers’ views on the 407 fall into two categories: informed opinions from those with first-hand experience, and the perceptions of the majority, who rarely if ever find occasion to use it.

Not surprisingly, 407 ETR pays particular attention to those who use the road, and those who might be persuaded to use it, or use it more. The Ontario Government, by contrast, needs to consider the views of the whole population of Ontario, especially those in southern Ontario and those who, on principle, oppose private-sector involvement in ventures like the 407.

Our conclusions are that 407 ETR has become very popular with those who use it, although they chafe about the cost of tolls.¹⁸ But given the choice between the 407 and the no-charge alternatives of the 401, the QEW and Highway 7, they pay the toll. This suggests that the value of the service (notably time savings, predictable travel times, and safety) justifies the expense. Surveys of users appear to confirm these conclusions. Reflecting the focus given customers by 407 ETR, past concerns about customer service have largely evaporated, outside of a tiny minority that contests tolling arrears despite an Ombudsman's findings. While 407 ETR continues to market its value-proposition to current customers and non-customers, its use is a needs-based alternative to free roads. In simple terms, 407 ETR clearly meets the needs of its customers but likely cannot address the views of the rest of the driving public, and unlike governments, has limited incentive or ability to do so.

It is also worth noting that, complying with its original contract, 407 ETR has completed \$1.6 billion in road improvements. These capital expenditures, financed by tolls, allowed the Ontario Government to invest in other road and transportation infrastructure. This has extended the toll road by 40 km, and added capacity by widening busy segments (totalling over 220 lane km overall, to date). Likewise, the cost of 35 OPP officers is paid by 407 ETR, rather than by the taxpayers, as in the rest of Ontario. In both cases, the Government retains the revenues from traffic offence convictions.

Above all, the best expression of customer satisfaction is tolling-paying usage.

A few statistics tell most of the story.

Usage has gone from 237,000 trips when the roadway opened to an average of 380,000 trips each weekday, representing over 114 million trips annually. The number of transponders issued has gone from 300,000 to over 1 million.

From a sluggish call centre operation with 21 phone lines and 21 operators in 1999, and no on-line offerings, 407 ETR now has 174 workstations with 640 phone lines, supported by sophisticated call-centre technology and contemporary web services. On-line registration services also support an immensely popular paperless billing option. In 2013, 640,000 billing-related customer service calls were answered in an average of 20 seconds. It is worth noting that the volume of calls is a tiny fraction of the customer base of over 1.6 million monthly billing accounts, which also speaks to increasing customer satisfaction and customer service offerings.

Unreadable or un-billable vehicle-use has dropped from 9% to a mere 2.3%, with world-class plate-identification technology and processes. Customer service calls are down, use of on-line services is up 40%, and on-line payments and pre-authorized payments are also up dramatically. With 407 ETR users, favourable opinions are now in the 85-90% range.

Perhaps the ultimate comment on the change in public and government attitudes towards 407 ETR lies in the Ontario Government's decision to build the 22 km extension to Oshawa and the two links to the 401, east of Toronto. The contract was awarded to 407 ETR's two largest equity partners, the Spanish infrastructure giant Cintra and the Canadian engineering firm SNC Lavalin.

Usage has gone from 237,000 trips when the roadway opened to an average of 380,000 trips each weekday, representing over 114 million trips annually.

What happened to the Liberal Government's determined opposition to 407 ETR and privatization of highways and other public services? When making his public announcement of the eastern extension of 407 at the offices of 407 ETR, then-Premier McGuinty explained:

"I asked and there were 120 million trips last year on the 407 ETR," McGuinty said. "That tells me that the people of Ontario are voting with their kilometers, with their cars in terms of just how committed they are to using this road."¹⁹

What might have been done differently?

What have we learned from the 407 ETR experience?

The valuation of the roadway was too much influenced by public-service parameters: the cost of construction and the book value of the investment. The true valuation would have been a business valuation, which would likely have pointed-up the impact of reducing the uncertainty of so-called "patronage" risk – the risk that the government's estimates of motorists would be too optimistic, or that motorists would not be willing to pay cost-recovery level toll rates. These risks were quantified and largely eliminated early in the life of the 407, but the beneficiaries were the foreign owners and their domestic pension fund investors.

If the risks had been shared through a "participation" agreement model, or by allowing the Government to retain a minority interest, the upward revaluation of the asset would have benefitted taxpayers very handsomely, as it did, for example, with the Teranet P3. Correspondingly, a willingness of the government to share the risk that estimates were too rosy would likely have resulted in a reduced "uncertainty discount" in the original bids.

One wonders if the assumptions about truck usage and its impact were part of the evaluation of the 407 East deal. While the current 407 alignment and cost structure are unattractive for trucking companies, new links to the 401 east of Toronto may alter that calculus, with implications for the maintenance and refurbishment of both the existing and new roadways during the 30-year term of the Agreement, as well as the condition of the 407 East roadway at the end of the Agreement.

The structure of the 407 East deal, however, also points to lessons learned. The initial concerns and risks associated with projected usage were imposed on the contractor. For 407 East, a decade of experience means the doubts are largely gone, so the Government merely pays an availability payment, irrespective of the volume of use. There are no additional conditions or obligations to build-out the network: the 407 ETR consortium must simply deliver the prescribed road on time and on budget, and then maintain it over time.

The term of the deal is also shorter, enough to allow the consortium to finance its capital and operating costs, but not open-ended for generations. But the benefits of P3s are also clearly accepted by government. The roadway is to be built in 36 months, and operated for 30 years.

With the risks largely eliminated, the operator also loses control over toll-setting and the opportunities to expand or manage traffic volumes, using tolling as a tool. With the Government taking advantage of the technology refinements and innovations achieved by 407 ETR, the operator now simply uses its tolling technology to collect the tolls and remits the proceeds to the Government.

Under the 407 East regime, all the tolls paid are retained by Government and the Government pays 407 ETR its agreed monthly “availability payment” for building and operating the eastern section of the roadway. One wonders, however, if this predictable model will do as much as the original deal and the run-up to it, in terms of innovation.

P3s are often touted for their incentives to improve productivity and to innovate. During the first 15 years of 407 ETR privatization, we have seen considerable innovation in the gantry system, camera use, technology security, technology management and testing, municipal shared-use of 407’s bridge assessment technology, and in customer-relationship management. Will the operators of the 407 East be similarly motivated by a more straightforward fee-for-service construction, maintenance and cash-management contract?

PUBLIC ASSET RECYCLING

Canada's current prosperity and quality of life rest on the shoulders of past investments. In particular, Ontario's economic success and productivity is based on the infrastructure foundation built and financed by past capital investment, including bonds and debentures issued in the low-interest decades following World War II. They were supplemented by a further major round of public investments, dating from the late 1960s through the mid-1970s, driven by the needs of the baby-boom generation. Throughout, these investments were complemented by civic, hospital and educational infrastructure investment financed from development charges, philanthropy, debt-financed capital grants from the provinces, and periodic federal capital funding.

But those investments were made in our parents' generation. From transit facilities and water lines, to energy infrastructure and recreational facilities, the need for new investment by governments is now abundantly clear.

In very persuasive and evidence-supported terms, many influential opinion leaders, decision-makers and academics have made the case for additional revenues to support renewed, more aggressive infrastructure and transit investment. But apparently in the view of most successful politicians, we're not winning the hearts and minds of the voters for more money from taxpayers' pockets. With a sluggish economy, youth under-employment, and skepticism about government efficiency and accountability, the public shows little enthusiasm for more taxes or fee increases.

Evidently, we are not going to hear public support for raising taxes and fees any time soon, even for much needed public and community infrastructure.

If we cannot currently generate new revenues from citizens and businesses to invest in public infrastructure assets, what can we do? The obvious answer, borrowing from Europe and Australia, is to find ways to "leverage" the valuable public assets that we already have. Faced with a range of fiscal

and political challenges, many are proposing a new approach: leveraging or disposing of all or part of governments' investment in their legacy assets. A related concept, known as "public asset recycling", merits serious consideration.

Put simply, "public asset recycling" asks governments to dispose of legacy assets – from public infrastructure to government monopolies – to generate the capital needed to invest in new assets or to refurbish existing infrastructure. Australia's experience points the way.

The Ontario Government spends over \$10 billion each year for debt service (the third largest expenditure, after health and education). Paying for new infrastructure with asset dispositions – rather than by borrowing more abroad and using taxes to pay the debt-service costs – has much to recommend it. In a study produced by the Mowat Centre at the University of Toronto in April – *Recycling Ontario's Assets: A New Framework for Managing Public Finances*²⁰ – the concept is outlined in greater detail.

What incentive is there for public authorities even to consider the option of leveraging their wide array of public assets? The immediate answer appears to be: very little, unless the context and framework for decision-making can be reformed. As the esteemed international magazine *The Economist* said in its January 11, 2014 article: "Advanced countries have been slow to sell or make better use of their assets. They are missing a big opportunity."²¹

Governments and the people they serve need to assess critically the billions of dollars in assets that we own as a society, from government enterprises to infrastructure – including public lands and buildings, as well as valuable "intangible" data and technology assets – to see if it still makes sense to own them. If not, can we sell them in whole or in part, perhaps including their monopolies, to pay for the infrastructure we need now for the long-term?

We may even find that these public assets are worth more to the taxpayer in private hands. Could we sell some government enterprises and monopolies and still earn the same net revenues and advance public policy goals? Our public-sector pension funds can certainly point-out some good examples.

The Panel headed by Ed Clark²² has looked at the issue of underperforming public assets and proposed some measures which would improve the productivity, profitability and public benefit of these assets. But the mild medicine proposed does not seem to match the seriousness of the malaise. For example, with a projected \$12.5 billion operating deficit and a balanced budget target of 2017-18, the Panel believes its recommendations can contribute \$2-3 billion towards the Government's \$29 billion transit and transportation commitments. Perhaps a more fiscally productive strategy is in order. With care and good judgment, asset recycling can be much more financially successful, while still being politically defensible. It might be prudent to emulate Australia's evident success with public asset recycling and "test the market" seriously, before we reject the idea.

The promise of public asset recycling

In any major program of asset recycling, the sale proceeds or avoided costs would allow us to build desperately needed new and refurbished public infrastructure. This is not a case of selling the furniture to pay for the groceries, as some cynics suggest. It is more akin to selling your used car to help pay for your new car (or selling the snowmobile in the garage to pay for your teenage daughter's dental braces). It's all a question of setting priorities.

The Clark Panel urged a measured approach and modest first steps.²³ While "incrementalism" is likely a good tactic, a cautious approach may not be in the public interest. As a banker, Ed Clark would also be aware that, in this historically low-interest-rate environment, the disposition value of public assets will likely never be greater than they are today, in current dollar terms.

We should look at the proven courses that hold definite promise.

Across the world, pension funds and sovereign wealth funds are investing in infrastructure and in a range of public assets, from publicly operated business enterprises, to information technology. Many of these capital investments provide ‘public goods’ that would otherwise not be available to debt-ridden and cash-starved governments and public agencies. Other transactions are designed to produce one-time revenues or streams of revenues to build or restore public infrastructure, while reducing the taxpayers’ obligations to pay-down deficits or to fund capital borrowing.

The experiences (both positive and negative) of other jurisdictions can guide Canadian governments, by anticipating problems with this policy, and mitigating their potential effects. Leveraging assets does not have to be a political minefield. In fact, it can be the route to governmental and fiscal success. Levering assets can facilitate governments’ ability to meet their current and future economic, fiscal and programmatic objectives, without resorting automatically to the over-burdened taxpayer, adding to the cost of doing business, or increasing public debt or deficits.

Despite these global trends, asset-recycling initiatives were uncommon and unpopular, especially across North America, although in Canada, there is a growing number of P3/AFP projects.²⁴ Historically, public entities in jurisdictions like Ontario have often preferred to be active participants in delivering services and building facilities, rather than simply causing them to be provided to communities and consumers.

Levering assets can facilitate governments’ ability to meet their current and future economic, fiscal and programmatic objectives, without resorting automatically to the over-burdened taxpayer, adding to the cost of doing business, or increasing public debt or deficits.

Some of this justification may be rooted in history; some is based on ideology or self-interest; some may claim a public purpose that is unlikely to be achieved without government control and ownership; and, some simply point to revenues flowing to government from government-owned operations. In the case of Ontario and its local government sector, all four of the foregoing arguments are heard. These arguments are supplemented by the assertion that capital is inexpensive for the public sector in Ontario, and readily available for public projects and public enterprises – if, of course, there is willingness to take-on public debt at the Provincial or municipal levels of government.

Governments do need to be smart about the asset recycling process, but that is mainly a matter of the design of the deal, not a flaw in the principle of asset recycling. For examples, overall the sale of the land-registry service Teranet has been a great financial success for the Government of Ontario. The private operation of the nuclear facilities of Bruce Power has helped Ontario to assure its electricity future. Both of those asset-disposition deals continue to earn solid returns for 440,000 OMERS pension-fund members in Ontario.

Detractors can always find examples of failed efforts at involving the private sector in government assets, depending on their definition of failure. Those criticisms should not be ignored. In fact, they are addressed elsewhere in this Report, including some of the P3s that are cited as evidence of flawed policy. But ultimately, it is all a matter of the terms and conditions, and effective negotiations, based on due diligence and learning from experience.

