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A WHITE PAPER* ON REFORMING CANADA'S TRANSPORTATION POLICIES FOR THE 21ST CENTURY

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SUMMARY

While much of the developed world struggles with debt and chronically low growth, Canada, one of the best-performing members of the G-7, remains on firmer footing. However, this country still has to cope with slower growth, cutbacks and aging infrastructure. As this paper argues, reconciling these facts will take creative, non-partisan problem solving, and it is time governments got to work. Particularly brave politicians might consider charging the public the full costs of infrastructure use in the form of a tax. For the less daring, advances in robotics and data management offer substantial efficiency gains. Whichever path Canadian governments choose, they will not travel it alone. The burgeoning power of social media will amplify citizens' voices and involvement. However, private sector expertise and capital could be just what is needed to ease Canada's looming infrastructure woes, notably in the form of infrastructure banks (iBanks); cost-effective, streamlined replacements for the tangled mass of programs and departments that currently build, manage and maintain public infrastructure. Such an institution could allow private investment vehicles like bonds, preference shares and mortgage-backed securities to be issued to create capital and to pay back investors as the objects of its investments repaid the capital borrowed. iBanks could raise tricky problems about overlapping jurisdictions and would, in some parts of the country, be a tough sell, but Canada has been lagging badly in transportation innovation and must consider unorthodox solutions.

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* This research paper is based on discussions at the *Reforming Canada's Transportation Policies for the 21st Century* roundtable, held November 29, 2011 in Calgary and presented by The School of Public Policy and the Van Horne Institute.

In Partnership with

THE VAN HORNE INSTITUTE

The School of Public Policy and the Van Horne Institute have collaborated on an effort to develop a framework for transportation policy for Canada. As part of this effort, the *Reforming Canada's Transportation Policies for the 21st Century* roundtable was held November 29th, 2011 in Calgary with 60 participants from government, academia, non-governmental organizations and industry. A number of background papers were written for the event (titles below and available at www.vanhorne.info).

Brian Flemming, who has contributed immensely to the development of transportation policy in Canada, was asked to prepare this White Paper based on the discussions at the roundtable in November. We wish to thank him for this highly readable paper and its important conclusions.

- Jack Mintz, Director and Palmer Chair, The School of Public Policy, and Peter Wallis, President and CEO, Van Horne Institute

Papers written for the Reforming Canada's Transportation Policies for the 21st Century roundtable:

Transportation Legislation and Canada's Changing Economy and Society
By: David Gillen, Sauder School of Business, University of British Columbia and Graham Parsons, Organisation for Western Economic Cooperation

European Union Transport Policy and Sustainability – the Role of Rail
By: Chris Nash, Institute for Transport Studies, University of Leeds

The Role of the Productivity Commission in Designing a Dynamic Transportation Policy for Australia
By: Peter Forsyth, Monash University

Canada's Infrastructure Network Needs: New Approaches to Investment and Finance
By: David Lewis, HDR Corporation and Ewa Tomaszewska, HDR Corporation

The Case and Opportunity for Efficient Modal Pricing of Urban Transportation
By: Robin Lindsey, Sauder School of Business, University of British Columbia

Formulating an Integrated National Transportation Strategy: a Realistic Option?
By: Nick Mulder

Integrating Technology in Vehicles and Infrastructure
By: Barry Prentice, Asper School of Business, University of Manitoba

The Future of Low-Carbon Transportation Fuels
By: Christopher Yang and Sonia Yeh, Institute of Transportation Studies, University of California, Davis

PREFACE

A white paper is designed to argue a specific position or to advance concrete solutions to problems. It is not a conventional academic paper or article; rather, it is meant to serve as a powerful tool that can be used by decision-makers or people of influence to provide focus, and to justify solutions they may want to implement in future.

This white paper will not try to summarize the many excellent papers that were presented at the Calgary roundtable on November 29, 2011. Nor will it fully reflect the discussions that revolved around those papers. Instead, it will focus on some issues that emerged from the roundtable and will attempt to provide guidance for how the Canadian transportation community should proceed in 2012 and beyond.

The objective will be to bring some of the ideas contained in this white paper to the attention of the public, to Canada's governments at all levels and to the many private sector players who worry about Canada's transportation infrastructure and how it might be maintained and renewed in the next decade.

Quite simply, this white paper is a call to action.

THE CURRENT CONTEXT

The future is a foreign country; things will be done differently there both because of the Great Recession of 2008-2009, and because of the weak recovery that is casting a shadow over many of the world's advanced economies. The sovereign debt bombs that have been, or will have been, left behind by these two major events will cast a pall over the world for years. The austerity policies that have been adopted already in Europe may, after the 2012 elections, eventually find favour even in America.

Climbing out of the developed-world debt pit will be a long and painful process. Indeed, Christine Lagarde, the head of the IMF, has warned of the "lost decade" the world now faces economically. George Osborne, the British Chancellor of the Exchequer, has predicted six or seven years of pain for his country. And in Spain and Italy, there have been virtual *coups d'états* that have seen the takeover of the governments of those countries by unelected bureaucrats who are said to know better than elected politicians how to extract their countries from their debt pits.

