

A CONFERENCE TO IDENTIFY NEW MODELS FOR TOMORROW'S INFRASTRUCTURE  
**THE CANADIAN URBAN FORUM**  
**LE FORUM URBAIN DU CANADA**  
DE NOUVEAUX MODÈLES POUR L'INFRASTRUCTURE DE DEMAIN

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# A Step Towards Sustainable Infrastructure



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# A Step Towards Sustainable Infrastructure

## Introduction

Today, over 80% of Canadians live in urban areas<sup>1</sup>, contributing to a significant portion of national GDP. With globalization, cities compete at the international level and Canada is increasingly represented by its cities. If our economy is to prosper, Canada's cities must be contenders in the global race for resources and opportunities. Talent is drawn to vibrant urban centres that offer culture, amenities and a high quality of life. Attracting talent has become a challenge in recent years, as Canada faces an ever-growing municipal infrastructure deficit, estimated by the Federation of Canadian Municipalities to exceed \$123 billion<sup>2</sup> for existing municipal infrastructure, \$115 for new infrastructure and \$300-400 billion<sup>3</sup> if federal and provincial needs are accounted for. Moving towards a model of investing in sustainable infrastructure means building new infrastructure and rehabilitating or optimizing the re-use of existing infrastructure consistent with the goals of urban sustainability<sup>4</sup>.

The purpose of this paper is to provoke thought on the need to identify new models for sustainable infrastructure, with the ultimate goal of generating discussion, an exchange of ideas and the formulation of a meaningful contribution from Canada to the UN Habitat's World Urban Forum to be held in Medellin, Columbia in 2014. To this end, the Canadian Urban Forum was created as a place for stakeholder collaboration, allowing an exchange of experiences and ideas. Infrastructure is vital to our global competitiveness, delivering everyday needs and enabling people, goods and services to move and interact effectively. Rather than enabling, our infrastructure systems result in congestion, patients waiting on gurneys in hospital corridors and long waits for affordable housing. How did we get here?

## *The age of investment in nation building*

In the early days of Confederation, the federal government built the nation by constructing iconic public works like the transcontinental CP railway and the Halifax Harbour. The public funds committed to these projects were investments that enabled Canada's agriculture and resource extraction industries to reach global markets.

As the population grew, the priority and the mandate of fledgling municipalities was to fund basic infrastructure such as roads, water and sewers, which they did by borrowing. The private sector also had a role in providing public infrastructure: entrepreneurial private companies built the first public transit services, hydro-electric plants and communications networks. Private donations and grants from senior governments paid for hospitals, universities, schools, social housing and other essential building blocks that provided the population's basic needs for health, education and housing. These too were perceived as investments to prepare the Canadian population for productive employment that would generate wealth.

With the economy subject to wild fluctuations in fortune in the late 19<sup>th</sup> century, servicing debt to pay for growth remained a risky business. Concerned that they would be responsible for municipal bankruptcies, the provinces imposed restrictions on borrowing, and as a result, local governments became largely dependent on property tax revenues, user fees on services such as water and sewers and grants bestowed by higher order governments to pay for infrastructure<sup>5</sup>.

In the post-war years, senior governments attracted manufacturing jobs through investments such as the Trans Canada and provincial highways, the St Lawrence Seaway and hydro-electric power plants, enabling the country to continue the process begun during the war years of diversifying from an agricultural, resource-based economy to an industrial economy<sup>6</sup>. Senior governments were also willing and able to fund health, post-secondary education and social housing. A potent example, is the national commitment to universal health care and our

publicly funded hospitals.

The post-war population boom settled in the cities and Canada became increasingly urbanized, with more than 62% of its population living in cities by the early 1950s<sup>7</sup>. The suburbs expanded to accommodate this post-war growth. Cities financed the growth with property taxes, user fees, borrowing and lot levies. The mature urban cores had a reliable tax base and access to municipal services whereas the new suburbs had a much narrower tax base but significant infrastructure requirements. Innovative governance solutions, like the two-tier regional government of Metro Toronto were developed as a reliable way to pledge the assets of contiguous local municipalities against loans to pay for large-scale infrastructure investments. This model was replicated in various forms across the country, notably in British Columbia, with the creation of the Greater Vancouver Regional District in 1967<sup>8</sup>.

Lot levies, now known as development charges, were introduced in Ontario in the 1950s and in British Columbia in the 1960s<sup>9</sup> to pay for the a narrow range of growth-related costs of hard services such as water supply systems, sewage treatment plants, trunk mains and roads. In British Columbia development charges could cover the costs of libraries, parks, recreation centres and schools while in Ontario school boards began imposing development charges to cover the costs of new schools. In the housing boom of the 1970s municipalities and regional governments came to rely on these charges to support infrastructure development. The downside of this approach was that municipalities grew dependent on continued expansion of the urban envelope to service debt. Until very recently, for example, development charge revenue in places like fast-growing Mississauga enabled that city to operate debt free<sup>10</sup>.

