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INTRODUCTION

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At the 2013 meeting of the Advisory Council of the Institute of Intergovernmental Relations, part of the proceedings of the State of the Federation conference, members of the council had their customary discussion of possible topics for the next conference. Although there were serious contenders—Canadian conferences on intergovernmental relations seldom suffer from a lack of possible topics—there was general agreement that all three orders[1] of government were faced with critical infrastructure issues, and that these issues were unlikely to be resolved without concerted and coordinated actions by all three. It was therefore agreed that the subject of the 2015 State of the Federation conference would be Canadian federalism and infrastructure. The papers presented at that conference comprise the chapters of the present volume.

As the chapters in this volume make clear, infrastructure development by all three orders of government has been an important part of the history of Canada. The interaction of these orders in this area, however, is a relatively recent phenomenon. Traditionally, intergovernmental relations have been dominated by questions of constitutional jurisdiction, constitutional amendment, fiscal federalism, national unity, healthcare, and so on. It is safe to say that infrastructure, while not totally absent, did not figure prominently on the intergovernmental agenda until about the mid-1990s.

1. We refer to orders of government for ease of exposition, but we realize that, unlike the federal and provincial governments, the municipal level of government is not a constitutionally recognized "order."

In the last decade of the twentieth century and even more so in the first of the twenty-first century, infrastructure became a major concern for all three orders of government and emerged as an intergovernmental issue. While various factors contributed to this emergence, of undoubted importance was the fact that much of the earlier infrastructure investment was approaching, or had reached, the end of its useful life. Pressures for renewal and expansion were increasing, and groups such as the Federation of Canadian Municipalities and the construction and civil engineering associations added their voices to those of the cities in demanding increased federal and provincial spending on infrastructure. The availability of budget surpluses and private financing prior to the global financial crisis facilitated positive responses by senior orders of government. Moreover, the dominance of provincial and, particularly, municipal governments in the ownership of infrastructure meant that the federal government had to work with the other governments to realize its own infrastructure investment aspirations. Coincident with these developments were demands from the cities for a greater role in the federation. Although controversy continued over such perennial sources of disagreement as vertical fiscal imbalance and provincial demands for unconditional transfers, intergovernmental cooperation on issues of infrastructure has improved, and a great deal has been accomplished by increased collaboration.

With these developments as prelude, the Advisory Committee agreed that the time was appropriate to assess what had been accomplished respecting infrastructure investment, what still needed to be done, and how well intergovernmental collaboration was working to address outstanding issues. The 2015 Canadian Federalism and Infrastructure conference was the result.

The first session of the conference was intended to provide attendees with both a historical perspective on infrastructure investment in Canada, and a quantitative view of the magnitude of the infrastructure deficit experienced by local governments across the country. The former was provided by Herb Emery, University of New Brunswick, while the latter was a joint effort by Chris McNally and Bill Ferreira, both of the Canadian Construction Association, and David L. A. Gordon of Queen's University.

Dr. Emery's chapter in this volume presents a brief history of Canadian infrastructure for the period starting in 1870. He reminds us that not all the infrastructure required for economic growth is *public* infrastructure. Much of the infrastructure that serves the nation was privately financed, with varying levels of government involvement for the vast networks of railway, telegraph, streetcar, telephone and pipeline systems. Although some of these networks required start-up assistance and regulation, Emery observes that the financing issues of private infrastructure (rail, pipelines, telecom) have largely proved surmountable in the past half-century.

Emery notes that government involvement in public infrastructure tends to be lumpy and episodic, with a focus on construction rather than operations and maintenance. Government funding often comes with the politically attractive promise that access to the newly constructed infrastructure should be free, focusing upon

elements of the water supply, sewage, and roads systems that might be considered public goods. The system managers were often left with the operations and maintenance issues, without a revenue stream to fund them. Ironically, Emery observes that the government decision to make the use of most highways untolled had the perverse effect of undercutting the privately financed railway and streetcar networks.

During the 1950s and '60s, government infrastructure investment grew rapidly, when, as Emery observes, the federal and provincial governments made huge contributions to the construction of national and inter-provincial networks in waterways, electricity, pipelines, highways, hospitals, schools, universities, and social housing. In recent years, when urban growth has been the primary driver of infrastructure investment, the share of provincial and federal ownership has declined, and local governments are now responsible for over half of Canada's infrastructure stock. These trends, Emery suggests, have increased tensions between the orders of governments, because the municipalities have the least fiscal capacity and inadequate tools for capital investment.

The shift of infrastructure ownership to the local level is also noted in McNally, Ferreira, and Gordon's chapter, which outlines the current dimensions of the municipal infrastructure problem. Over half of the nation's infrastructure is now owned by local governments, which are responsible for maintenance, repair, and replacement, despite their limited fiscal capacity. Much of this core infrastructure (potable water, sewers, roads and transit) was built in what may have been the "golden age" in the 1950s and '60s and is now reaching the upper limits of its service life, with major reinvestment or replacement required in the decades ahead.