The need to leverage public assets in a comprehensive fashion is both pressing and opportune. Pointing the way, “asset recycling” is the centrepiece of the recently introduced 2014-15 Australian budget. Asset recycling in Australia combines an effort to fund needed infrastructure, to provide investment opportunities for pension funds and domestic sources of capital, and to reduce the debt and tax burdens of its States and municipal governments. By using yesterday’s capital investments to fund today’s and tomorrow’s public priorities, governments can dislodge themselves from the vice-grip of a weak economy and crumbling infrastructure, and a lack of fiscal

and political capacity to act in ways that are decisive, and even visionary. Australia's Productivity Commission and the Commonwealth Government's Infrastructure Australia agency draw direct links between steadily improving, productivity-fueled economic performance, and an ability to provide timely, modern infrastructure to support its economy and its cities.²⁵

As Australian Prime Minister Tony Abbott argued in the run-up to his chairmanship of the G20 meetings in November 2014:

“Strong action by G20 governments can deal with these issues that all too often hinder growth. For example, strengthening trade requires getting the right infrastructure in place and having people with the right skills to manage the international flow of goods. Getting infrastructure in place requires unlocking capital and kick-starting investment, and unlocking capital means having the right regulatory conditions and incentives in place for the financial sector. These issues are interconnected and should be tackled simultaneously.”²⁶

Abbott's views were echoed by the so-called B20 group, the business leadership counterparts to the G20 political leaders.

“Robert Milliner, B20 Sherpa, said he expected progress to be made when the group chiefs meet with G20 leaders, particularly on the infrastructure agenda, but more work needed to be done on labour market reform and to stimulate trade.

““We are encouraged by proposals to establish a Global Infrastructure Hub. Our research shows that establishing a Hub would support an additional USD 2 trillion in infrastructure capacity, add USD 600 billion to global GDP and support 10 million additional jobs by 2030,” Mr. Milliner said.

“He said productive infrastructure investment is the key to sustainable increases in economic growth because it creates permanent direct employment and enhances productivity for the commercial enterprises that use it.”²⁷

And to quote Australian Finance Minister Joe Hockey on his April 2014 Budget:

“...I also want to emphasise that the Government will not fall into the trap of cutting back on infrastructure spending as the United States and many European countries have been forced to do as their fiscal positions have deteriorated.

“Instead, the Government will boost infrastructure spending, including through my work with State and Territory counterparts on an asset recycling initiative.

“This ground-breaking policy will see the Commonwealth provide financial incentives to States and Territories that sell assets and recycle the proceeds of these sales into new productive infrastructure...”²⁸

Australian High Commissioner to Canada Louise Hand stressed the infrastructure-economic growth connection to her Canadian audience:

“Creating an environment that is conducive to growth means removing impediments to private sector growth, enabling free trade, and lifting participation and employment – particularly of women and young people. Working with Canada, Australia, as G20 chair, has encouraged the G20 to shift its focus from government-led growth to private sector-led growth, particularly through additional investment in infrastructure. Last month in Cairns, G20 finance ministers and central bank governors agreed to establish the Global Infrastructure Initiative, which will include the development of a database to help match potential investors with projects.

“Infrastructure has a key role in Australia’s efforts to boost growth, supported by the government’s recently-announced asset recycling initiative. Our current federal budget has committed \$50 billion to infrastructure, the largest infrastructure investment in Australian history. In turn, we are forecast to generate a record \$125 billion of public and private investment in infrastructure over the next decade. We are confident some of this investment will come from Canada, given the expanding interests of Canadian pension funds and other investors in Australian infrastructure.”²⁹

The ‘cycling’ of public assets

Asset recycling also argues that the policy governing public assets should be seen as dynamic and cyclical, not static or ideological. By leveraging existing public assets – from land and infrastructure, to government enterprises and intangible assets like information technology – governments at all levels can ‘unlock’ the wealth of legacy assets. Recycled public assets can pay for urgently needed new or deteriorating public assets, from roads and bridges to educational facilities and environmental projects. The role of the private sector can be harnessed to build and deliver new public assets or to provide services traditionally provided directly by public agencies.

When vestigial public assets are no longer required to fulfill some significant public purpose, they can be returned to society as taxpaying enterprises and/or managed effectively and efficiently by the private or non-profit sectors as facilities or services to meet community and consumer needs. Even where public assets actually meet an express public policy goal or need, the non-government sector can play a role in efficient and customer-focused delivery (such as Bruce Power in nuclear energy), or to generate better financial returns to government (such as the Teranet land-registry system).

Properly structured, asset recycling can be used at each stage of the asset’s lifecycle, from asset acquisition through P3s or concessions, through asset management by private operators, and finally, to the full or partial sale, lease or joint venture as part of a government disposition of non-core public assets. As noted elsewhere, there is also a potential benefit in reacquisition or repatriation of assets, either for ongoing government use, or to cycle again for further financial and operational advantage.

Asset recycling also argues that the policy governing public assets should be seen as dynamic and cyclical, not static or ideological.

In all three phases of their lifecycle – from acquisition, through operation, to disposition – public assets can be ‘levered’ to generate better performance, risk-transfer, and financial returns to governments and public agencies (including reduced express or implicit subsidies). Done properly, the cycling of public assets through these three phases can reduce the burden on society by reducing public debt, attracting new investment and economic activity, providing competitive returns for pension fund and public investments, and allowing new needs and priorities to be met from legacy assets.

Several assessments of asset-disposition and P3s suggest one other element of the cycle: re-acquisition or as the Clark Panel suggests, continued partial ownership.

Two important conclusions can be drawn from early experiences with P3s.

First, by continuing to play an ownership role, but with private-sector partners or managers, government can deflect many of the criticisms that suggest the taxpayers will have to “pay twice” for their infrastructure: initially through their taxes, when the asset is built or acquired, and then again, as the private sector imposes fees and costs on consumers to generate the returns needed to defray the purchase cost and to pay profits to shareholders. The public sector also can develop expertise from the private sector that would not generally be available within government.

Second, at the end of a P3 arrangement, a well-designed P3 agreement will leave the public authority with the benefit of capital investment that the government would have had difficulty funding. In many cases, after years of private-sector management, government will inherit a much leaner and more efficiently run operation than it transferred to the private sector. That, in turn, either allows the government to continue to manage it in the same fashion, or to make the asset available to another private operator (or owner) in the future, at a much better price.

“The devil’s in the details”

While the concept of public asset recycling may sound deceptively simple, there are many hurdles to its effective implementation. But they are hurdles worth challenging, because the potential benefits are very significant.

In looking at the experience in Australia, Canada and elsewhere, there are lessons to be learned. Success depends on creating conditions that favour government support for recycling assets, and by matching those efforts with a clear-eyed approach to removing the barriers to private investment. Beginning on page 88, we list criteria and checklists for success, largely based on the Australian experience, although each point would justify further detailed research and analysis.

In its best manifestation, public asset recycling funds investment in new or expanded infrastructure and other public assets by finding ways to generate revenues from existing public assets. In selecting ‘disposition candidates’ within the existing portfolio of public assets, special focus is given to those public assets that no longer address a major public priority, or that could serve the public equally well without full government ownership, operation and financial support.

Many of the capital investments that could be financed from asset recycling could provide ‘public goods’ that would otherwise not be available to the public, as well as delivering significant, sustainable returns for pension funds.

Governments around the world are re-examining how to ensure maximum public value from their assets. But in Canada we often maintain public ownership uncritically – or dispose of our public assets in haphazard or episodic ways. Globally, new approaches to asset management that protect the public interest while maximizing revenue generation have emerged and should be considered here.

An informed public discussion about how Canadian governments should manage and monetize public assets is overdue.

That discussion must include the successful approaches that are being used globally to monetize assets while protecting the public interest. Traditional 20th century debates between public ownership and “privatization” are increasingly irrelevant to the real choices facing governments.

At the same time, private capital – including public-sector pension fund capital – is looking to invest in public assets and infrastructure in reliable jurisdictions, like Ontario. A new framework for asset management and reinvestment, based on the principle of asset recycling, would allow increased investments in infrastructure, protect the public interest, and make use of both the expertise and large pools of capital available in Ontario.

The Mowat Centre’s recent Study entitled “*Recycling Ontario’s Assets: A New Framework for Managing Public Finances*”³⁰ suggests a new policy framework for public assets to increase their value. By leveraging existing public assets – from land and infrastructure, to government enterprises and intangible assets like information technology – governments can unlock the wealth of legacy assets. Recycled assets can pay for new roads, bridges and public transit; education and healthcare facilities; more weather-resistant infrastructure; and even social and technological infrastructure.

The Mowat Centre Report recommends a framework for governments to manage and “monetize” public assets. Some of the key recommendations include:

Federal and provincial governments should follow the lead of municipalities and clearly separate operating from capital revenues and expenditures. Debt financing to invest in long-life capital assets like infrastructure should be acceptable, while operating deficits should be avoided. This can only occur if budgets distinguish operating from capital more clearly.

Governments should develop frameworks for managing their assets, beginning with understanding what they own, and why. Asset management frameworks should identify the policy purpose for owning an asset and determine whether the original purpose is still compelling. Policy makers

should look objectively at the alternatives available to protect the public interest, while increasing revenues to be used for public purposes.

Governments should improve their capacity to manage assets by hiring those with the expertise necessary to monetize assets. Asset planning should take place centrally, rather than be undertaken by individual ministries and other government entities. Decentralized, departmental asset management often diminishes the public value of our assets, and individual departments are not always well placed to make integrated decisions regarding the disposition of assets.

Many of the accounting, audit, and tax rules currently governing the disposition of public assets will need to be reformed. We have designed these rules with the public interest in mind, but some have come to undermine good public policy. Currently, it is often necessary to book the proceeds from an asset sale in the year in which the sale took place, rather than allowing the proceeds from an asset sale to be saved, invested or deployed in ways that reinvest in public assets over a longer time horizon.

A formal policy of asset recycling should be adopted, with the proceeds from asset disposition put into an Infrastructure Trust. This Trust would ensure that revenues from asset disposition would be used to invest in new, priority infrastructure. Such a Trust could take on the characteristics of an Infrastructure Bank.

Asset planning should take place centrally, rather than be undertaken by individual ministries and other government entities.

The Mowat paper recommends a new strategic framework for asset management, referred to as public asset recycling, that would protect the public interest, increase revenues with reduced burden on taxpayers, and permit a new wave of infrastructure renewal.³¹

When all or part of these individual non-core or vestigial ('expendable') public assets are sold, leased-out or transferred to private management, or when unaffordable, taxpayer-supported reinvestment in some public assets can be

avoided, ‘new’ revenues are created or new revenue ‘streams’ made available. These “new” revenues can, in turn, fund capital investment in urgently needed and otherwise unaffordable new public assets, like transportation infrastructure, and to restore or expand those public assets that continue to meet public sector priorities and to support core government activities.

As part of this evaluation and redeployment process, it is important to observe a variant of the “matching principle” used in accounting, under which related assets and liabilities are paired. There needs to be criteria for identifying asset-recycling candidates. The tools that are employed must also match the type of asset and its stage in the cycle of asset acquisition, operation, disposition, and perhaps reacquisition.

The hurdles facing an asset-recycling policy:

While asset recycling is simple to describe and understand, its implications and implementation would present major challenges. In the eyes of some, disposing of public assets to meet current fiscal priorities is not seen as the public equivalent of selling your used car to pay for your new car; for its opponents, asset recycling is characterized as selling the furniture to pay for the groceries. There are also concerns, played-out in the UK, Alberta and elsewhere, most notably in Detroit, where capital infusions were used for unsustainable public activities or near-term fiscal challenges, rather than being retained for long-term capital reinvestment.

In Ontario, there are many skeptics, based on real and perceived shortcomings with early attempts to involve the private sector in the delivery of public services. Even with the unquestionable successes of Infrastructure Ontario, that skepticism persists, most notably in the media and within the community of Auditors General. The failure of government to provide adequate protection to the public in the 1990s privatization of drinking water quality inspection and the public perception that the Ontario Government was inept in its privatization of Highway 407 stand as major obstacles to public (and political) acceptance of an asset recycling policy. To those initial hurdles can be added all those who have a vested interest in the existing

arrangements, from public-sector managers and local politicians, to public-sector trade unions, potentially affected communities, subsidized clients, and other “customers” and beneficiaries of public services “just as they are”.

Despite these obstacles, progressive changes in public attitudes in the face of special-interest opposition can occur. The Ontario public’s general acceptance of nuclear energy and support for anti-tobacco policies demonstrates that public attitudes can change, if there is effective engagement of a well-informed public, supported by evidence and proof-of-concept demonstrations.

A formula for progress with asset recycling:

For asset recycling to be a successful policy, we would need to take a multi-faceted approach to implementation. The ‘preconditions’ for a public asset-recycling policy include:

- (a) making the right choices about potential candidates;
- (b) creating a dependable pipeline of projects or “bundles” of potential projects;
- (c) choosing the right method, model and degree of disposition;
- (d) outlining key ingredients in successful disposition;
- (e) identifying opportunities for a private-sector role in the ongoing operation and retooling of assets remaining in public ownership; and,
- (f) perhaps most significantly, avoiding the real and perceived mistakes of the past.

Despite the vocal skeptics, there are many examples of successful initiatives in this field, and many useful lessons to avoid the mistakes of the ‘pioneers’. To benefit from this experience, however, we need to identify measures that reduce the significant political or public risks associated with asset recycling, while using asset recycling as a major contributor to reinvigorating Ontario’s economy, fiscal outlook, infrastructure and communities.

With any full, partial or phased asset disposition strategy or policy, we need to examine the ways in which the proceeds of public-asset recycling should

be used. In particular, Ontario and its municipalities need to avoid the risk of dissipating their potential by diverting ‘new’ revenues to a host of worthwhile public endeavours unrelated to infrastructure construction and government business enterprise re-tooling. Competing claims will be made for using proceeds to pay-down Provincial and municipal debt, or to defray an annual budgetary deficit.

To aid public authority decision-makers, we need to develop practical distinctions among public assets. This would assist in identifying the reasons used to justify asset-recycling, by clearly differentiating them by category (e.g., obsolete or obsolescent assets; transfer risk for assets requiring technological upgrading; non-core and vestigial assets, including those generating revenues for government; productivity improvement or dysfunctional labour relations; expanded capacity or economies of scale; etc.). The goal would be to suggest ways in which ‘candidates for recycling’ with certain features can be matched with the best models and processes for disposition for that category.