### *The rise of world cities in an age of constraint*

Pursuing growth to bankroll infrastructure increased municipalities' exposure to higher operating costs, and inevitably to replacement or refurbishing costs. The only recourse for municipalities was to cut services, increase property taxes or backlog infrastructure expenditures which highlighted the

fragility of the funding models relied upon by cities. The latter approach was the most expedient but lead to large, unfunded infrastructure deficits at the municipal level<sup>11</sup>.

In 2009 the federal Public Sector Accounting Board issued guidelines that required municipalities to account for their tangible capital assets and properly amortize them in their financial statements<sup>12</sup>. The depreciation, reported as an operating expense, would be used to set tax rates and user fees to cover these costs. However, this requires that all capital assets be inventoried, valued and amortized. There is great value in knowing the true costs of infrastructure planning, operating and maintenance but this was an unfunded mandate that was deemed impossible to satisfy by the completion deadline and the effort has languished.

The suburban form is expensive to service. In the 1990s employees of the knowledge economy began to move into office buildings dispersed around metropolitan regions on land originally designated for industrial and manufacturing uses precisely because of its geographic isolation from residential uses. This created demand for the daily "journey-to-work" between suburban homes and office parks and, since both were built around automobile travel, traffic volumes soared and gridlock ensued.<sup>13</sup>

Cities continued to fulfill their traditional role as the service delivery arm of the provincial governments and were forced to take on new responsibilities "downloaded" from the provinces without receiving additional financial support or the authority to raise revenues to pay for them<sup>14</sup>. On top of this, the federal government set immigration policies to attract newcomers vital to Canada's economic growth. As always, most immigrants to Canada will settle in urban centres which must be prepared to provide them with jobs, education, health care, transportation and housing, as well as culture and entertainment. Cities, already struggling with unfunded operating and replacement costs, were encouraged to prepare to accommodate their share of population growth in "complete communities" – mixed use places that are compact, transit-friendly and capable of handling the transition to a knowledge-based economy<sup>15</sup>. Development charges, which are de-

signed to perpetuate the status quo, are not easily adapted to support government policies that attempt to transform land use patterns. That provincial governments were adopting new mandates that set a course for Smart Growth to tackle the long-term implications of unsustainable development patterns is positive; that the provinces and the development industry did not provide funding to support the effort is a symptom of the problem.

Reaction to the economic downturn of 2008 The federal government launched the Infrastructure Stimulus Fund in response to the 2008 credit crisis and the economic recession that followed, but then returned to tighter budgets. The timing of decisions by senior levels of government to exercise fiscal restraint by withdrawing funding support could not have been worse. And as cities and city regions grew in size and scale the tension between the hub role of city cores and their sprawling suburbs increased, leaving little agreement on development priorities and how to pay for them.

The population bulge that is the baby boomers is aging in single-family suburban homes inaccessible to transit and service<sup>16</sup> Climate change demands we reduce our consumption of fossil fuels. This is how we approach the next wave of growth in Canada: with more people, more traffic, aging and insufficient infrastructure, an aging population, climate change and little consensus about how to proceed.

However, the 2013 federal budget included some new long-term and more stable funding for infrastructure. The 2013 federal budget was announced as the “largest long-term federal commitment to Canadian infrastructure in our nation’s history<sup>17</sup>. The \$53.5 billion over 10 years in infrastructure money includes over \$47 billion in new funding as well as the proceeds from the Gas Tax Fund and the GST rebate. The money allocated is dedicated to community infrastructure (\$32.2 billion), the Building Canada Fund for projects of national, regional and local significance (\$14 billion) and the renewal of the P3 Canada Fund (\$1.25 billion)<sup>18</sup>. The 10-year horizon provides a much more predictable funding plan.

The historic commitment from the federal government to share a portion of the gas tax for the benefit of municipalities dates to 2004, was made permanent in 2011 and in the 2013 budget was indexed to protect its purchasing power. The permanent, indexed Gas Tax Fund is a kind of an equalization payment to municipalities for infrastructure investments that fall outside the reach of municipal spending. The scope of projects eligible for support from the federal Gas Tax Fund was expanded to include infrastructure projects such as Internet connectivity, culture, highways and short-line rail as well as the previously supported public transit, drinking and waste-water, solid waste management, local road and community energy infrastructure<sup>19</sup>. Yet the size of the infrastructure deficit continues to increase and the strain on federal and provincial governments to continue their tradition of funding the nation’s universities, schools, hospitals and housing agencies is fiscally unsustainable.