McNally, Ferreira, and Gordon note that the postwar era saw a fundamental shift in Canada's community structure to suburban lifestyles that have major implications for infrastructure policy. The nation's population shifted from rural to majority urban by 1931, served by relatively efficient water, sewer, and streetcar networks. The upgrades in the urban potable water and sanitary sewer networks in the early twentieth century had major public health benefits, reducing communicable diseases, decreasing infant mortality rates, and increasing adult lifespans. Then, postwar migration towards the "Canadian dream" of single homes and automobile travel led to mass suburbanization. By 2011, more than two-thirds of Canada's population lived in suburban environments that were far lower in density and more expensive to service than the pre-war cities. And over 85 percent of the population growth in metropolitan areas was at the distant and inefficient edges of these suburban communities, greatly increasing the demand for infrastructure investment.

Prior to 2011, there was no comprehensive national overview of the state of this core municipal infrastructure. The 2012 Canadian Infrastructure Report Card (CIRC) was a breakthrough modelled after similar analyses conducted for the United States by the American Society of Civil Engineers. Expanded and repeated in 2016, the CIRC is the most comprehensive survey yet of the state of Canada's municipal core infrastructure. According to the survey, one third of this core infrastructure is in fair, poor, or very poor condition, with the asset classes for roads, municipal

buildings and public transit exhibiting the worst condition. The replacement value for core assets in the worst condition (poor and very poor) is estimated to be $141 billion, with roads, potable water, and wastewater systems requiring the largest expenditures. More seriously, McNally et al. observe that the rates of reinvestment in maintenance, repair, and replacement are declining, so the situation will get worse.

McNally, Ferreira, and Gordon note that the 2016 Canadian Infrastructure Report Card has demonstrated how deferred maintenance costs accelerate later in systems life, and how replacement after failure is far more expensive than preventive maintenance. The proverbial penny saved by deferring maintenance can become a dollar in replacement costs. Unfortunately, they observe, short-term political cycles work against long-term life-cycle infrastructure maintenance.

The CIRC estimated the total stock of core municipal infrastructure to be $1.1 trillion in 2015, or approximately $80,000 per household. Many of these systems are essential for the health, well-being, and quality of life for most Canadian citizens. While the CIRC is among the best data sources for the 90 percent of Canadians who live in metropolitan areas and cities, the authors concede it does not cover the smallest towns and rural areas, which have their own distinct and difficult infrastructure problems. Also, the CIRC does not cover rural aboriginal communities, many of which have extremely serious infrastructure issues that must be addressed by entirely different intergovernmental policies.

The second session was concerned primarily with issues of infrastructure financing. The chapter by Enid Slack and Richard Bird, both of the University of Toronto, focuses on the disparity between how regional public transit in Ontario ought to be financed and how it is in fact financed. The paper that follows, by Robin Boadway and Harry Kitchen, of Queen's and Trent universities, respectively, is concerned to establish the architecture of federal fiscal arrangements that would yield an adequate level of both new and replacement infrastructure investment.

Slack and Bird begin their analysis by establishing what they call the Wicksellian Connection—essentially, the principle that efficient public-sector decision making requires a clear and meaningful linkage between expenditures and revenues—arguing that without an underlying agreement on who is going to pay, and how, one cannot decide sensibly what should be done. They note, for example, that the case of rapid transit in the Toronto region clearly demonstrates the non-viability of plans about what should be done when these lack an underlying agreement on who can or should pay. In addition to facilitating efficiency and accountability, linking expenditure and financing should also promote equity by ensuring that what is done and how it is financed are sufficiently fair to gain acceptability within the existing democratic institutional structure.

Despite the potential gains from respecting the Wicksellian Connection, Slack and Bird observe that Canadians have paid surprisingly little attention to the basic idea that local governments should charge for services provided whenever possible, tie the revenues received to the services that generated them, and limit the outlays on those services to the amount of revenue they produce. Too often,

decisions respecting the revenue and expenditure sides of local budgets are made independently and, given the influence of provincial governments on what occurs at the local level, sometimes with relatively little local input. The unsurprising result is that local expenditures may be little influenced by local revenue policy, and accountability is weakened.

An essential part of the remedy, Slack and Bird suggest, is to adopt what they describe as the first rule of sensible local finance: wherever possible, charge. Good user charges, they argue, not only produce revenue but also promote economic efficiency and make society as a whole better off. Public policy should therefore allocate the costs associated with a given benefit, including those generated by infrastructure, as much as possible to those who enjoy the benefit, either by user charges or by taxes paid by the beneficiaries. In the case of regional transit investment, the beneficiaries are obviously transit users and drivers who experience less congestion. But they also include visitors, businesses that gain from improved access, and property owners (whose property values increase because of improved transit.) It is thus clear that cities would need to supplement user charges with changes to property taxes and other sources of revenue to match benefits and contributions.