IN PRAISE OF ‘RELENTLESS GRADUALISM’ – THE CLARK PANEL’S RECOMMENDATIONS

Given the size of our infrastructure needs, many were heartened by newly re-elected Premier Wynne’s commitment to infrastructure investment and the appointment of a distinguished external Panel, chaired by respected bank executive Ed Clark. The fiscal challenges facing the Ontario Government are not insurmountable but made more difficult by a number of recent major infrastructure commitments. While these infrastructure projects are critical to the province’s future prosperity, these cannot be financed through traditional sources of capital investment by the public sector. A Panel with a mandate to look at non-traditional sources of revenues for infrastructure investment appeared to be a refreshing, even courageous foray. As the Provincial Finance Minister said in his Fall 2014 Economic Statement:

“The Council agreed with the government’s overall strategy to consider divesting non-core assets if it was in the public interest to do so. Reducing ownership would provide the government with funds to further invest in infrastructure that could deliver high societal and economic returns to the province without adding to Ontario’s overall debt or increasing the deficit.”³²

However, in its initial reporting, most of the attention of the Panel has been focused on making existing arrangements more efficient and market-competitive, without upsetting the existing, government-mandated oligopolies in energy and beverage alcohol.³³

While those measures are laudable, they do have their detractors. To date, the response of the Panel to meeting the full scope of Ontario’s infrastructure challenges from leveraging public assets appears to be very modest, perhaps even timid. Moreover, established labour-relations practices and legislation, and the persistence of the transfer tax on utility consolidation, make any breakthrough changes seem unlikely (the latter being an issue identified for attention in Phase II of the Panel’s work³⁴).

What the Clark Panel did do, however, was accurately reflect the prevailing ethos of Ontario society. Ontarians generally seem to prefer to have a very prominent government role in the delivery of infrastructure. Why Ontarians feel this way could be open to much speculation, and it is likely neither uniform, nor a product of any single rationale. But it is undeniably a constraint on public policy options in the acquisition, operation and disposition of the classes of infrastructure that will serve the general public and Ontario’s communities.

So, what options are still viable, within these self-imposed constraints?

An overlooked element of the Clark Panel’s commentary on ‘sweating’ assets³⁵ is the implication that this might have for considerations of P3s. The Panel focused on operational and cost improvements that might be undertaken, including introducing more market dynamics. What the Panel did not do, however, was address what might be done to accelerate this process, or the measures to be taken if internally driven productivity improvements did not achieve their full potential.

With the LCBO, as with many other government business enterprises, there may be opportunities for improving government's annual returns (or in the case of other entities, like GO Transit, reducing its subsidy). This can come through private-sector management, market innovation, technological investment, or having greater latitude than politically constrained governments, to differentiate fees and services in response to market factors, rather than in response to political considerations.

The experience of those major Canadian public-sector pension funds that are active in the private equity field is illustrative. In private equity investments, pension funds buy firms with up-side potential, reorganize and refocus them, and thereby make them more profitable and more valuable. They eliminate non-value-added activities and poorly performing products and service lines. They focus either on core business or on introducing new products and services that better reflect market opportunities.

After several years, the firms are re-sold via IPO or auction, typically with two results. First, the buyer acquires a revitalized firm that is a lean, well-performing business. Second, the pension fund realizes a sizable profit on the sale of the firm to the subsequent owners.

Many P3s have these same features. These deals are structured as a time-limited, often renewable, concession – but with a sufficiently long term to attract investment and to allow returns over time to repay that significant capital investment. Title to the asset remains with government, or the effective ownership reverts to government at the end of the term of the agreement. In either scenario, the asset reverts to full public ownership and control. With a sufficiently long agreement term, the private sector partner can develop a pro-forma that allows it to finance its investments and to amortize those investments against operating revenues. For the general public and many decision-makers, there is a material difference between ceding operational control (even on an essentially permanent basis, as with road maintenance or school bus contracts) versus surrendering title to public assets originally built with taxpayers' funds.

It is hard for any public institution to reform itself. In particular, many government business enterprises and public utilities find it difficult, for a host of reasons, to realize their full commercial potential. By introducing an element of private-sector discipline into their operations, or by introducing market forces as an incentive to modernize and become more productive, their performance, profitability and value can be improved.

However, once those benefits have been achieved – better operating procedures, private-sector labour-management conditions, improved operational productivity and work practices – governments are left with two very attractive options. Governments can re-acquire the assets, benefiting on an ongoing basis from lower costs and better performance imbedded in their operations during their time in private hands. Or, the government can continue the operation in private hands, or following re-acquisition, governments can once more offer the asset to the market, either as a P3 or as an asset sale, essentially benefiting twice from the disposition of the public asset.

**It is hard for any public institution to reform itself.
In particular, many government business enterprises
and public utilities find it difficult, for a host of reasons,
to realize their full commercial potential.**

Phased transition – move gradually, but keep moving

Another approach to P3s is to have the public sector retain a minority interest, as was done very successfully with Petrocan, Suncor and Teranet. A senior public sector pension fund executive offered some irreverently candid observations on the wisdom of this approach, when operating in a public sector environment:

“We saw a lot of privatizations... the most successful I’ve seen for both parties are where they sell a majority and maintain a minority, and not look like a fool if the new guys make a lot more. It’s the UK model. There have been many unsuccessful cases that I’ve seen where it’s been a 100% sell-off. I call that ‘Schmuck’ insurance.”³⁶

A variation is to create a Crown corporation with a progressively expanding commercial mandate, as the Government of Canada did with major ports (e.g., Hamilton and Toronto), the Greater Toronto Airport Authority, and with air-traffic control (NAV Canada). Nor is that necessarily a permanent arrangement – it may be an interim step on the privatization continuum. The Government of Canada managed to divest itself of a number of expensive and poorly performing public enterprises by moving through a Crown corporation phase to full privatization, as with Air Canada and CN Rail.

As the Clark Panel observes, much can be done to improve the profitability of the LCBO. However, it needs to offset the effect of monopoly in several dimensions: in its orientation to returns to the shareholder; in labour relations; in real estate investments (whether ownership or leasehold); and, so on. Does the LCBO negotiate for store locations from the position of being a high-draw, destination retailer, in an era where that kind of retailer is becoming harder to find?

For the LCBO, moreover, the measure of efficiency should certainly not be nominal net returns to government. That hurdle is too easy to clear, especially with a high-demand, market-resilient product being sold by a monopoly, without the conventional tax and marketing obligations of a retailer or wholesaler.

In their review of the 2004 book on the 407 by Chandran Mylvaganam and Sanford Borins, Holzer and Schwester make these observations about the options that fall short of full or very long-term privatization:

“The authors present two alternatives to privatization: (1) privatization for the long term and (2) public ownership. Privatization for the long term encompasses a shorter lease period, thirty years as opposed to the ninety-nine-year horizon. Further, this approach considers the option of the government’s retaining a minority interest in Highway 407 so as to realize a portion of the revenues generated through tolls.

“Regarding the public ownership option, the authors maintain that the government could have used Highway 407’s electronic tolling technology as a basis for tolling other highways and perhaps even urban road systems. This would have served as a source of revenue and provided a cost effective way of maintaining the nation’s highway infrastructure. Perhaps more important, this could have helped Canada emerge as a leader in advanced highway and transportation development.”³⁷

From the technological standpoint the approach taken by the Government on 407 East seems to have incorporated these ideas into the contract with the majority owners of 407 ETR.

One of the big risks of taking a partial or tentative approach to P3s or privatization lies in saddling the asset disposition with “uncosted” conditions. These are often conditions that are unrelated to the deal itself, but rather aim to anticipate and mitigate stakeholder or political criticism, or to achieve some convenient but extraneous policy objectives. That is not to suggest that the way for P3s and other asset dispositions should not be cleared with measures that reflect legitimate collateral considerations. It is important however that these conditions be expressly specified, and their purpose and costs be segregated. As these conditions are not integral to the sale, P3 or disposition proceeding, these can be treated as add-ons. As with a new car purchase, those approving the deal and deriving the benefits should know what they are paying for “the options.”

There needs to be transparency and “truth in accounting” when conditions are imposed. Conditions add uncertainty and affect profitability and productivity. As a result, these might materially affect the value of the deal. With the light shone on them, in many cases it may be determined that there are other less intrusive and less expensive ways to achieve the policy objective, such as through a regulator with a statutory mandate to manage the operating environment for the asset or enterprise.

What are these conditions? They might include preservation of existing wage rates, staffing levels, employment conditions, or bargaining agents; they might involve ongoing oversight or regulation of post-disposition service-levels and consumer pricing. They may also include transaction conditions unrelated to continued successful provision of the infrastructure or service (e.g., conditions that would add cost or reduce the transparency of the transaction, including un-costed or undisclosed public policy considerations, related to social policy, environment, geographic locations, limits on consolidations, use of energy, etc.).

In some cases, as with Teranet, there are advantages in a continued relationship or partial ownership with government, on a risk-reward model similar to the commercial development industry's use of "participation agreements". In 1991, the Ontario Government established Teranet as a P3 land-registry business serving Ontario, with allied businesses to follow. By 2003, with good performance and broad customer acceptance of the private sector's role in land-registry, the Ontario Government had the confidence to sell 50% of its ownership in Teranet. Three years later, for its remaining 50% interest in Teranet, the Ontario Government realized an amount from Teranet's IPO that exceeded its earlier 50% disposition. Two years later, the Province sold its remaining ownership stake to an infrastructure pension fund, for more than the original valuation of the business.

The Teranet experience contrasts with the asset dispositions overseen by the Government's Ontario Realty Corporation (ORC) with property sales in the 1990s. In the ORC case, the focus was on transferring ownership immediately and realizing a quick return for government. In practice, this meant largely leaving the complex and often contentious process of development approvals and property development to subsequent owners. In a number of cases, those subsequent owners realized large profits from re-sales shortly thereafter. The result was a public perception, as with the 407 deal, that the Government "left a lot of money on the table" and did not generate adequate returns for the original investment by taxpayers.

In other cases, as with Bruce Power, there are opportunities for the labour movement to participate-in and support an asset-disposition project, such as choosing a lease or concession, rather than an outright sale, and / or through union or employee co-investment, as well as through employee pension-fund investment.

Our conclusions are two-fold.

First, it may be a wiser course to follow a public-private partnership path, such as shared ownership or phased disposition, for both financial and public perception reasons, as long as the risks of a prominent private-sector role are managed effectively.

Second, there are conditions that are necessary and even beneficial to make a deal work in a public-sector context, and others that do not meet that test. These conditions need to be clearly identified and costed-out, so that the taxpayer's interest is identified, the cost of lost opportunities taken into account, and overall value preserved for taxpayers.

ACCOUNTING POLICY AND THE PUBLIC INTEREST

In some circumstances, current accounting, auditing and tax rules, as well as fiscal and budgetary policy, may discourage infrastructure investment decisions (as well as P3 or asset-recycling decisions) that would otherwise be in the public interest. As the Mowat Study observed, the problem with acquiring, managing and disposing of assets, and the finances associated with those processes, is that they do not always benefit from existing interpretations of accounting rules, even when they otherwise represent good public policy and transparent financial reporting.

In some cases, the rules result in managing public assets in inefficient ways, thereby degrading their potential value. For example, some asset sales or other dispositions must be booked in the year in which they occur, rather than being reinvested over time or vested in “trusts”, for the longer term.

In other cases, transferring assets, such as rationalizing jurisdiction over roadways and related rights-of-way, may have perverse effects. The recipient jurisdiction

may show a spike in revenues or on the balance sheet in the year in which roads are transferred. This “benefit” will be reflected in the financial reporting of the recipient, despite the fact that additional roadways are likely not a financially welcome “gift” and arguably a liability: public roads (as opposed to 407-type roads) have no market value and must be maintained over time. To offset this one-year impact, it is necessary to amortize road infrastructure over its long useful life.

For the “donating” government, the reverse is true. While in practice, the government “losing” the asset is improving its financial position by shedding a costly obligation, the accounting rules say the government must often take a big write-down to reflect the notional historic “book value” of the asset, coupled with funds invested over time to maintain it.

Faced with these restrictive reporting obligations, by both the transferring and receiving governments, one wonders how many otherwise sound inter-jurisdictional decisions on sorting-out of assets have been deferred?

Clearly, audit rules should be changed to permit more flexibility. In the interim, however, we should explore practical “work-arounds” to facilitate good public policy decisions, such as those that encourage priority-based infrastructure investment. One option is greater flexibility and more use of special purpose public “trusts”. Trusts could be used in the case of either an asset sale or in instances of asset monetization that produce an on-going revenue stream. Another option is to make greater use of leverage, such as borrowing, to finance joint infrastructure investment by various levels of government.

Finally, any discussion of capital expenditures and operating expenditures in the context of “deficit” and “debt” should make a serious effort not to mix the two. Governments that run deficits and debt for operating purposes are left with little to show for their efforts after several years, like Detroit. Governments that incur debt or debt-service costs to finance infrastructure are investing in the future, like a young family taking-out an affordable mortgage for a family home. Municipalities make this clear distinction, even as they “balance” their budgets each year. Investments in infrastructure should not be traded-off dollar-for-dollar against concerns about annual operating deficits, even if accounting treatment seems to demand it.

Does accounting policy make federalism more challenging?

In contrasting Ontario's situation with Great Britain, we see another unhelpful interplay of accounting and auditing rules. As a unitary state, when the UK government invests in (say) its national rail system serving inter-city commuters, the investments can be amortized over a reasonable period. The Government of Canada has the same option with infrastructure under federal jurisdiction. As a result, spikes in capital expenditures, which can be inherently "lumpy", do not place the UK National Government further into deficit in year one, when the investment should properly be amortized over (say) ten years. The impact on the budget is reflected as one-tenth of the cost in each of ten years. If this were not the case, the decision about spending capital might well be based on considerations such as: "Have we run an unexpectedly large surplus this year?" or "Can we afford to add to the deficit this year?" rather than: "Is this a good and timely capital investment in infrastructure for the long term?"