### *The future age of investment in sustainable cities*

It is becoming evident that competitive cities are essential drivers for Canada’s economic health. Global cities compete against each other for opportunities and resources and Canada’s major cities must be contenders. For the sake of all Canadians, we need new thinking and new approaches to identify “new models for tomorrow’s infrastructure”. The 2013 Budget and Gas Tax Fund are a beginning but not a commitment to address the root problems we face:

- Aging infrastructure requires upgrade or replacement and new infrastructure is needed as urbanization continues.
- Municipalities are charged with accommodating high growth mandates but not granted the financial resources to achieve them.
- The Gas Tax does not fund non-municipal infrastructure (universities, hospitals, etc.)
- The federal and provincial governments are saddled with debt which limits their willingness and ability to address municipal needs.
- The development charge models do not cover the full range of vital infrastructure.

Overall, the Canadian municipal infrastructure funding model is not providing the conditions for sustainable infrastructure. The Canadian Urban Forum was created to begin to address this critical gap in how we think about infrastructure and urban development. By reigniting interest in Canada's urban agenda, we hope to stimulate conversation between urban stakeholders, building momentum towards new ways of thinking and developing a meaningful contribution to take forward in the UN Habitat's World Urban Forum in 2014. If we are to address the significant problems created by our old systems, new ways of thinking are a necessity. What type of infrastructure do we need and how much? Who should be responsible for development? And how, in a time of fiscal and public constraint, can we ever hope to pay for it? Today's urban reality demands action, but there are clearly more questions than answers.

So, where do we begin? As Calgary Mayor Naheed Nenshi said in an interview with the *Globe and Mail*<sup>20</sup>

*"Well, we start. We can't get cowed by big numbers. And we have to be thoughtful about debt capacity and long-term investments. We need to partner better with industry, and we need to bring down our unit construction costs. Bridges and exchanges are really expensive. Are there ways we can build them in a more thoughtful but long-lasting way? But the best thing to do is to just get started. And the best way to get started is to have a really good vision".*

We need vision that draws on the innovation of stakeholders. We need vision that acknowledges fiscal realities. We need vision that is actionable and, most importantly, we need vision that is smart, strategic and based on sound principles.

### **How can we achieve infrastructure sustainability?**

With an understanding of the realities that constrain us, we need to agree on how we define long-term infrastructure sustainability for Canada. We believe it can be defined by four guiding principles.

**Social Equity.** Equitable and adequate access to housing, health care, transportation, education, etc. enables individuals to engage productively with society. The return on investment in terms of social capital accrues to society as a whole.

**Financial feasibility.** We need a new understanding of the "bottom line" of our investments in infrastructure. Investments may yield either a profit or a material or useful result, such as improved health. Evidence-based decision making must be applied to decide what infrastructure to build and how to fund it, and infrastructure investments decisions must be considered in terms of their return on investment.

**Environmental sustainability.** Planning for the future has become synonymous with planning for the environment so that future generations will enjoy the same quality of life we enjoy.

**Global competitiveness.** Cities are the hubs of Canada's knowledge and manufacturing economies while rural communities support the agricultural and natural resources economies. The infrastructure we build and where we build it has implications for our long- and short-term competitiveness.

For example, transportation infrastructure impacts the lives and economic activity of Canadians daily. An efficient transportation system that facilitates the mobility of the population and the distribution of goods, within a metropolitan area and between regions, is essential for the functioning of a productive economy and peoples' quality of life. The OECD reported that in 2006 the cost of congestion in the Greater Toronto and Hamilton Area in terms of delay, diminished productivity, wasted energy, environmental degradation and a diminished standard of living was \$3.3 billion for commuters and \$2.7 billion in lost opportunities for economic expansion<sup>21</sup>.

Canada's response to the global recession of 2008-2010 and its impact on different regions of the country provide an excellent example of the benefits of and need for coordination between all levels of government to prepare for future challenges and opportunities, the value of having strategic plans that address the specific needs of different regions and the benefits of targeting infrastructure investments

strategically, rather than sprinkling them across the country<sup>22</sup>. Canada as a whole weathered the global economic crisis of 2008-2010 better than many OECD countries, not because it was prepared for a recession or because it took swift action to stimulate the economy but because the federal government considered the provinces, territories and municipalities as partners in its effort to limit the damage of the recession on Canada<sup>23</sup>.

Since the last economic downturn, Canadian regions have realized that they must pay greater attention to the importance of thinking strategically about their infrastructure plans. These plans must be tailored to the needs of a region and municipality. A sound infrastructure plan is also essential to support economic diversification<sup>24</sup>. In 2005 Oshawa adopted a five-year strategic development plan to diversify its economy. The plan included “shovel-ready” projects that enabled Oshawa to take advantage of the stimulus funding provided by the federal government to diversify its economy into education and research and so avoid the worst effects of the near-collapse of the automotive industry. Thunder Bay had a strategic plan to diversify its economy and create jobs through strategic infrastructure investment. However, Thunder Bay is having difficulty attracting new business due to its remote, northern location. Windsor did not have a long-term transitional economic plan and could not benefit from stimulus spending. Not only do you need a strategic plan, but the plan should also include a sound strategic infrastructure plan to suit the needs and exploit the potential and the economic diversification of each region.