After considering how best to achieve fair and efficient financing of regional transit, Slack and Bird review the various proposals put forward to finance regional public transit investments in Ontario. Unfortunately, they find it necessary to begin their review by noting that several major studies make clear that "no obvious progress has been made in Canada in recent decades towards the goal of financing transportation more sensibly." In the five selected reports, however, they do find that the proposals for financing regional public transit demonstrate some awareness not only of the linkage between revenue and expenditure, but also of the potential gains from pricing. Despite this, they find evidence that, in Ontario at least, the decisions on what is suggested and what is seriously considered continue to be made on other grounds, although it is not always clear what those other grounds are.

Of the reports they reviewed, they conclude that the best example of applying the Wicksellian Connection to transit and road finance in the GTHA was that provided by Kitchen and Lindsey. Most importantly, it was the only one in which improved transit fares and highway tolls were mandated. More generally, Slack and Bird find that the basic problem in financing public transit is that it is in competition with the generally underpriced road system: if road use is subsidized to the degree it is, it will be impossible to pay for the needed transit infrastructure on a full cost-recovery basis.

Slack and Bird also share the view of Kitchen and Lindsey that the lack of an accountable and effective regional governance structure hampers the use of new financial tools. They observe that when inter-local agreements do not work, the province inevitably becomes the "regional" government, making regional transportation decisions and taking responsibility for levying region-wide taxes and charges. They conclude that the political advantages of providing services with "other people's money" are so great, and the technical difficulties in properly

evaluating and pricing many public services so formidable, that even exceptionally strong intergovernmental reporting and accountability structures are unlikely to yield public-sector efficiency in complex metropolitan regions like the GTHA, even in the presence of a strong metropolitan governance structure.

However difficult the challenge, Slack and Bird argue that progress can be made towards establishing a stronger Wicksellian connection between revenues and expenditures at the local level. The difficulty is that almost no one wants to hear truths as unpleasant as "users should pay" or that "redistribution through mispricing local public services is almost always a bad idea."

The focus of the Boadway-Kitchen chapter is not on the size of any infrastructure deficit, but rather on why such a deficit should exist. If, as is generally agreed, infrastructure investment is beneficial to society, why does government not freely pursue an optimum level of investment? This query prompts them to enquire whether the decentralized nature of such investment, in conjunction with the system of intergovernmental fiscal arrangements, causes under-investment in infrastructure. More generally, they seek to establish what the architecture of federal fiscal arrangements would look like if one wanted to ensure an adequate level of both new and replacement infrastructure investment. In attempting to resolve this issue, they provide a broad overview of those aspects of Canadian fiscal arrangements that bear on the level of infrastructure investment undertaken at each level of government, including the assignment of responsibilities, the division of tax room, and the structure of grants.

One conclusion that Boadway and Kitchen establish early in their analysis is that there is no systemic reason for provincial and municipal governments to under-invest in infrastructure. Indeed, expenditures on infrastructure can be used as an instrument of fiscal competition, for province building, as in the case of Alberta, to attract businesses and residents from other jurisdictions, possibly causing negative externalities. They conclude that no argument based on fiscal competition can be made for infrastructure to be under-provided by provinces and municipalities. They also caution against an easy advocacy of creating more tax room for the provinces as a remedy for perceived under-investment in infrastructure: this "solution" could jeopardize the harmonization of the tax system and exacerbate the problems associated with horizontal imbalances.

Boadway and Kitchen do recognize that there are reasons why infrastructure investment may be more constrained at the municipal level than at the provincial. They note, for example, the excessive reliance, by international standards, of Canadian municipalities on property taxes, and the fiscal pressures exerted on larger municipalities by the continuing internal migration of population to the larger urban centres and their status as preferred destinations for large numbers of immigrants. Provincial off-loading of expenditure responsibilities of a social or redistributive nature, without adequate fiscal compensation, has also exacerbated any problems the municipalities may have had in financing infrastructure. Again, however, the authors caution that in virtually every city in Canada, the property tax

could generate more revenue than it currently does, and that there is no evidence that raising the tax rate would lead to serious financial problems. Additionally, they note that there is a presumption that many, if not most, municipalities have not fully exploited their capacity to impose user fees, licences, permits, special assessments, development charges and similar levies.

It is in this context that Boadway and Kitchen find it necessary to sound a cautionary note relating to the importance of properly pricing or taxing for the use of municipal services. Too frequently, the tendency is to price services simply to raise revenues, without explicit consideration of the need to be fair, efficient and accountable. The too-frequent result is underpricing and an inflation of the demand for the infrastructure providing the services, thereby inflating the perceived infrastructure deficit.