In a decentralized federation like Canada, however, the majority of public infrastructure is held in provincial and local hands.³⁸ As a result, a Federal Government transfer to Ontario for a Provincial infrastructure expenditure has to be recorded by the Government of Canada in the year in which it is paid-out, even if Ontario uses the infrastructure 'grant' or transfer for a project with a ten year lifespan and amortizes the Federal transfer over ten years.

The situation is compounded if Ontario supplements the Federal transfer and then makes an infrastructure grant to a public entity not consolidated in the Province's books, such as a municipal government, transit authority, police services board or social housing project. In the case of a project with one-third financing from each government, only the government "owning" the asset can amortize it. It seems irrational to have the same capital dollar treated three different ways, just because of the route it took to the project budget.

It is not merely a matter of unnecessary complexity. Some might argue that it is clear evidence of fiscal imbalance. In any event, it undoubtedly affects public investment decisions, public policy options, and fiscal plans. A government trying to balance its books, or as in the case of the current Federal Government,

emerging from deficit spending, will look quite differently on in-house capital expenditures than capital transfers to others, even for similar projects in fields like transportation or affordable housing. “In-house” capital expenditures can be amortized and shown as a fraction in each annual budget. An intergovernmental capital transfer, however, to support the project of a non-Federal governmental entity would require the full expenditure to be reflected in the current year’s budget, with the concentrated impact on the deficit. It is the kind of dynamic that encourages over-spending within consolidated entities, at the expense of underinvestment in those entities that are not consolidated.

Even when, fortuitously, a government might run a surplus in a given year, the lump-sum payment from surplus would have to be used to finance a real asset, not just a plan or a promise. Efforts by Provincial and Federal Governments to circumvent this unintended consequence, such as using trusts or maintaining nominal title to assets effectively operated by others, have been vigorously criticized by the audit community, based on a fair interpretation of the current, somewhat illogical accounting rules. There are calls for clear “key performance indicators” to assure the accounting and audit communities that the entities amortizing capital investments really have the authority to do so.

Are there ways to overcome this conundrum, created by our self-imposed public sector accounting and auditing rules? One measure that has a track record is the creation of “trusts”, such as the trust that is financing the Toronto-Vaughan Subway extension. However, trusts are narrowly circumscribed and they require governments to abandon their discretionary control over major capital budgets, which is not welcome for reasons of political, financial, and fiscal accountability.

In the case of a project with one-third financing from each government, only the government “owning” the asset can amortize it. It seems irrational to have the same capital dollar treated three different ways, just because of the route it took to the project budget.

As a result, governments may earmark capital funding, sometimes incorrectly using the term “trust”. Such arrangements are really nothing more than discretionary budget allocations, like reserves or reserve funds used in municipal fund accounting. They would not likely allow intergovernmental transfers to be amortized.

Ontario’s Trillium Trust is the repository of the proceeds of Ontario’s GM shares and other capital dispositions, like real estate. According to recent Budget and Economic Statements, it is to be used for infrastructure investment. However, there is a lively political and accounting debate over whether the Trillium Trust really is a “trust”, or whether Cabinet has created an out-clause in order to divert funds to other non-transportation purposes.³⁹

Perhaps the best way to balance the competing pressures of near-term fiscal priorities against longer-term infrastructure investment needs, is to look at the size of the fund and to try to balance the priorities. If any Provincial Government is to be motivated to dispose of significant or numerous assets, notably revenue-producing assets, and to deposit the proceeds in a “trust” or infrastructure bank, two issues need to be addressed to make the decision easier.

First, if the Province can write-off the cost of acquisition and periodic reinvestment against an asset sale, it may be easier to decide to deposit the net proceeds, whereas depositing the gross proceeds might simply add to the deficit. Second, if the investment pool created by asset dispositions allows the Province to use some of the interest or investment returns for other fiscal priorities, as is done in Norway and Kuwait, for example, it is easier to decide to deposit large amounts to the fund and easier to resist depleting the principal once that is done.

In other words, to the extent that a Government makes a significant commitment to a large infrastructure investment pool, then it is reasonable to allow some marginal fiscal relief. But the corollary is that there must be a significant and sustained commitment to asset disposition and reinvestment that precedes and greatly outweighs the size of the fiscal ‘safety valve’.

Another potential approach is structuring the capital transfers in a manner that mirrors the lifecycle of the asset or the term of its amortization. The most obvious way to achieve this ‘matching’ is to create a capital transfer program for specific programmatic purposes (e.g., transit or social housing), but without project-specific financing. Unfortunately, capital assistance programs commit governments in ways that greatly restrict their flexibility in future years.

Capital programs also make recipients vulnerable to changes in fiscal policy and program objectives, in an area where multi-year predictability is a precondition to making any serious commitment and long-term plans. The uneven performance of American State Infrastructure Banks is clear evidence of this. The American system of checks-and-balances and separation-of-powers has effectively stalled any significant progress, or forced States to do-it-alone, without the substantial support of Federal highways funding and other fiscal transfers.

Capital funding program criteria also make it difficult to design and structure project funding to in a way that ensures regular maintenance and refurbishment of an asset, unless it is converted to a design-build-operate-maintain (DBOM) type of public-private partnership.

Using leverage in intergovernmental financing of infrastructure

A more promising avenue, especially with a Federal Government emerging from deficit financing, is to use the borrowing power of the Federal Government, rather than its capital expenditures or tax expenditures. Historically, the Government of Canada has used devices such as loans and mortgage financing to achieve policy objectives in areas like housing (CMHC) and export development (Business Development Bank), even where the conditions were not market-justified and where credit-worthiness was not a precondition.

We are all aware of the debt levels faced by senior orders of government, and the limitations on municipal revenue sources. Despite these adverse conditions, however, there is no scarcity of capital available to be invested in infrastructure, provided there is a competitive, risk-adjusted return. In fact, this “leverage” approach might also be attractive to Provincial Governments: they may find it easier to lend money that nominally can be recovered (at least the principal portion), rather than making capital grants that go directly to their annual bottom line (i.e., increasing deficits).

How might this work?

On a federal / provincial / local one-third cost-sharing project, for example, the process would work as follows. The Federal Government would provide the capital funding for the full cost of a project as an interest-free loan or bond, with the proceeds being advanced during the construction phase to the project owners, and with the principal to be repaid over time and without interest. Once two-thirds of the loan or bond is repaid, by the local and provincial partners, corresponding to two-thirds of the amortization of the project or its useful life, the balance could then be written-off by the bond-holder (the Federal financing authority). Another advantage of this approach is that the funding government does not assume ownership of the asset, including the ongoing liabilities associated with ownership and control. This approach might also give substance to the frequently suggested – but poorly understood – notion of an “infrastructure bank”.

In the United States, a variant on this approach is known as TIFIA funding (Transportation Infrastructure Finance and Innovation Act). The investment regime involves a judicious mix of: dedicated user-sourced revenues; Federal loan guarantees and favourable loan terms, including low interest rates; a provision that allows deferral of repayment of principal and interest during project completion and roll-out; and, bond maturities tied to the useful life of the asset (i.e., up to 35 years). As a result, major projects can be built with very limited net investments by the Federal Government.⁴⁰ The former US Transportation Under Secretary cited this example:

“The \$1.1 billion Port of Miami Tunnel Project provides a good example of how TIFIA supports private investment through PPPs. The project, which is currently under construction, will improve access to and from the Port of Miami by providing a dedicated roadway connector linking the Port, located on an island in Biscayne Bay, with the MacArthur Causeway and I-395 on the mainland. A private company is responsible for design, construction, financing, operation and maintenance of the project for 30 years. A relatively small amount of budget authority, \$21.5 million, supported a \$341 million TIFIA loan and facilitated a \$1.1 billion investment in a nationally-significant transportation project.”⁴¹

Another interesting American precedent is ‘subsidizing’ the cost of infrastructure investment by attaching eligibility for a tax credit to the investment vehicle. In the US, this was necessary to overcome the fiscal losses incurred by the Federal Government from tax-exempt municipal bonds and similar tax-exempt borrowing vehicles. Tax-exempt bonds require a significant public subsidy to borrowers, favouring those with higher incomes. On the other hand, as Brookings notes, tax credits attract a wider pool of investors, since sovereign wealth funds and pension funds are largely tax-exempt in the jurisdiction issuing the bonds and therefore see no particular advantage in the purchase of tax-exempt bonds.⁴²

Since Canada is not burdened by the tax-avoidance device of tax-exempt municipal bonds, it would be relatively easier to employ a tax-credit system to promote broader purchasing of infrastructure bonds. In fact, the Government of Canada has considerable experience with tax-expenditures using tax credits.

Why would the Federal government agree to participate in a leverage-based funding regime to invest in infrastructure?

In addition to the lower-risk approach associated with using borrowing, a larger Federal role in infrastructure funding appears to produce a net fiscal gain for the Government of Canada, as distinct from leaving infrastructure investment to the provincial and local levels of government. The case is outlined in the study by the Canadian Centre for Economic Analysis, commissioned by the RCCAO.⁴³

“Smetanin says there’s an additional reason for Ottawa to come to the table with money: The feds are profiting from Ontario’s investments without bearing any of the costs. That comes in large part from income and sales taxes that are generated from large infrastructure expenditures.”⁴⁴

SUSTAINABLE FUNDING FOR INFRASTRUCTURE RENEWAL – THE TRILLIUM “TRUST” AND A “NATIONAL INFRASTRUCTURE BANK”

When he tabled the Fall 2013 Ontario Economic Outlook and Fiscal Review, the Ontario Finance Minister lent clear support to the concept of an infrastructure trust, when he said:

“We plan to create a new fund. A fund specifically for those important infrastructure projects – the Trillium Trust. Gains from asset sales, such as from the sale of GM shares, would help fund this Trust.”⁴⁵

The challenge may be, in a tight fiscal climate, to find the “start-up” capital to fund and sustain the initiative, if we are going to make a serious dent in the infrastructure deficit. As with any bank, adequate capitalization is the key to sustainability. The GM investment was fortuitous, but the need to make such speculative investments is, hopefully, a rare event. As California found with its infrastructure bank, even a relatively small endowment of State funds can be eroded when State budget pressures and priorities change.

As we have argued elsewhere, the solution to this problem is not necessarily a huge, direct infusion of tax revenues, but rather a comprehensive policy of asset recycling or an allocation of a stream of revenues directly related to the asset class, like linking road-user fees and motor vehicle fuel taxes to the cost of transportation infrastructure.

Take the case of asset recycling. The proceeds from asset dispositions would be put into an Infrastructure Trust. This Trust would ensure that revenues from asset disposition would be used to invest in new, priority infrastructure. Such a Trust could take on the characteristics of an Infrastructure Bank.

Why is it important to ensure that funds are earmarked and segregated for infrastructure investment? Are there not other worthwhile goals, ranging from improved social equity to tax relief for the middle class or reducing the size of the Ontario and Federal debt? All Finance ministries oppose earmarking as a matter of overall policy, to preserve both fiscal flexibility and responsiveness to changing political mandates.

Infrastructure spending is different

The argument made here is that infrastructure investment is fundamentally different.

Over time, infrastructure investment does not drain public resources: it contributes directly to the ability of the economy to replenish public revenues. This benefit is especially pronounced if new infrastructure is financed by P3s or the full or partial disposition or “leveraging” of capital assets and government business enterprises. These latter actions usually result in the entity paying taxes, in addition to supplementing economic activity.

There is a symmetry and ‘matching’ that argues for using the capital proceeds or stream of payments from the disposition of legacy public assets and government business enterprises in a way that methodically restores the capital stock of the public sector.

An important consideration in retaining capital proceeds for capital purposes appears to be the size of the “nest egg” that the proceeds create, and their ability to grow with wise investment.

A related, persuasive consideration is the ability of these “special” funds to produce results that would otherwise not likely have been achieved, such as major, long-lived capital projects beyond the scope of governments’ normal capital budget plans.

In the absence of these considerations, the pressure to use one-time revenues or small, continuing revenues from unconventional sources, can be overwhelming. Unless they are very large, “endowments” yield little in a low-interest rate environment and tie-up substantial financial assets.

There are always good arguments from both sides of the political spectrum to pay down accumulated debt, or to direct proceeds to finance existing or new programs, or to balance current account deficits and keep taxes lower. For example, in the United States, a number of so-called “State infrastructure banks” (SIBs) and the Obama proposal for a National Infrastructure Reinvestment Bank have been stalled, underperformed, or seen periodic raids on their financial assets.⁴⁶

These short-term benefit arguments are only overtaken by evidence that earmarking capital assets for infrastructure actually works – when the public sees evidence of construction and periodic delivery. With performance, there is also less political claim on general taxation revenues to fund new capital projects, with their unwelcome added legacy of debt-service costs. Equally, revenues from general taxation are freed up to reduce deficits and fund program priorities, as well as to accelerate debt reduction, in a process of budget substitution that economists term “fungible”.

The experience of other jurisdictions with sovereign wealth funds is illustrative.

In some jurisdictions, “trusts” and segregated sovereign wealth funds have been used to manage windfall revenues, such as from finite petroleum resources. In Norway and Kuwait, for example, sovereign wealth funds were largely earmarked for capital reinvestment. This contrasts with the experience of jurisdictions like the UK and Alberta, where windfall government royalties from North Sea and Western Canadian oil fields were initially allocated for reinvestment, but ultimately were eroded by paying-down debt, program spending, avoiding budgetary deficits, and avoiding tax increases or sales taxes.