On the other hand, the current debate about how to fund the “Big Move” is an example of a typical jurisdictional deadlock. Metrolinx, the agent of the Ontario government responsible for planning and delivering the \$36 billion, 20-year plan for providing higher-order transit to the Greater Toronto and Hamilton Area<sup>25</sup>, has recommended the implementation of four new “revenue tools”, the proceeds of which will flow to a Transportation Trust Fund dedicated to future transportation projects. The provincial government firmly supports the project but has stated new revenue sources are required to pay for it. The federal government response was to voice disagreement with tax increases and to point out

that a regional sales tax, one of the proposed tools, was in compliance with existing agreements between Ontario and Ottawa<sup>26</sup>.

To achieve long-term infrastructure sustainability requires that we overcome over a century of institutional inertia caused by Constitutional jurisdictional frameworks that separate the responsibility for municipal infrastructure from the authority and ability to pay for it. We need to continue to respect the authority within jurisdictions but to provide policy frameworks that engage all stakeholders and provide visibility and accountability<sup>27</sup>.

### *What will we learn in the Forum?*

Over the course of the Forum, we will hear from officials from all three levels of government and from academics, associations, consultants, corporations and developers who will share their experiences and knowledge from an international and a Canadian perspective, at the national, provincial and local levels, from both coasts, the prairies and central Canada. We will learn from them how they built strategic partnerships, leveraged existing assets, used environmental design to lower operating costs, and employed strategic planning to transform the infrastructure investment process.

**Build strategic partnerships.** London’s Crossrail<sup>28</sup> transit investment, Montréal’s business area rejuvenation of its Quartier International (QIM)<sup>29</sup> and Quartier des Spectacles (QDS)<sup>30</sup> and the grassroots London Community Foundation’s (LCF) Loan Fund<sup>31</sup> for affordable housing are examples of how large, medium and small consortiums are pooling their resources to make the investments required for infrastructure investments. These consortiums draw variously from local, provincial and national governments, corporations, investors and the public to raise the funds required for critical infrastructure.

**Leverage existing assets.** Unlocking the value in publicly and corporately owned assets generates cash flows that can be used for other needs. Just as Montréal realized the value of rejuvenating its cultural quarter, Halifax has found that strategic investments in its downtown yield superior returns. Similarly, Simon Fraser University unlocked the value

of its endowment lands<sup>32</sup> and Horizon Utilities<sup>33</sup> in southern Ontario worked with cities to unlock the value of brownfields that were served by existing infrastructure.

**Promote environmental design.** Energy service companies have proven that reducing the demand for energy in a building can pay for the costs of energy upgrades as well as reduce operating costs, all while mitigating the environmental impact of activities. Beaver Barracks<sup>34</sup> in downtown Ottawa and the Lightsavers<sup>35</sup> program provide examples of how significant savings can be realized by renewing real estate holdings in ways that reduce future consumption. Horizon Utilities<sup>36</sup> has employed energy mapping to identify customers that will benefit from demand management to reduce consumption, and thus, costs.

**Apply strategic, integrated planning.** The Sustainable Cities International (SCI) *Infrastructure Cost and Urban Growth Management Guide*<sup>37</sup> provides a step-by-step process for determining the cost implications of different growth scenarios for cities. By analyzing different scenarios, local governments, their stakeholders and citizens can formulate a strategic plan that determines how, when and where their city should grow, sustainably. Studies undertaken using the SCI methodology by the cities of Calgary, Canada and Los Cabos, Mexico identified that significant savings on infrastructure costs could be achieved through more compact growth.

**Build expertise in new approaches.** Should Canada adopt more P3s? There are challenges. The UK Treasury recently published a report<sup>38</sup> recommending changes to the way it conducts what it calls “private finance initiatives” motivated by concerns raised that this approach led to sub-optimal value for some projects. The report identified problems such as slow and expensive procurement processes, inflexible contracts, a lack of transparency of the future liabilities created by PFI projects and the perception that some equity investors have made “windfall gains”. The report blames a lack of concentrated expertise for part of the problem. In Canada, expertise is being built in organizations like P3 Canada, Infrastructure Ontario and Infrastructure BC, all of which strive to evolve approaches to financing public infrastructure.

## Next steps towards infrastructure sustainability

The Canadian Urban Forum will provide opportunities for discussion, brainstorming and collaboration, leading to an exchange of ideas. Your contributions will form the basis of a working paper which will summarize the outcomes of the Forum, and build a consensus and agenda to take forward to the World Urban Forum in Columbia, 2014<sup>39</sup>.



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