Several important conclusions emerge from their analyses. First, the principle of subsidiarity supports a high degree of decentralized responsibility for the provision of infrastructure to the provinces and municipalities. Second, and as noted above, local infrastructure financing and provision are not constrained by serious problems of fiscal competition. Third, the federal government provides largely unconditional transfers by means of Equalization and the Canada Health and Social Transfers (these, while ostensibly for health and welfare, are in fact largely fungible) to the provinces that can be used for financing infrastructure. Finally, the case for providing federal transfers directly to the municipalities, which have access to the New Build Canada Fund and the Gas Tax Fund, is weak: essentially the same results can be achieved by making the transfers via the provinces, which would result in greater accountability. Only where a national purpose or benefit is served, one that is not being adequately considered by the provinces, may there be a case for direct federal transfers to municipalities.

Boadway and Kitchen's final conclusion is that, if it appears that the lower orders of government have difficulty financing necessary infrastructure investments, the remedy may be found in increased transfers—which is likely to be at the expense of accountability—or by increasing their tax room. They make clear, however, their belief that provincial governments already have significant revenue-raising ability and that further shifts in tax room may exacerbate already-large horizontal imbalances and jeopardize tax harmonization. At the municipal level, however, they see room for expanding and improving user fees, and recognize that there may be a case for giving large cities and metropolitan areas access to additional taxes accompanied by enhanced equalization across all municipalities within a province.

In the keynote address of the conference, Pamela Blais demonstrated that the primary cause of inefficient outcomes in metropolitan infrastructure policies is found in perverse pricing systems. Property tax policy and development charges are actively encouraging inefficient use of infrastructure in suburban sprawl and creating financial disincentives for more economically, socially, and environmentally sustainable alternatives. The development regulations and financial policies of the postwar era supported the dream of large families living in single detached homes

and driving everywhere on fast, uncongested roads. These policies may have been appropriate for returning veterans in 1945 and in the early years of the Baby Boom, but they are much less suitable for twenty-first century Canadian demographics.

In her chapter, "Distorted Infrastructure," Blais describes how price systems shape urban form if infrastructure development charges are based on average costs across a municipality, while most of the population growth is happening on greenfield sites at the lower-density outer edges, precisely where servicing costs are greatest. Drawing on her 2010 book, *Perverse Cities*, she demonstrates how mispricing and perverse subsidies inflate the demand for inefficient, low-density suburban sprawl, with its more expansive infrastructure systems, and how they artificially reduce the demand for more efficient infill development. Once again, providing free access to most roads and parking has resulted in a dramatic weakening of public transit, the mode that is potentially more efficient and sustainable. And the demand for free road capacity has usually outstripped supply in peak periods in many Canadian metropolitan areas, resulting in increasing congestion. California, one of richest US states, tried and failed to build its way out of congestion during the height of the American economic booms and is now experimenting with road tolls, congestion fees and paid parking.

Session 3 of the conference comprised three papers dealing with various aspects of infrastructure-investment decision-making processes. The first, by Matti Siemiatycki of the University of Toronto, identifies the principal factors responsible for the cost overruns and schedule delays endemic to major infrastructure projects, and suggests strategies for their remediation. In the second paper, the former director of the Institute of Intergovernmental Relations, André Juneau, draws on his experience as the first deputy minister of Infrastructure Canada to describe how decisions were formulated in the early years of that department, and to explore the relationship between infrastructure policy and Canadian federalism. The final paper of the session, by Jacques Caron, Secretariat du Conseil du trésor, describes the principal features of Quebec's ten-year infrastructure plan.

Siemiatycki's chapter is concerned with cost overruns and schedule delays on major infrastructure projects, and he sets himself the challenge of identifying their patterns, causes and cures. He notes that while the media regularly report on delays and cost overruns on high-visibility, major projects, they tend to report on each as an isolated case with its own unique explanation, while the problems of overruns and delays are in fact endemic. They burden governments with hundreds of millions of dollars of unexpected expenditures and erode public confidence in the capacity of government to deliver effectively vitally needed infrastructure investments.

What is necessary, Siemiatycki suggests, is that governments develop effective strategies to plan and deliver infrastructure projects. The purpose of the chapter is to identify approaches that they can use to improve the accuracy and efficiency of infrastructure-project delivery. To this end, he reports on a review of the extensive academic literature demonstrating the pervasiveness of cost overruns and construction delays; he identifies the causes of poor project delivery and proposes

strategies to minimize the occurrence of these problems. His principal finding is that most cost overruns and delays are attributable to three factors: technical challenges associated with the projects; over-optimism on the part of those involved; and strategic misrepresentation.