Unlike Norway, Alberta allocated only 30% of resource revenues to its Heritage Fund, beginning in 1976 with around C\$2 billion. Through the late 1980s the Heritage Fund was used to pay for a variety of government capital projects, while the transfer of oil revenues to the Fund was stopped in 1987. By 1995, the Heritage Fund had grown to \$11 billion and the views of the public were canvassed on uses of the Fund. Not surprisingly for the mid-1990s, the public wanted the money spent on eliminating the public debt, lowering taxes and spending on government programs of various kinds. The value of the Fund remained at around \$11 billion through 2003 and eventually grew to \$17.5 billion over the next decade (June 2014)⁴⁷ The contrast with Norway is interesting.

For decades, Norway squirreled away revenues from North Sea oil, in its somewhat misnamed “Government Pension Fund”. A series of excerpts from a business columnist for the BBC lamented the contrast with Great Britain, on the occasion of the Norwegian Fund buying some prime London commercial real estate...

“Why is Norwegian oil money being deployed to buy prize assets in the UK, while we have no oil money to spend in Norway? In simple terms, during the oil boom, our governments spent their North Sea winnings on cutting national borrowing and keeping down taxes.

Whatever came in went straight into the day-to-day budget.

“By contrast, for the past 16 years Norway has squirreled away the government’s petroleum revenue - arising from levies on oil companies operating in Norway and from its stake in national energy giant Statoil - in a national oil fund. Today it uses the income from the fund - just the income, mind - to cover 11% of its national spending.

“And, ironically, now that the UK is buying Norwegian gas in large quantities, Britain too is contributing to Norway’s colossal nest egg, one of the biggest sovereign wealth funds in the world. The word “pension” in the oil fund’s official name is a bit misleading as the benefits for Norwegians is not restricted to pensions.

“What happens is that up to 4% of the fund, or £16bn currently, is diverted each year to subsidise government spending. In effect, it keeps hospital beds open and helps pay for social benefits. The fund keeps growing, though, because levies on oil and gas production and on oil companies bring in an extra £30bn annually. As the oil carries on gushing and oil prices stay high, the Norwegian nest egg cannot stop getting bigger.

“In the UK, the Callaghan government of the 1970s flirted with the idea of setting up an oil fund, but in a time of mounting economic crisis it was too tempting just to grab the money.

“Could the British have done it? Well, the Shetland Islands did. When oil started arriving at Sullom Voe [refinery in the Shetlands] and ships docked nearby, there was a flood of cash. The council set up an oil fund that still stands at £185m today, even after upgrading roads, ferry terminals and local swimming pools.”⁴⁸

A similar approach to government petroleum revenues has been taken by governments as diverse as Norway, the emirates of Kuwait and Abu Dhabi, and as noted, even the Shetland Islands (unlike the rest of the UK).⁴⁹

Of course, Ontario does not have windfall petroleum revenues to endow an infrastructure trust or infrastructure bank. But it does have a significant portfolio of underperforming public assets. A comprehensive program of public asset recycling and a steady pipeline of ‘deals’ to acquire, manage and dispose of public assets, has the potential to create the pool of investment capital needed to undertake the challenge of adequate infrastructure investment. In the meantime, such funds or trusts can accumulate profits by investing the proceeds of asset dispositions, while awaiting the call for their specific use. Several sovereign wealth funds are designed in this way.⁵⁰

The most effective way of enlisting public support for an asset recycling strategy is to establish a dedicated fund or trust, or an “infrastructure bank”, either to underwrite new capital projects or to defray the actuarial impact of future obligations, like pensions.⁵¹ An example would be the structure of the California Infrastructure and Economic Development Bank, reporting to the California Governor’s Office, which in Ontario terms, combines some of the statutory functions of the Ontario Municipal Board (debt approvals), Infrastructure Ontario (municipal capital project financing) and the Ontario Ministry of Economic Development, Employment and Infrastructure (business enterprise support).⁵²

Most governments already maintain an active capital program, with annual contributions to and amortized from the current account. Ideally, most governments also segregate their capital and operating funds. As a result, a degree of “budget substitution” can ultimately accomplish both objectives—debt/deficit reduction and asset acquisition.

Paved with good intentions — making the Trillium Trust a real “Trust”

The decision to create the Trillium Trust was a difficult one in the current fiscal climate. The foresight it reflects should be recognized and applauded. Now that the Trillium Trust has been established, however, Ontario should learn the lessons of other jurisdictions. With the recent recognition of the declining economic growth rate in Ontario and a recommitment to budget balance in 2017-18, we can assume there will be declining tax revenues and greater pressures from important areas of Ontario program spending and fiscal transfers.

It is essential that the Trillium Trust be reconfirmed in its intent, with measures that entrench it as an infrastructure trust, beyond the reach of predictable and emerging short-term fiscal pressures. Established more formally as a Trust, new options open for Ontario's governments.

An understandable public reluctance to accept road-pricing or fuel-tax surcharges can be reduced by demonstrating the guaranteed results and lack of “leakage” using a Trust mechanism. In fact, current low fuel prices give governments at all levels a unique opportunity to impose a modest motor vehicle fuel-tax surcharge (at the “refinery gate”) at a time and at a level that would likely be lower than weekly fluctuations at the pump. The US Federal aid to highways, funded by a motor vehicle fuel tax, is a mere 5.5 cents per litre (US\$ 0.18.6/US gal), at today's exchange rates, an amount that has not risen since 1993.⁵³

The potential for a revolving fund to support infrastructure, using both grants and leverage, is likewise enhanced by the use of a ‘pure’ and reliable Trust mechanism.

The case for a National Infrastructure Bank

Based on the proposal outlined above, the Government of Canada should consider establishing a “Canada Infrastructure Sustainability Bank” (CISB). With a balanced budget and a declining level of Federal Government debt, the Government of Canada is in a unique position to use its “fortress balance sheet” to invest in infrastructure priorities at all levels of government and in a

wide range of functional areas. As has been demonstrated elsewhere, investing in infrastructure confers special benefits on the Government of Canada.

New infrastructure investment redounds to the Federal Government in the form of new, job-creating economic activity and enhanced levels of net taxation, especially from P3s. In fact, using a program of asset recycling like its Federal counterpart in Australia, along with forgivable loans and other forms of leveraging, the Government of Canada may find that it can achieve a great deal with a limited near-term impact on its fiscal position. In doing so, it can make the accounting and auditing rules work more effectively to serve the needs of Canadians.

A CISB has some other important features. It allows the Government of Canada, the Provinces and local authorities to overcome a number of the obstacles relating to financing, funding and reporting. It provides an opportunity for patient, long-term investors, like the Government's own CPPIB, as well as Provincial pension funds like Alberta's AIMCo, Quebec's Caisse de Depot et Placement, Ontario's Teachers, OMERS, OPB and other plans, to invest in domestic infrastructure (rather than investing billions in infrastructure and real estate in the US and overseas) and to earn dividends for Canadian pension plan members.

Using the long experience of Canada Mortgage and Housing Corporation (CMHC) and the Business Development Bank of Canada, it would be relatively easy for the Federal Government to develop processes and standards that would meet both its policy objectives and its financial requirements. However, the purpose of the CISB entity is to build infrastructure, including new types of infrastructure for new, often untested markets. It would be important to have the mandates and processes adopted by the CISB clearly understood.

The CISB's role would be to stand in the place of a Federal capital grant program or a tax-expenditure regime. Simply because the mechanism for investing in infrastructure involves debt and leveraging, rather than transfers, should not mean that the CISB would adopt a bank's credit-worthiness and

security criteria, any more than credit-worthiness and pledging collateral is a consideration in Federal grants to small municipalities, First Nations bands, Territorial Governments, or non-profit organizations.

The criteria for supporting worthwhile infrastructure projects or infrastructure investment programs should be societal and economic merit. The criteria should not impose conditions that would be higher than would have been the case with traditional Federal capital expenditures and transfer payments to other governments. In fact, the best performing investments in public infrastructure would likely lead to the Federal Government making some superficially “uneconomic” decisions. For example, using the CMHC model, the Government of Canada might underwrite interest-free CISB loans and / or to write-off “forgivable” portions of CISB loans, once the infrastructure is built and operating, and after the partner governments have repaid their share of the capital cost of the project.

TEN “KEY CRITERIA” FOR MAKING INFRASTRUCTURE INVESTMENT DECISIONS

Even if bolstered by a comprehensive asset recycling policy or the creation of an infrastructure bank or trust, any pool of funds dedicated to investment in infrastructure will face numerous claims on its resources.

How should decision-makers make choices and set priorities?

The funds will inevitably be limited and capital allocated to projects will doubtless be rationed. What criteria should be employed, to ensure that the investment decisions are sound and produce the dividends that proponents seek?

We think there are ten broad categories of Key Criteria that should guide those plans and decisions. We believe that infrastructure investment decisions should be answered by the responses to the following questions:

Return on Investment

1. Does it pay a return on investment, to the government and to taxpayers?

In deciding which projects should be advanced, each government will need to ensure itself and its citizens that they are getting a reasonable return on their investment. As the Clark Panel notes, investments in operational improvements in agencies like the LCBO and HydroOne may enhance the revenue-share (ROI) of the principal shareholder (the Province). Likewise, the “sunk costs” of investments in government business enterprises and other public assets may see better results through phased and time-limited P3s, yielding improved asset value or profitability, or simply reduced operating and capital subsidies by Government.

In their study, Haider et al. suggest a return-on-investment or ROI that ranges from 10-13% for private capital investment in infrastructure (telecommunications, power grids, etc.) and in the 17-25% range for public capital (roads, sewers, airports, etc.).⁵⁴

Fiscal impact

2. Does the infrastructure investment make a contribution to fiscal health of Canada, Ontario and our local governments?

Some investments may have a positive impact on the fiscal health of local governments or the Province. As Smetanin et al. noted (above), investments in good infrastructure projects by the Government of Canada, irrespective of the level of government that owns the infrastructure, has a direct, net fiscal benefit to the Federal Government.

Finding a way to fund infrastructure investment through non-tax sources and using leverage lessens local and Provincial tax burdens and may generate new taxpaying entities. The financial structure of the investment may also reduce the impact on the balance sheet of both the sponsoring and partner governments.

In some circumstances, it may be possible to create opportunities for pension funds and other domestic pools of capital to participate in building infrastructure, which both contributes to more economic activity and provides solid investment returns for company and union pension plans supporting millions who might otherwise need some level of public support over time.

Productivity improvement

3. Will the investment improve productivity, both in the public asset or enterprise, and in the regional economy?

The productivity gains associated with investments in Ontario's public assets are also now much better understood, especially with the benefit of RCCAO studies, like the *Ontario Infrastructure Investment Study* (July 2014), *Investing in Ontario's Infrastructure for Economic Growth and Prosperity* (May 2013), *Transportation Challenges* (November 2006 and Soberman, 2010), RiskAnalytica (July 2010 and December 2011), Kitchen and Lindsey (January 2013), the *Wellington County Bridge Study* (October 2013), and events like the February 2014 RCCAO Pre-Budget Roundtable, as well as the Transit Investment Strategy Panel's December 2013 report: *Making the Move: Choices and Consequences*.

Sustained employment

4. Will the capacity added by new, refurbished or expanded infrastructure create more sustained employment?

It is well established that infrastructure investment creates many person-years of employment in the construction sector and in the operation, maintenance and repair of infrastructure. The question that decision-makers need to ask is whether the project is "the right infrastructure", given competing priorities and candidate projects. It is equally important to recognize that very intense infrastructure activity often creates short-term regional business and transportation disruption and places upward pressure on wages and the demand for skilled trades (e.g., the impact of rebuilding Pearson Terminal 1).

There is also a dimension of employment-generation that is real and important, but difficult to quantify. For example, infrastructure investment that generates home-building activity creates a considerable volume of domestic downstream or spin-off employment. The secondary employment generated by other types of infrastructure investment may be more difficult to gauge. Finally, some types of infrastructure investment create employment opportunities (including access), where they are needed most, as in remote or First Nations communities, or in so-called urban “neighbourhoods at risk”.

Regional efficiency and sustainability

5. Will the infrastructure investment add to regional sustainability and efficiency?

Capacity building on a regional scale mirrors the economic, social and ecological regions within which 21st century Ontarians live their daily lives and operate their businesses. Infrastructure projects that knit together an economic region, reducing commuting time and congestion, improving the efficiency of utilities, and creating new regional business opportunities should have priority.

Equally important are infrastructure projects that enable economies of scale, create greater redundancy and resilience in the face of severe weather and other climate change impacts, and preservation of environmental quality. Many of these measures are inherently regional in their “footprint”.

Conversely, investments that will cause averaging-up of wage rates without a corresponding improvement in productivity would need to have some countervailing justification.

Leveraging expertise and past investments

6. Will the infrastructure investment “leverage” past and current infrastructure investments and expertise?

Will the infrastructure investments capitalize on the use of well-designed P3s? Will they facilitate more public asset recycling, in order to replenish the pool of funds available for further infrastructure investment? Do these projects open the door for more projects, improved skills and productivity, the potential to market Ontario infrastructure business externally, and so on? Are we taking advantage of the expertise of Ontario’s major construction and development firms and Infrastructure Ontario? Are our procurement practices facilitating or impeding efficient infrastructure development and competition? Is there potential to link with the proposed Great Lakes and St. Lawrence Region Infrastructure Exchange initiative, involving Ontario, Quebec and the Great Lakes States?

Building the right infrastructure for the future: getting our priorities right

7. Are we building the right things? Are we anticipating future economic, societal and infrastructure needs? Are we doing what is needed, not just what is adequate, popular or responds to influential stakeholders?

Are we building the kind of infrastructure that is a real “game changer”, such as rural broadband, climate change mitigation, redundancy and resilience against security threats and ‘black swan’ events, anticipating the so-called ‘Internet of Things’?