Among the technical challenges Siemiatycki identifies are changes to the scope of the project, and the change orders to which they give rise. Increased labour and material costs—and protracted delays provide more scope for these to occur—coupled with inaccurate forecasting and poor project monitoring are major contributors. By and large, these factors are predictable and thus subject to control, and should reflect improvement over time. Unfortunately, Siemiatycki finds little evidence that the managers of megaprojects are in fact improving their budgeting and scheduling skills. Rather, he notes the continuing prevalence of the all-too-human tendency to underestimate the costs and time required for megaprojects, compounded on occasion with deliberate misrepresentation to ensure the approval of projects promising political or professional gain.

Siemiatycki suggests that remedies to these problems can be found in international best practices, and he identifies five. First, the increasing sophistication and capability of data management makes possible significantly improved performance monitoring, reporting and information-sharing. Second, more predictable outcomes result when governments track and reward the best-performing companies and contractors. Third, investing in the management skills—particularly those relating to contract enforcement and dispute resolution—of staff who oversee megaprojects can yield substantial dividends in reduced overruns and delays. Fourth, each completed project adds to the knowledge base on which governments can draw to increase the accuracy of their forecasting techniques. Finally, the use of public-private partnerships has facilitated the bundling of multiple aspects of project delivery and the use of pay-for-performance contracts, both of which can contribute to on-budget and on-time project delivery.

Siemiatycki observes that some governments are already benefiting from the use of these techniques. There are, however, barriers to their wider adoption. Most obviously, the higher costs involved in providing advanced skills training and adopting more advanced techniques of data management and forecasting will deter some governments. And there are undoubtedly some parties who prefer to obscure the frequency and magnitude of cost overruns to evade accountability for project failures. Siemiatycki believes, however, that the inertia hindering the adoption of best practices is perhaps being overcome as the intense media coverage of failures makes both politicians and voters more demanding of public servants and government contractors.

The Juneau chapter explores the relationship between infrastructure policy and Canadian federalism. This exploration has three parts: the first is a framework to guide infrastructure policy; the second discusses the intergovernmental features of the framework; and the third examines a case study of the first four years of

what was then Infrastructure Canada, a federal department of which Juneau was the first deputy minister.

Infrastructure policy, he suggests, should be based on four broad principles: first, projects should be prioritized and related to policy purposes; second, decisions respecting priorities, purposes and projects should be taken by a broad range of actors; third, multiple funding mechanisms should be available; and, finally, project execution and monitoring should be effective and transparent, and undertaken by the appropriate actors. Juneau develops each of these principles in some depth, while providing valuable insight into them. He notes, for example, that the original categories utilized by the 2002 Canadian Strategic Infrastructure Fund were not well connected to purposes and "did not display a sense of federal jurisdiction." He is also of the view that clarity of purpose and an insistence on priorities will contribute to more productive intergovernmental relations.

With respect to financing infrastructure investment, Juneau notes that while a decision on financing is vital, the challenge may be to avoid thinking too much and too early about financing, most particularly if logically prior decisions have yet to be taken concerning purposes and priorities. He suggests that only when the latter have been determined is an answer to the financing question likely to be particularly helpful. Regarding the classic federal question of how to allocate funds across the country, he notes that political realities largely dictate a more or less equal per capita allocation to provinces and territories.

Juneau also emphasizes that effective project delivery requires an appropriate institutional structure, and—since infrastructure projects typically involve more than one level of government—he is strongly of the view that the responsible minister should be the minister for infrastructure, rather than one of his or her sectoral counterparts, who are less likely to have developed broad intergovernmental experience. Moreover, sectoral ministers are less likely, he believes, to have mandates that require them to think in terms of trade-offs of the sort necessary if scarce infrastructure investment funds are to be effectively and efficiently allocated. He concludes, therefore, that infrastructure departments, with dedicated ministers, are themselves a worthwhile investment. He concedes, however, that achieving the multilateral collaboration he deems necessary will be challenging given the failure of infrastructure ministers to develop the sort of intergovernmental apparatus enjoyed by some ministerial colleagues—for example, the ministers of finance. The variety of administrative structures utilized by the provinces and territories to manage infrastructure further complicates pursuing collaboration.

The final section of Juneau's chapter provides a case study of the contemporary federal approach to infrastructure, one spanning a four-year period beginning with the creation, in the 2001 budget, of the Canada Strategic Infrastructure Fund and the Department of Infrastructure (Infrastructure Canada). Drawing on his experience as the first deputy minister of the department, Juneau provides considerable insight as to how the fledgling department handled the problems and issues discussed in the earlier sections of his chapter.

In his paper, Jacques Caron outlines the main features of the Quebec government's ten-year infrastructure plan. Interestingly, Quebec is the only provincial government where infrastructure planning is the responsibility of the Treasury Board Secretariat and not of a dedicated infrastructure department (sometimes combined with the transportation department). The plan runs from 2015 to 2025 and is funded in two five-year periods, for a total of $88.4 billion. While this amount is deemed adequate to meet Quebec's ever-growing needs, the government continues to look for new ways of investing in the sector. The paper emphasizes and describes the twin goals of reducing the obsolescence of public infrastructure to maintain an adequate level of public services, and of fostering economic development. Caron makes distinctions among the concepts of asset maintenance, replacement, additions, and improvements.

Transportation and health and social services have the largest numbers of projects and the largest proportion of the funding. Caron includes tables on the number and funding of projects by sector. A chart in the paper displays priority-setting guidelines for maintaining services through asset maintenance and replacement, and for improving services. He then turns to a review of governance and decision-making for infrastructure projects. Planning and implementation are based on legislation and a "directive" that specifies the authorities that must be obtained by departments and the contents of the necessary documents. In addition, the stages at which Cabinet approval is required are specified. Caron concludes his chapter with a description of the government's commitment and approach to transparency in infrastructure spending.

Session 4 of the conference focused on various means—both traditional and innovative—of financing infrastructure at the different levels of government. The former federal deputy minister of finance, Scott Clark, examined the federal Liberals' election promise to finance infrastructure investments through budget deficits. He also explored the challenging issue of supporting infrastructure in Canada's highly decentralized federation. The paper by Kyle Hanniman of Queen's was also concerned with financing infrastructure investments by borrowing, but at the local level of government. Hanniman was particularly interested in the issue of centralization of local borrowing, a consideration that has gained significance as the interest-rate spreads paid by federal and sub-national borrowers (provincial and municipal) have widened. The third paper was presented by Michael Fenn, who, drawing on his previous experience as a former Ontario deputy minister and city chief administrative officer, discussed innovative ways of financing infrastructure investments.

Scott Clark's chapter discusses the federal Liberals' controversial election promise (and subsequent decision) to finance infrastructure by running budget deficits. The promise challenged the received anti-deficit wisdom of the Conservatives and the public, wisdom rooted in concerns about the global financial and Eurozone debt crises as well as Canada's own fiscal struggles in the 1980s and 1990s. But Canadians voted for the Liberals nonetheless, argues Clark, because of austerity's

evident failings in Canada, where the economy had yet to return to full potential, and in the Eurozone, where it had led to falling economic growth and worsening public finances. Consistent with recent advice from the International Monetary Fund, Clark recommends an expansionary fiscal policy focused on infrastructure spending, which, he argues, would boost the country's short-term aggregate demand and long-term productivity. Clark also supports the Liberals' decision to abandon the goal of deficit elimination for that of a stable or declining debt-to-GDP ratio. He suggests the optimal ratio is open to debate, but that it is essential that the Liberals' commit to their 31 percent ceiling for the sake of their fiscal credibility.

The final section of Clark's paper shifts from a general discussion about the relationship between deficits, infrastructure and macroeconomic performance to the more challenging issue of supporting infrastructure in Canada's highly decentralized federation. Most of Canada's core infrastructure belongs to the provinces and municipalities, which means the federal government needs to find creative ways to finance sub-national infrastructure. Clark discusses several possibilities, including replacing the ten-year New Building Canada Plan with a larger and longer-term federal-provincial infrastructure transfer program. Another option, which he has developed with Peter Devries, is federal financing or lending. This strategy would allow provinces and municipalities to take advantage of the federal government's lower interest rates. This could be done, according to Clark, though the establishment of a Crown Infrastructure Corporation.

In chapter 10, Kyle Hanniman also explores the issue of government borrowing, but from a local, rather than a federal perspective. He asks whether municipalities are wise to finance infrastructure by borrowing and whether the federal government, which could potentially borrow on their behalf, ought to do so. The answer, Hanniman says, is a "qualified yes." He argues that borrowing is an equitable and efficient means of financing long-term capital investments and that decentralization enhances the accountability of local fiscal decisions. He also notes that municipalities borrow responsibly. Their debts are a fraction of provincial liabilities; they assume virtually zero re-financing risk; they borrow at fixed rates; provincial laws prevent them from borrowing to excess; and they can step away from markets in a way that provinces—which borrow to finance healthcare and other sensitive services—cannot. These conditions suggest that observers ought to worry less about the rise of municipal debt, which has been modest, and more about the specificities of borrowing decisions, e.g., whether specific municipalities are borrowing too much or too little and whether they have the revenues to service debts and operate and maintain new assets.

If there is an argument for centralizing borrowing, Hanniman suggests it may be found in the heightened volatility that we have witnessed in global capital markets since 2008. This volatility has increased the spread or additional interest rate that provinces and municipalities pay over that paid by the federal government and has made it difficult at times for provinces and municipalities to borrow. Hanniman takes these developments seriously, but argues that the case for centralization is still

unclear. Not only could centralization distort local fiscal decisions, but it would also be difficult to implement given provincial authority over municipal finances and borrowing. Finally, while centralization would improve municipal credit conditions, current conditions are hardly oppressive. Problems of access have been short lived, and municipalities continue to borrow at extraordinarily low rates.