Are we being evidence-based and methodical in deciding what assets we retain and restore, and those that we dispose or transfer? Are we taking timing into consideration, when we delay or decide to reduce the scope of our plans? In some cases, in our low interest-rate, low-inflation environment, the market value of non-core or poorly performing assets will never be greater.

Are we letting ‘externalities’ unduly influence our business and public policy decisions? Have we made sure that compromises and concessions are explicit and fairly priced, so that the cost of them is understood by decision-makers and the broader public?

Have we calculated the “leveraging” potential of proposed investments? Are we anticipating future needs, rather than simply restoring past structures or building capacity to meet near-term needs? Are we anticipating the needs of tomorrow’s communities, including projected economic and infrastructure trends? Are we trying to “get ahead” of the infrastructure deficit, to stop it from recurring?

Managing the “politics of infrastructure”

8. Are we flagging and trying to diminish the impact of the ‘politics of infrastructure’?

Some have argued that the recommendations of the Clark Panel thus far have been disappointingly modest, when bold action is needed. What are the opportunity costs of gradualism? Are there advantages to going slow but steady? Can we move the discussion on infrastructure from projects to programs, and from one-off initiatives to pipelines of P3 projects and asset disposition candidates? Are we demanding evidence of comparable benefit from competing infrastructure proposals? Are we dealing with considerations that earn continuing political support, such the timing of project-delivery and producing results on time and on budget?

Priority-setting based on public policy, not just accounting policy

9. Are we looking carefully at the impact (and opportunities) from our accounting, budgeting, taxation, and financial reporting practices?

Do our financial practices favour both transparency and advancing the public interest? Where we encounter roadblocks to intergovernmental collaboration and sound infrastructure funding, are we seeking creative solutions that still comply with existing accounting and auditing rules?

Are we making the case for amendments to existing rules, where they are producing unintended consequences or not serving the greater public interest? (These are, after all, rules that we impose on ourselves, and they are created with limited public debate beyond the accounting and audit communities). Are we ensuring that good public policy drives accounting practices, not the other way around? Have we identified ways in which the tax system can promote investment by pension funds and other domestic third parties, improve the attractiveness of P3 projects, and generate sustainable domestic employment and skills development?

Identifying and adopting “best practices”

10. Have we made an inventory of “best practices” and incorporated them into our decision-making processes? How can we promote the kind of leveraging of financial assets and asset recycling policies that will fuel a comprehensive infrastructure investment program?

In the face of public and stakeholder predisposition to keep most public assets owned, operated and financed by the public sector, we need to find ways to return some non-core activities to the broader, tax-paying economy, so that publicly funded functions can continue to be supported, including core public infrastructure.

We should develop an evidence-informed checklist for governments making infrastructure investment decisions. But we also need to make a similar checklist to serve the needs of potential investors. Both checklists should reflect the views of their counterparts. Australia’s infrastructure “industry” has devoted considerable attention to divining these best practices. Australia’s approach is based on its considerable experience and its renewed commitment to seeing infrastructure as a full-cycle of activities aimed at improving productivity, economic performance, investment returns, and quality of life. What form would these checklists for governments and investors take? The following are offered as a preliminary foundation for decision-makers in both the public and private sector...

IMPLEMENTING ASSET RECYCLING AND P3S – EXPERIENCE-BASED CHECKLISTS FOR GOVERNMENTS AND INVESTORS

In looking at the experience in Australia, Canada and elsewhere, there are lessons to be learned. Success depends on creating conditions that favour government support for recycling assets and P3s, and by matching those efforts with a clear-eyed approach to removing the barriers to private investment. Listed below are two checklists for success, largely based on the Australian experience, although each point would justify further detailed research and analysis.⁵⁵

How do we create “winning conditions” for the public sector?

There are at least eleven hurdles to clear from the path of inherently risk-averse governments and public authorities, when looking at asset-recycling and P3s:

1. Recognize and enhance the value of public assets.
2. Put the right people in charge of the disposition program.
3. Establish a formal asset-recycling framework or policy.
4. Leveraging public assets depends upon enlisting public support – market the idea effectively before you start.
5. Before asset-disposition is begun, establish a capital Fund or Trust to protect and reinvest the proceeds of asset dispositions in infrastructure and other capital assets. The public and the auditors will want guarantees against governments succumbing to other “fiscal temptations.”
6. Balance the need for political oversight against the risks and real costs of “political interference.”
7. Begin with assets whose disposition would have financial impact and precedent-setting value for an asset recycling policy – don’t be swayed by well-intentioned advice to start slow or small.

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8. Identify new public assets that will improve productivity, create new economic activity and improve the quality of life. Use those same criteria in deciding which assets to divest.
 9. Focus regulation on outcomes – specify the end-results you want to see, don't try to regulate your way to success.
 10. Recognize the influential role of public employees – the success of the disposition may depend on them.
 11. Make sure the accounting, budgeting, accountability and transparency rules support, rather than impede, achieving public objectives in changing circumstances.⁵⁶

But “asset recycling” and the use of P3s are not merely a strategy focused on meeting the needs of government, including protecting and advancing the public interest. Any asset-recycling policy and program employing P3s must also meet the needs of the private and non-profit sectors that are expected to invest or play a part. They must be persuaded to play a meaningful role, to invest their capital and expertise, and to accept risk transfer.

What are winning conditions for investors and private-sector partners?

For private and non-profit partners in any asset-recycling or P3 initiative, there are at least a baker's dozen of preconditions to be addressed:

1. Give full weight to perennial private-sector concerns about “politics” – their anxiety about the use of state power and government's ability (and periodic temptation) to change the rules of the game.
2. Avoid one-offs – make a clear government commitment to a “pipeline” of public assets scheduled for disposition and to use P3s.
3. Take measures to enhance certainty about government funding commitments, over time.

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4. Recognize investors' expectations for reasonable, risk-adjusted returns, including pension funds. Fiscal impacts and policy goals are the government's priorities; investors' priorities are for good returns and successful operations.
 5. Are the projects appropriately structured? Don't guess: get good advice and a candid market sounding.
 6. Avoid complex, expensive and inconsistent transaction processes; investors should get used to your way of doing business, so they can reduce their transaction costs and avoid pricing-in uncertainty costs.
 7. Ensure that the government side has specialist expertise and promotes processes that attract counterparty expertise in more than simply deal-making.
 8. Do a realistic evaluation of the value of infrastructure in private hands; value it from the investors' perspective, not just the government's.
 9. Recognize that "greenfield" projects (i.e., without a track-record) have special risks for the investor and private operator. If you need to do greenfields projects, be ready to absorb a discount or to provide guarantees, but demand a share on the "up" side, too.
 10. Recognize and understand private-sector perspectives on regulation, liquidity and industry pressures.
 11. Reform the tax, accountability and accounting regimes to encourage asset recycling and P3s and to favour the success of the public interest.
 12. Monitor and respond to changes in the investment climate and conditions facing both potential and existing private and non-profit partners.
 13. Respect the role, contributions and impact of public-sector trade unions. Labour relations considerations will be prominent in the minds of potential private-sector and non-profit sector bidders and partners.⁵⁷

CONCLUSIONS – AND A CALL FOR ACTION:



This Study covers a broad sweep of interconnected issues. But our basic conclusions and proposed agenda for action can be summarized in a few paragraphs.

Even with increased commitments to infrastructure investments in Ontario and Canada, higher levels are needed to generate urgently required increases in productivity, in both the private and public sectors.

Infrastructure investment must be done properly. We must ‘slay the myths’, but also deflect considerations of ideology and self-interest. We must learn from our own experience and that of others – both from successes and from hard-learned lessons. We must identify and adopt “best practices.”

Done right, major infrastructure investment can generate urgently required increases in productivity, in both the private and public sectors. It can create sustained employment. It can anticipate the needs of the future economy and a world afflicted by the effects of climate change, lagging social integration, globalization, and security threats. Above all, major infrastructure investments can contribute to economic prosperity and to directly consequential improvements to the fiscal conditions facing all levels of government.

To achieve these results, however, we need to mount an infrastructure investment program of a ‘generational’ scale and breadth that exceeds anything to which we have committed ourselves now or in the recent past. It will require financial commitments that exceed the capacity of traditional tax-supported capital budgets and traditional public sector methods.

To fuel large-scale infrastructure expansion and renewal, there must be greater access to financial resources beyond general taxation, in order to create supporting revenues and the critical mass of necessary investment capital.

Fortunately, the capital needed to fuel a large-scale infrastructure investment program is available by leveraging existing public assets, by expanding the scope of well-designed public-private partnerships, and by attracting patient investment capital, notably that of public sector pension plans. To realize those opportunities, however, we need to understand and to address the needs of both the public sector and the private sector.

Ultimately, we need to approach the challenges of infrastructure renewal and expansion not with an incremental, episodic, or project-by-project approach. We need “joined-up” policy and programs, reflecting grander scale, quicker delivery cycles, solid intergovernmental collaboration, and above all, with bold vision, clear priorities and a sense of urgency.

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APPENDIX “A” – PRACTICAL WAYS TO THINK ABOUT ONTARIO’S INFRASTRUCTURE

Infrastructure is made up of the physical plant and distribution systems that make economic activity possible. It ensures that capital and labour can be applied in a way that produces wealth and supplies markets. It is an essential ingredient in economic growth and prosperity and it is one of the key contributors to productivity. A lack of good infrastructure can also diminish productive capacity and the efficiency of markets for goods and services, resulting in higher costs and diminished price competitiveness.

But the term “infrastructure” covers a variety of systems and networks. These are governed by differing physical characteristics, different use and ownership patterns, and differing periods of longevity.

Different types of infrastructure also have different relationships to the society and economy that they serve. Some infrastructure is used to transport goods and services, to or from centres of production or economic activity. Other infrastructure is used to deliver people and business-support services to centres of employment or training. Some infrastructure is used to support a community’s quality of life, by underpinning safe, healthy, sustainable living conditions for individuals and business operations.

In the RCCAO’s publication *Investing in Ontario’s Infrastructure*, public investment in infrastructure is defined as: “...including roads and highways, rapid transit, water supply, and wastewater treatment, rail, aviation, water transportation, as well as electricity and broadband infrastructure...”⁵⁸

A more detailed summary of infrastructure might look like this:

Road transportation and transit infrastructure

Road transportation, including arterial roads, expressways, tunnels and bridges. This category would include toll roads and privileged use roadways (bus lanes, HOV lanes, toll lanes, etc.). It supports passenger vehicles, transport vehicles, fare-charging scheduled-service commercial passenger buses, school buses, and chartered bus transportation. In the future, this category of infrastructure would increasingly include intelligent transportation systems (vehicle control, vehicle-use levies, access controls, etc.)

Related to road transportation are scheduled public transit services using roadways and rails, as well as commercial bus services and taxi or airport vehicle services. It includes rail-based municipal transit vehicles (trams or streetcars), surface or sub-surface trains, and trams on their own right-of-way. In the future, this would increasingly extend beyond current access and control systems (stations, switching systems, electronic fare cards, etc.) to platform-side door systems, automatic trains, automatic train-control systems, credit-card-based fare regimes, etc. Public transit services include commuter-rail services operated by both public (municipal, GO Transit) and private authorities (VIA Rail Canada).

Finally, road transportation includes the facilities and services that support truck transport and logistics, including border-clearance infrastructure and intermodal facilities serving some combination of air, water and land transport interface.

Rail transportation infrastructure

In addition to the above-noted local public transit and regional commuter rail transport infrastructure, rail transport primarily includes the rail beds, tracks, land corridors and switching systems that make possible rail freight transport and inter-city passenger rail transportation, along with the capital rolling stock of locomotives, freight cars and passenger carriages. This category includes “rail interface” infrastructure, such as grade separations and other types of bridges and tunnels, intermodal transport hubs and logistics marshalling yards. Among the most significant pieces of rail transportation infrastructure are real estate, including linear rights-of-way and marshalling yards, as well as major terminals, such as Union Station and rapid-transit interchange points, like major Toronto Subway stations. In the future, this infrastructure may be supplemented by the infrastructure needed to support high-speed interurban passenger rail services.

Energy infrastructure

Across North America, energy infrastructure embraces the generation or sourcing, regional transmission and local distribution of energy. Most commonly, “energy” includes natural gas, electricity, petroleum fuels, and

steam. Electricity's sources include nuclear energy, renewable-source energy (solar, wind, geo-thermal), burning of fossil fuels (coal, oil, diesel, propane, natural gas, etc.) and hydro-electrical (from turbines fed by dams, tides and waterfalls). The ballooning of electronics and wireless technology will add to electricity demand. The widespread use of the electric car and the expansion of electricity-based urban and regional rail transit will also make it necessary to increase electricity supply. It will also cause the private sector to build a network of retail fuel suppliers to parallel gasoline and diesel fuel retailers.

In the future, energy infrastructure will also need to be extended, in order to improve the electricity grid and to overcome transmission capacity bottlenecks. On a "macro" scale, this might include linking Bruce Power's surplus nuclear power supply and storage capacity with US markets, as well as improving linkages between Ontario markets and electricity supply from Hydro Quebec. On a more localized basis, it will also include overcoming regional bottlenecks, such as transmission to the Toronto and region market from generators east of the city, and linking northwestern Ontario supply with markets east of Lake Superior.

Water infrastructure

Water infrastructure includes the treatment and distribution of potable water, the collection and treatment of sanitary sewage or wastewater, and the management of storm-water run-off and drainage. The infrastructure for stormwater management also includes extensive flood-prevention real estate assets held by flood-management agencies (like Ontario's conservation authorities), municipalities and private landowners. In some jurisdictions, like the UK, responsibility for water utilities and flood-management, are often combined in a single authority, typically operating across a watershed.

The facilities to treat, distribute and collect water also have a close connection to energy infrastructure, as they are substantial consumers of energy. In the future, extreme weather events and other climate-change provisions may expand the scope of this infrastructure related to mitigation and rapid-recovery from wind, rain and ice storms, flooding and sewer back-ups (both sewage and storm water).