In chapter 11, Michael Fenn suggests that Ontario and other Canadian governments ought to find new and innovative ways to finance public infrastructure. Drawing on Australian and European examples, he recommends an explicit policy of "public asset recycling": funding infrastructure needs by selling stakes in governments' legacy assets. The value of these assets is considerable, argues Fenn, and they provide attractive investment opportunities for domestic investors, including public pension funds, many of which have been buying government assets abroad. Asset recycling also limits the need for borrowing and raising taxes and fees, major advantages in an era of tax aversion and rising debt-servicing costs.

But, to succeed, asset recycling cannot be done haphazardly. Certain policies and procedures need to be in place. These should include, Fenn suggests, the following: providing accurate estimates of the value and likely performance of the assets that governments plan to sell; hiring personnel capable of protecting governments' interests in public-private partnerships and other complex transactions; ensuring that proceeds from asset sales are used for near-term construction of new assets; establishing an arms-length regulator (one capable of balancing public and private interests) to oversee the private operation of public infrastructure; ensuring a steady pipeline of projects for potential buyers; recognizing investors' need for reasonable, risk-adjusted returns; avoiding overly complex, expensive and inconsistent transaction processes; and respecting the role and contributions of public-sector unions.

In organizing the 2015 State of the Federation conference, the program committee decided to include in the program the Institute's MacGregor Lecture. This endowed lectureship was established to honour the memory of Kenneth R. MacGregor, a former trustee of Queen's University and a Canadian who distinguished himself in both the public and private sectors, as the federal superintendent of insurance and as president of Mutual Life Assurance of Canada, respectively. Previous MacGregor lecturers were Robert Stanfield, Peter Lougheed, Allan Blakeney, Albert Breton, Gordon Robertson, Daniel Elazar, Roger Gibbins, Richard Simeon, and Alan Cairns. The Institute of Intergovernmental Relations was delighted that José Gómez-Ibáñez, the Derek Bok Professor of Urban Planning and Public Policy at the Kennedy School of Harvard University, accepted our invitation to deliver the 2015 MacGregor Lecture at the State of the Federation conference. For this MacGregor Lecture, Dr. Gómez-Ibáñez chose for his topic "Public-Private Partnerships in Infrastructure: Some Lessons Learned."

Dr. Gómez-Ibáñez's lecture, presented here as chapter 13, begins by noting that a common method of efficiently building and pricing new road infrastructure is through public-private partnerships (P3s). He then draws upon Canadian, American and Mexican P3 experience in roads and bridges to illustrate and support the views

set forth in his address. He argues that P3s have great potential for improving the delivery of infrastructure services, subject to two important caveats: first, that the partnership be designed primarily as a means of increasing efficiency in delivery of infrastructure services; and second, that great care be taken in the structuring of contracts between the public and private partners.

Dr. Gómez-Ibáñez supports P3s that make real gains in efficiency in the delivery of infrastructure services, and notes that P3s have improved the delivery of some infrastructure services compared to traditional procurement practices. Other important efficiency gains, he suggests, may be obtained by means of improved operation and maintenance of facilities on a life-cycle-cost basis, which would address some of the major problems noted in the Canadian Infrastructure Report Card. In addition, tolling roads offers the opportunity to improve the efficiency of infrastructure use through congestion charges—higher tolls during rush hours encourage shifting non-essential travel to off-peak times with spare capacity.

In contrast to his support for P3s that generate real efficiency gains, Professor Gómez-Ibáñez does not support P3s motivated primarily by the desire to tap into private capital markets, especially in the current period of low interest rates for public debt compared to expected average returns for private debt and equity. He also warns against using P3s for asset recycling—essentially using an asset sale or lease to capitalize future tolls on existing roads to close a municipal or provincial operating budget deficit. He also cautions that so doing may simply transfer the benefit of future tolls from future to present taxpayers. Finally, he stresses the importance of carefully drafting the contracts between public and private partners to reduce risks that unworkable terms for either party would require potentially controversial renegotiations. Since P3s are still something of a novelty, he praises the Canadian federal and provincial governments that have set up P3 advisory agencies with specialized expertise in structuring these contracts.

The penultimate session of the conference was directed to infrastructure investment and First Nations. The first paper, by Thomas J. Courchene, a former director of the IIGR, was concerned with "soft" infrastructure in the form of investments in governance structures. This paper has since been developed into a book that will shortly be published by IIGR, and will be presented later this year as a MacGregor Lecture. The second paper, i.e., chapter 14 by Greg Richard, an economist with Fiscal Realities, presented proposals for an Aboriginal Resource Tax (ART), the revenues of which would be used to fund infrastructure investments by First Nations. Richard noted that, if such a tax were generally accepted, it would obviate the need for repeated, protracted negotiations on the fiscal dimensions of virtually every land-claim negotiation.