Water transport infrastructure

Canals, locks, port facilities, ferry services, and port-access infrastructure, such as intermodal terminals and customs clearance, would be included in this category. The facilities of ports and harbours variously serve the needs of industry, agriculture, pleasure craft, construction (aggregates, stone, lumber, steel, asphalt, etc.), and municipalities (primarily road salt). There is also mixed-use public infrastructure, such as marinas and waterfront developments. The single largest pieces of Ontario infrastructure in this category are the freight ports, canals and locks that comprise the St. Lawrence Seaway system.

Telecommunications and electronic infrastructure

Telecommunications infrastructure includes fiber-optic cable and wired telephony, switching equipment, microwave towers and receivers. (For example, the \$100 million plus initiative of the Eastern Ontario Wardens' Caucus to provide broadband connectivity to all of rural and small town eastern Ontario is one of the trendsetting public-private partnerships in Ontario). Electronic infrastructure similarly includes systems for broadcast and reception of wireless communications, as well as server-farms and data warehouses, and air transport communications. An important sub-category in this field is the electronic and diagnostic infrastructure serving the healthcare field (diagnostic imaging equipment, diagnostic imaging and related file transfer, robotic evaluation and surgical treatment applications, electronic communications with remote clinics, etc.). In the future, this list of infrastructure will likely be supplemented by expanded use of closed-circuit television systems, and security infrastructure related to monitoring and interception of telecommunications and electronic signals.

Aeronautical infrastructure

The network of major and minor airports and landing strips across makes-up the majority of this category, including the air-traffic control infrastructure. One of the largest private investments in aeronautical infrastructure – indeed one of the GTA's largest single infrastructure projects – was the building of Terminal 1 at Pearson by the “privatized” Greater Toronto Airports

Authority in the early 1990s. Also to be included under the heading of aeronautical infrastructure is the healthcare-related aircraft and heli-pad system for trauma response and critical patient transport, serving trauma centres and other hospitals. In future, aeronautical infrastructure will be supplemented to manage drones and other unmanned craft.

Social Infrastructure

Not referenced in the initial definition above is the suite of investments made largely by the public sector in healthcare, education, law-enforcement and critical response (prisons, courts, police facilities, emergency medical response, fire suppression, etc.) and affordable and supportive housing (public and social housing, long-term care homes, etc.). A number of cultural, sporting, heritage and recreational facilities would also be included in this category, including legacy facilities from events like the Pan Am games. These infrastructure investments are large, continuing and have a significant claim on the funds available for investment in public and non-profit infrastructure. To this list might also be added the facilities that serve government, including city administration buildings, public works facilities, government office buildings, archives, and so on.

Not often considered is the infrastructure to support public policy objectives, such as designing and retrofitting public and private facilities for physical and perceptual accessibility, energy efficiency, systems sustainability (water, building materials, solid waste), emergency evacuation and public safety, and so on.

Government business enterprises (GBEs)

Within each of the foregoing categories, as well as in areas not normally considered infrastructure, are the “businesses” of government, more commonly referred to as “government business enterprises” or GBEs. The way in which infrastructure assets are held may create an additional asset, in the form of the corporation or entity that owns, operates and manages a facility or network. Among the GBEs most commonly recognized are the LCBO, Hydro One, Ontario Power Generation (OPG), Ontario Lottery and Gaming Corporation

(OLG), Ontario Place, Ontario Northland Transportation, and so on. In any discussion of financing new infrastructure, or refurbishing or expanding existing infrastructure, consideration should be given to the role that could be played by leveraging existing assets, including government business enterprises and their infrastructure. This would include full or partial sale, leasing, concessions, joint ventures, securitization of cash flows, dividends, mortgaging, collateral security for debt, and other tools to “leverage” our public infrastructure assets.

Ontario’s public assets portfolio:

Traditionally in Ontario (and in Canada generally), public and community assets have largely been acquired, operated and maintained by public authorities and with public finances.

There is a long list of public assets in the hands of the Ontario government and its agencies, and in the portfolios of local governments and local public authorities. Their asset value is also very large, although deteriorating due to lack of timely reinvestment and deferred maintenance.

These public assets include, among others:

- transportation (roads, public transit, Ontario Northland, regional and local airports);
- public utilities (e.g., potable water and wastewater systems; solid waste collection, recycling and disposal; and, Hydro One, OPG, and vestiges of local electricity distribution (municipal hydro commissions);
- hospitals and public healthcare facilities;
- schools and post-secondary educational institutions;
- parks, recreational, gaming and sports facilities, including stadiums and arenas;
- storm-water management systems and associated land-holdings, including conservation authorities;

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- heritage, library and cultural institutions, including public theatres and museums;
 - emergency medical and firefighting facilities, equipment and services;
 - policing and justice facilities, services and equipment, as well as correctional facilities; and,
 - social housing and long-term care homes.

When preparing an inventory of public assets at the provincial level, and on a smaller scale at the local and regional level, one needs to add “government business enterprises” and property holdings. The LCBO, OLG, OPG, Hydro One, the land holdings and buildings managed by Infrastructure Ontario, MNRF, MTO and Waterfront Toronto, are a few examples of these valuable public assets held in public hands.

There are a few exceptions to this Ontario and Canadian tradition of funding community, utility and ‘economic infrastructure’ assets through government action. Examples would include Canada’s rail infrastructure, the transmission and retail disposition of natural gas, telecommunications, privately-owned cultural enterprises (e.g., Mirvish theatres), and in recent years, privately operated electricity generation, transmission and retail distribution.

Although these examples demonstrate that not all socially and economically beneficial assets must necessarily be in government hands and financed by government, they remain the exceptions. In Canada, the vast majority of public assets are within the public domain for their (tendered) construction, operation / staffing, maintenance / refurbishment, expansion, and most particularly, for their funding and financing.

APPENDIX “B” – FURTHER NOTES ON INFRASTRUCTURE ISSUES

Note A (Water system sustainability):

El-Diraby, Tamer E., Bryan W. Karney and Andrew Colombo, “*Incorporating Sustainability in Infrastructure ROI: The energy costs of deferred maintenance in municipal water systems*”, by (RCCAO: June 2009); Page 11:

“A related but often ignored case involves leaks in water distribution systems. Leaks and breaks discharge not only water, but also lead directly to considerable increases in power costs, or reduced performance, or both. Essentially, they impose an extra consumption upon the system, even though such consumption (unlike frivolous demand) does not even involve the perception of utility for any stakeholder. Although the notion of leaks contributing to energy consumption is logical and has met with implicit recognition, direct attention to this link and assessment of its impact is apparently recent (Colombo, 2004). Perhaps as a harbinger of greater awareness, recognition of the energy cost of leaks is made in the AWWA Water Loss Control Committee’s 2003 report *Applying Worldwide BMPs in Water Loss Control*. Referring to the burden imposed by leakage, the committee acknowledges that: “...the additional energy needed to supply leakage unnecessarily taxes energy generating capabilities” (AWWA, 2003, p.75). In fact, the committee estimates that 5-10 billion kWh of power generated each year in the United States is wasted on water that is either lost via leaks or not paid for by customers.

“Preoccupation with water loss is nothing new and is perhaps the most obvious cost of leakage since there is a clear relationship between a utility’s income and water that fails to reach customers. Numerous studies have attempted to estimate typical water loss figures. Lai (1991) conducted one of the first ‘global’ surveys that reported water loss (then referred to as “unaccounted-for-water”) figures from several different countries and cities and discovered that these varied widely, from a low of nine per cent in Germany to a high of 43 per cent in Malaysia, with most countries falling into the range of 20-30 per cent. Brothers (2001) estimated average water loss in North American networks to be about 20 per cent, most of this being leakage. Growing concern over resource scarcity and water loss, partly confirmed by studies such as these, induced the

International Water Association (IWA) to devise clear and unequivocal water audit procedures in order to facilitate system comparison and benchmarking (Alegre et al, 2000; Farley and Trow, 2003), a move also embraced by the American Water Works Association (AWWA, 2003)."

Note B (Infrastructure needs):

Haider, Murtaza, David Crowley and Richard DiFrancesco, with assistance from Kenneth Kerr and Liam Donaldson, *"Investing in Ontario's Infrastructure for Economic Growth and Prosperity"*, (RCCAO: May 2013); page 30:

"'The Scorecard on Prosperity', a study published by the Toronto Board of Trade, argues that if the population increases to the expected levels in the future, the current estimated \$6 billion in lost productivity from traffic congestion alone would rise to \$15 billion. Existing infrastructure maintenance is another key area that has lagged as a priority, resulting in a huge infrastructure deficit. Municipal infrastructure in many jurisdictions could not be categorized to be in a state of good repair. The report highlighted that it is not just transportation infrastructure that is in serious need of renewal and expansion. In fact, much of the water and wastewater infrastructure in Ontario was built before the 1980s and is now nearing the end of its useful life. The Drummond Report, a study commissioned by the Government of Ontario, identified a funding gap of \$1.5 billion for the maintenance of water and wastewater infrastructure alone."

Note C (Public-Private Partnerships or P3s):

Ibid., Haider et al., pages 40-41:

"P3s have been the subject of much academic and institutional research over the past 25 years as a tool for developing and managing infrastructure projects. Canada has been a leader in this field and has implemented a number of notable, large-scale P3s to fund and maintain infrastructure projects. Examples include the Confederation Bridge in Atlantic Canada, the 407 Express Toll Route in Southern Ontario, and the Canada Line in Vancouver (Pirie, 1997; Siemiatycki, 2006).

“Benefits of P3s/AFP for Canadian and Ontario Governments

“Large-scale infrastructure projects in Canada can benefit from increased involvement of the private sector in a number of ways. Generally, as private sector involvement in a P3/ AFP increases, so too does the level of risk assumed by the private agency in question (Jooste & Scott 2012). As an example, the public sector is more susceptible to the political risk incurred by rising construction and maintenance costs. Conversely, the private sector often has more expertise and experience with allocating risk to parties most able to price and assume it (Vining & Boardman, 2008).

“The private sector can also provide infrastructure and services faster, at a lower cost and with greater certainty (BC Ministry of Finance, 2002). P3 infrastructure projects are often delivered faster and more efficiently due to greater private sector specialization in construction and operation than those funded and operated solely by the public sector. By contrast, governments engage in more diverse activities with a lower level of expertise with the specific technologies used in large scale infrastructure projects (Vining & Boardman, 2008). The expertise provided by some private agencies may even be international or global resulting in an economy of scale that can further reduce construction and operating costs. Private industry also tends to have greater incentive to reduce costs in order to receive greater returns on investment (Estache, Juan & Trujillo, 2007).

“P3s/AFP can also provide governments with greater budget certainty because private investment in large infrastructure projects can minimize or eliminate project-specific capital expenditures resulting in decreased debt levels. Whole-life costing in P3s allows for the preparation of longer term budgets that spread repayment obligations over longer periods (BC Ministry of Finance, 2002). Transferring the construction and operating cost to the private sector will also reduce unexpected government budget increases. The immediate savings realized from P3s can then be allocated to other public projects or services.

“Another benefit of P3s is that user fees, where the direct beneficiaries of a service incur some or all of the cost of operation, can be more readily imposed if revenues are being received by the private sector as opposed to the public sector (Vining & Boardman, 2008). It is more feasible to impose user fees in this way because users are more willing to accept that private agencies have to cover their costs whereas they might view user fees paid directly to the government as a form of taxation...”

Note D (Evaluation of two transit P3s: Metronet and Tube Lines):

House of Commons Transport Committee, “*The London Underground and the Public–Private Partnership Agreements*” Second Report of Session 2007–08 Report, together with formal minutes, oral and written evidence; (London UK: 16 January 2008); pp.11-12. Found at: <http://www.publications.parliament.uk/pa/cm200708/cmselect/cmtran/45/45.pdf>

“...Tube Lines’ higher Materiality Threshold of £200 million has given it a powerful incentive to make savings in order to offset any cost increases, rather than seeking additional payments from London Underground. This has encouraged a considerable level of innovation by Tube Lines, for example:

a) a significant reduction in the time taken to refurbish escalators (from up to nine months to around nine weeks); b) a reduction in the time taken to implement station modernisations (from around two years to as little as four months) alongside a reduction in costs of some 40%; c) the introduction of a number of new processes and new equipment to make maintenance more efficient; and, d) more emphasis on preventative maintenance, rather than simply waiting for infrastructure to fail...

“31. Tube Lines attributes its innovations to the long-term and output-based nature of the contract and warns that, ‘Should part of the work undertaken under the PPP be returned in-house, there would be a risk of a return to the resistance to change and entrenched attitudes which militated against innovation before transfer.’

“We do not want to see the baby thrown out with the bathwater; the involvement of the private sector working to an output-based contract has in some areas resulted in significant innovations to approaches that have hitherto remained the same for many decades. It is clear that the private sector will need to be involved to a large extent in delivering the necessary future volume of work, and it is to be hoped that the potential of output-based, fixed-price contracts to result in cost savings can be realised. However, the failure of Metronet fatally damages the Government’s assumption that the involvement of the private sector will always result in efficient and innovative approaches to contracts.

“32. Metronet’s inability to operate efficiently or economically proves that the private sector can fail to deliver on a spectacular scale, although Tube Lines’ performance provides an example of private sector innovation and efficiency. The evidence is clear: it cannot be taken as given that private sector involvement in public projects will necessarily deliver innovation and efficiency, least of all if the contracts lack appropriate commercial incentives. Future assessments of the comparative value for money of private sector-managed models for infrastructure projects should not assume a substantial efficiency-savings factor; a detailed assessment should be made of the suitability of the proposed structure of delivery organisations, of bidders’ specific expertise and of the strength of the incentives to efficiency. It is worrying that the Government’s confidence in such savings appears to stem from a belief that inefficiency is more endemic and irreversible in the public than the private sector.”