As he notes at the outset, the paper was intended to promote discussion, and, since it involves federal, provincial, territorial and First Nations governments, it belongs to the sphere of multilevel governance. Richard's premise is that the fiscal benefits of resource developments will be significant and must contribute to the funding of First Nations infrastructure needs. Provincial revenues are not going to

be sufficient to fund those needs, which, of course, are a federal responsibility. A stable solution, Richard argues, must avoid the limitations that characterize revenue sharing or revenue agreements, which he outlines.

Rather than arguing in favour of some particular variant of an ART, Richard advocates the general principle of such a tax, one that would tap into the incremental revenue generated by resource developments on the traditional lands of a First Nation. Levied by First Nations, it would be used to fund their infrastructure needs. Such a tax would reduce the administrative burden on First Nations governments, reduce the cost and complexity of negotiations, provide economically and politically reliable revenues, and allow the funding of a broader range of projects. The author also argues that the tax would improve the investment climate by reducing the uncertainty currently associated with project-by-project financial negotiations. If accompanied by appropriately structured federal and provincial tax credits, the tax could be made revenue neutral to the resource developer.

The conference concluded with a session that compared elements of infrastructure investment in Canada with corresponding experience in the United States and in Australia. Only the paper discussing the former is available in this volume. The chapter by Martin Horak and Gabriel Eidelman examines the interaction of federalism and the provision of transportation infrastructure in the United States, and contrasts this with comparable experience in Canada. They begin by noting that both countries are highly decentralized federations in which subnational governments enjoy wide-ranging policy autonomy, and both share broadly similar geographies and development histories. They thus exhibit similarity of settlement patterns and infrastructure needs. Both countries also share a dominant political discourse around infrastructure, which is that there is a national infrastructure crisis that can only be resolved by increased federal aid. The balance of the chapter, however, is devoted to demonstrating that the similarities end there, both in terms of institutional structure and the historical role of the federal government in infrastructure funding and decision making.

Perhaps the most significant of the institutional differences that Horak and Eidelman note is the deliberate fragmentation of political authority in the United States, and the diffusion of authority within each level of government. The resulting multiplicity of sources of authority allows local interests a voice in national policy processes. While federal policies shape the scope of state and local infrastructure programs, decisions emerge from a bottom-up process in which political coalition-building at state and local levels largely determines the projects that become subject to filtration by the federal bureaucratic apparatus. The chapter provides a historical overview of how this process has functioned to shape US public infrastructure spending on surface transportation, a process in which the extensive and systematic federal involvement stands in stark contrast to the Canadian experience.

The analysis leads Horak and Eidelman to draw several comparative conclusions respecting the processes of infrastructure spending on surface transportation in the two countries. First, the American federal government has persistently played

a much larger role in infrastructure spending in this area than does its Canadian counterpart. Second, while most of the federal transportation funding in both countries takes the form of intergovernmental transfers, the linkage between revenues and expenditures is much closer in the United States. There, for example, gas tax revenues are deposited in the Highway Trust fund and used exclusively to fund transportation infrastructure, while in Canada, only some 40 percent of such revenues flow to the Gas Tax Fund, where they are used to support all kinds of local infrastructure development. Third, while the focus of transportation infrastructure expenditure has changed over time, such expenditures have consistently been considered a national policy priority by US authorities, one supported by well-established bureaucratic and governance structures. In contrast, Canadian federal government involvement in the sector has been both briefer and largely devoid of clear policy objectives. Moreover, the authors believe that in Canada federal policy capacity in the infrastructure sector remains low, with funding decisions largely devolved to provincial and local governments.

Horak and Eidelman also conclude that the American government's long-standing involvement in transportation infrastructure has shaped state and local institutions and decision processes in a manner that has no Canadian analogue. Finally, they note that the extreme degree of government fragmentation in the United States, particularly at the local level, means that proposed infrastructure projects may only be realized by means of a difficult, bottom-up process of coalition building. The resulting large number of potential veto points has no Canadian parallel.

The final chapter, by Richard L. Cole and John Kincaid, is unrelated to the conference on Canadian Federalism and Infrastructure, but is included because we believe it will be of interest to all students of federalism. It examines the nature and number of federalism courses being taught at the graduate and undergraduate levels in Canadian and US universities. Utilizing survey data obtained from political science department heads and federalism scholars in Canada and the United States, the authors show that undergraduate and graduate courses on federalism or intergovernmental relations (and interest in offering such courses) are widespread in both countries, but that such courses are taught more frequently in Canada than in the United States. However, in both countries, courses on Canadian and American federalism are more common than courses on comparative federalism. Canadian faculty reported significantly higher levels of student interest than US faculty in undergraduate federalism courses and were far more likely than their US counterparts to believe that such courses are considered "very valuable" by their department colleagues.