ENDNOTES

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- 2 Tamer E. El-Diraby, Bryan W. Karney and Andrew Colombo, “*Incorporating Sustainability in Infrastructure ROI: The energy costs of deferred maintenance in municipal water systems*” (RCCAO: June, 2009); Page 11.
- 3 Reference: *2013-14 Ofwat Annual Report*, pp. 18 and 23
Found at: http://www.ofwat.gov.uk/regulating/aboutconsumers/sim/rpt_com201408simrpt.pdf
- 4 The McKinsey Global Institute, “*Infrastructure Productivity: How to Save \$1 Trillion a Year*”.
- 5 The American Society of Civil Engineers; and the Federation of Canadian Municipalities (FCM). FCM has also identified a new infrastructure gap of at least \$113 billion - immediate needs include upgrades to roads and bridges (\$91.1 billion), waste management systems (\$39 billion) and wastewater and storm water systems (\$15.8 billion).
- 6 Paul Smetanin, D. Stiff and P. Kobak, “*Ontario Infrastructure Investment: Federal and Provincial Risks & Rewards*” by Canadian Centre for Economic Analysis (RCCAO: July, 2014), Table 1: “Federal and Ontario Infrastructure Contributions”; page 20.
- 7 “*Wealth without workers, workers without wealth*”, *The Economist* (London UK: October 4, 2014) pg. 14; “*The Third Great Wave*”, *The Economist* (London UK: October 4, 2014) pp. 3-18.
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- 9 “*Serco loses DLR franchise*”, *The Guardian* (Manchester, UK: July 4, 2014); Found at: <http://www.theguardian.com/uk-news/2014/jul/04/serco-loses-dlr-franchise-docklands-light-railway>

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- 10 House of Commons Transport Committee, “*The London Underground and the Public–Private Partnership Agreements*” *Second Report of Session 2007–08 Report*, together with formal minutes, oral and written evidence; (London UK: 16 January 2008); pp.11-12. Found at: <http://www.publications.parliament.uk/pa/cm200708/cmselect/cmtran/45/45.pdf>
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 - 15 “*Highway 407: An (Unfinished) Public Policy Drama in Four Acts*”, seminar summary by Sandra Rodriguez, including commentaries by Professor Sandford Borins, transportation consultant and author Chandran Mylvaganam, former Deputy Transportation Minister George Davies, and Globe and Mail columnist John Barber, Toronto Regional Group of the Institute of Public Administration of Canada (Toronto: January 14, 2005)

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- 16 Chandran Mylvaganam and Sandford Borins, *"If You Build It...": Business, Government, and Ontario's Electronic Toll Highway*, University of Toronto Press (Toronto: 2004); page 103: "The timing of the privatization was dictated by the government's political and electoral needs and was undoubtedly premature. By not waiting until the highway had been operational for a longer period, and more actual operating data had been obtained, the government did not sufficiently minimize the risk factor for private sector investors. This resulted in a much lower price than would have been realized had they waited a few more years and observed the steady growth of traffic".
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- 28 Found at: <http://jbh.ministers.treasury.gov.au/speech/004-2014/>
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- “*In Canada, municipalities play a leading role in managing and operating this infrastructure. In fact, municipalities own nearly two thirds of Canada’s core public infrastructure. In effect, provincial, territorial and municipal governments build, operate, maintain, rehabilitate and replace most public infrastructure in Canada.*” From: Infrastructure Canada - Building for Prosperity: Public Infrastructure in Canada (Ottawa: March 2012) Found at: http://www.chba.ca/uploads/Urban_Council/Mar2012/Tab%202%20-%20Building%20for%20Prosperity%20-%20Federal%20Background%20Paper.pdf)
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- 40 William A. Galston and Korin Davis “*Setting Priorities, Meeting Needs: The Case for a National Infrastructure Bank*”, Governance Studies, The Brookings Institution (Washington DC: December 13, 2013); pg. 7.
- 41 US Transportation Under Secretary Polly Trottenberg, Testimony before the U.S. Senate Committee on Commerce, Science and Transportation hearing on “*Building American Transportation Infrastructure through Innovative Funding*,” (Washington DC: July 20, 2011).
- 42 *Ibid*, “*Setting Priorities...*”, pg. 6.
- 43 Paul Smetanin, D. Stiff and P. Kobak, “*Ontario Infrastructure Investment: Federal and Provincial Risks & Rewards*”, Canadian Centre for Economic Analysis (RCCAO: 2014)

44 “RCCAO report says Ottawa is profiting from Ontario’s infrastructure investment”, by John Michael McGrath administrator, Queen’s Park Briefing; Torstar (Toronto: July 8, 2014)

45 *In the body of the Review, the Trust is explained as follows:*

“...To focus this effort, your government plans to create a special fund dedicated to the support of our province’s most pressing and important infrastructure projects. The Trillium Trust would receive revenue gains from asset sales, such as the sale of our interest in GM shares, and put that money to work by creating jobs and building an even stronger Ontario...”

“...The \$249 million increase in Other Non-Tax revenue reflects the gain on the sale, announced on September 10, 2013, of the Province’s interest in 10 million shares of General Motors Company. The government is committed to using the proceeds from this sale in the future to strategically invest in Ontario’s infrastructure. The government proposes to establish the Trillium Trust to ensure the proceeds are invested strategically and at the appropriate time...”

2013 Ontario Economic Outlook and Fiscal Review: Introduction; and, Chapter III: Fiscal Outlook (Section B: 2013–14 Fiscal Performance).

46 To review the checkered history of State Infrastructure Banks, including their vulnerability to political intervention when they are based on budgeted funds or Federal transfers, the following on-line articles merit reading:

<http://www.pbs.org/wnet/blueprintamerica/reports/america-in-gridlock/interview-the-bank-not-built-the-california-infrastructure-bank/554/>

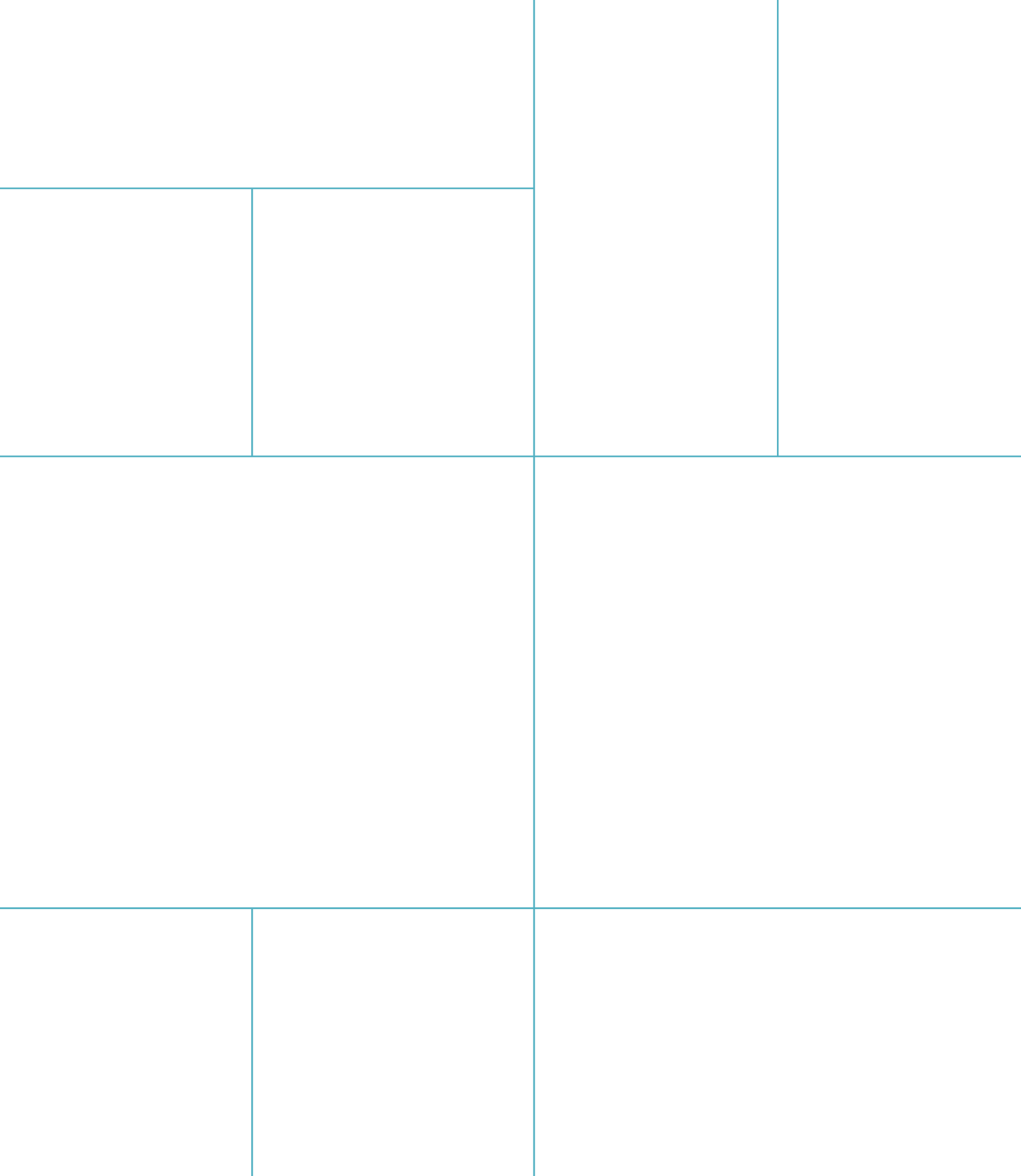
http://www.nelp.org/page/-/job_creation/state_infrastructure_banks.pdf?nocdn=1

<http://www.brookings.edu/~media/research/files/papers/2012/9/12%20state%20infrastructure%20investment%20puentes/12%20state%20infrastructure%20investment%20puentes.pdf>

47 Alberta Ministry of Finance; found at: <http://www.finance.alberta.ca/business/ahstf/history.html>

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- 48 Simon Gompertz, “*Has the UK squandered its North Sea riches?*”, BBC Business News (London, UK: October 8, 2012). Accessed online at <http://www.bbc.co.uk/news/business-19871411> , March 24, 2014.
- 49 See: Norges Bank Investment Management, “*Government Pension Fund Global*” Accessed online at: <http://www.nbim.no/en/About-us/Government-Pension-Fund-Global/>, March 24, 2014. Examples of other “sovereign wealth funds” include the Kuwait Investment Authority and Kuwait Future Generations Fund; details at: <http://www.swfinstitute.org/swfs/kuwait-investment-authority> ; the Alberta Heritage Savings Trust Fund: <http://www.finance.alberta.ca/business/ahstf/faqs.html#mission> ; and, the Abu Dhabi Investment Authority: <http://www.swfinstitute.org/swfs/abu-dhabi-investment-authority/> .
- 50 Some jurisdictions have allowed withdrawals from the fund or trust to be used to pay down debt obligations, or to help meet other budgetary obligations, although this practice is fraught with risk (including political temptation) unless the trust is very large and its regular investment returns (or other revenues) are substantial. Some, like Kuwait and Norway, treat the fund like an endowment, diverting some of the earnings, but largely leaving the principal amount alone.
- 51 “...a National Infrastructure Bank, similar to those that exist in many U.S. states, could be an important source of new funding. The federal government and private pension funds would co-invest in the bank, which in turn would finance major infrastructure projects using long-term bonds”, R.M. Warren, “Politicians ignore creative ways to fund our crumbling infrastructure”. Toronto Star, March 19, 2013. Available online at: http://www.thestar.com/opinion/commentary/2013/03/19/politicians_ignore_creative_ways_to_fund_our_crumbling_infrastructure.html
- See also: Galston, W. and K. Davis, 2012. “*Setting Priorities, Meeting Needs: The Case for a National Infrastructure Bank*”, The Brookings Institution, (Washington DC: Dec. 13, 2013) 27 pp. Accessed online at: http://www.brookings.edu/~media/Research/Files/Papers/2012/12/13%20infrastructure%20galston%20davis/1213_infrastructure_galston_davis.pdf

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- 52 See range of program offerings of the California Infrastructure and Economic Development Bank: http://www.ibank.ca.gov/about_us.htm
- 53 William A. Galston and Korin Davis, *Setting Priorities, Meeting Needs: The Case for a National Infrastructure Bank*, Governance Studies, The Brookings Institution (Washington DC: December 13, 2013); pg. 5.
- 54 Murtaza Haider, David Crowley and Richard DiFrancesco with assistance from Kenneth Kerr and Liam Donaldson, *Investing in Ontario's Infrastructure for Economic Growth and Prosperity* (RCCAO: May, 2013) Page 13.
- “Much of the literature in Canada has used the third approach mentioned by Gramlich (1994): the implied rate of return of public capital. The recent estimates of the return on public capital (e.g., roads, sewers, airports, etc.) range from 17% in Macdonald (2008) to an upper bound of 25% in Brox (2008), compared to a return on private capital (e.g., telecommunication and power grids) of only 10% to 13%.” [Haider, et al., May 2013]
- 55 Michael Fenn, “*Recycling Public Assets: A Timely Fiscal Policy for Government*”, Public Sector Digest, Summer 2014 edition (London ON: July 2014) pp. 13-18; Found at: <https://publicsectordigest.com/articles/view/1309?autologin=3302c9f3fa565065f2f88fc5e8759cf6>
- 56 *Ibid.*, page 17.
- 57 *Ibid.*, page 18.
- 58 Murtaza Haider, David Crowley and Richard DiFrancesco, with assistance from Kenneth Kerr and Liam Donaldson, “*Investing in Ontario's Infrastructure for Economic Growth and Prosperity*”, (RCCAO: May, 2013); page 9.





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