Canada — The Lucky Country

In the midst of this enveloping economic gloom, Canada stands out as a rare beacon of hope and economic solidity. Canada has one of the best performing economies among the G-7 countries. However, public money for public works in Canada will become harder to find in this time of slower growth and of cutbacks in government expenditures. The unprecedented economic situation in which Canada finds itself today should, logically, encourage a search for new solutions for maintaining or renewing the country's infrastructure. Certainly, as a political economic issue, fixing the country's infrastructure is one of those rare issues that unites all points on the political spectrum. The only debate will be over the *means* by which renewal will occur, not whether it is needed.

Toward a More Innovative Public Sector

Governments are constantly calling upon the private sector to be more competitive, more productive and more aggressive in finding new customers around the world. But, as Peter Nicholson, the head of the Council of Canadian Academies, recently said:

> "Unfortunately, governments have been strangely silent when it comes to public sector innovation where they alone have both the tools and the responsibility to act."[1]

Where, he asked, are the creative initiatives for

> "... massive, ongoing investment in new generations of public infrastructure as part of any strategy to make Canada more productive, competitive and environmentally responsible?"[2]

This white paper is nothing less than a direct challenge to governments, at all levels, to try and find new and innovative policies in the transportation sector.

Facing the Demographic Dilemma

Even if interest rates were to remain at today's low levels, infrastructure costs will probably rise because of Canada's demographic dilemma. Already, significant skilled labour shortages are creating problems for multi-billion dollar projects in Newfoundland and Labrador, in Nova Scotia and in Alberta. The Canadian community college system and industry will have to struggle to meet this demand. Importing workers from around the world may become the new normal in the Canada of 2015 to 2020. Demographics in this brave new world will indeed become Canada's destiny.

The Constitutional Conundrum

Canada's antiquated constitutional system will continue to toss wrenches into the machinery of governments everywhere. Cities in Canada, as everywhere else in the world, will, more and more, be the mighty engines of economic growth, productivity and competitiveness. In a time of shrinking or stable resources for infrastructure renewal, will politicians from rural and small town locales continue to demand more than their fair shares of infrastructure money? Or will Canadian ingenuity in transportation policy allow the creation of new, hybrid, multi-governmental-level institutions that are capable of meeting 21st century infrastructure needs, particularly in cities? There must be a discussion about what kind of institution or institutions could be created for this purpose within the four corners of Canada's constitutional system.

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[1] "Towards a more innovative public sector," *Toronto Star,* March 5, 2012.

[2] Ibid.

Could any infrastructure institution be moved far enough away from the clutches of mainstream governments to allow it to acquire the kind of credibility the federal government gained late in 2011 when it gave out the largest military procurement contract in Canadian history — for $25 billion — on the basis of the work of an unprecedented arms-length committee of bureaucrats in Ottawa? Is the latter methodology — which took nearly three years to craft — a new paradigm that could be used in infrastructure renewal?

A New Paradigm for Building Infrastructure?

If a new, politically acceptable transport pricing and financing system were to be crafted using this new paradigm, there might finally be hope that parish-pump politics could be removed from infrastructure projects. And no policy arena, except perhaps health-care policy, is more riddled with petty politics than transport policy. Toronto's recent battle over whether that city should be building subways rather than LRTs is a perfect example of this problem at its worst. Getting politicos out of the silos of tackling one infrastructure issue at a time — usually public transit, as Calgary is doing — to the exclusion of all other issues will be desperately needed in the next decade.

As was suggested at the Calgary roundtable, the ownership of roads be might be devolved to a new "network institution" that could be given the responsibility of maintaining and improving the network and charging users appropriately for this purpose. This would be a radical move. The telecommunications industry provides precedents for how this separation might be accomplished; so does the rail industry in some parts of the world. Most critically, could the Canadian public be convinced to pay for roads that hitherto have been free goods, especially at a time when citizens appear to be deeply suspicious of any charge that looks like a government-imposed stealth tax? Recent stories in the media from Toronto and Vancouver suggest the public might finally be ready for this discussion.

Road and Transport Infrastructure Pricing

There is no question that convincing the Canadian public to accept a road tax, or any kind of infrastructure pricing, will be a phenomenally difficult political economic exercise, no matter how sensible that policy might appear to be in the minds of experts or transportation policy wonks. The Obama administration last year kicked off an American debate over paying for roads with draft legislation that would study how to track and tax vehicles for their use of roads. President Barack Obama personally has distanced himself from this initiative by the federal Department of Transportation.

Charging the public for the full, economically efficient costs — including charging for congestion and social costs — associated with the use of roads, bridges, ferries or any piece of infrastructure is still a third rail for incumbent politicians, both because of the perceived imposition of new taxes and because of privacy issues associated with tracking any vehicle for any purpose. The introduction of any road-pricing proposal must therefore be preceded by a very public and very transparent debate.

Public Pushback

Witness the pushback recently in the United States against the Bank of America and Verizon when those companies tried, suddenly and without warning, to charge customers fees for using debit cards or paying bills on-line respectively. In the absence of any prior debate, the fees had to be cancelled when customers rebelled. The existence of social media in the 21st century gives customers unprecedented tools for fighting back. On the other hand, these tools might also be used to gain consent for new policies.

The New Conservative Government in Ottawa

Canada's newly elected majority government will be in power until October 2015. Parliament at present is occupied largely with the implementation of policies that were promised in the 2011 election campaign. New policy ideas or plans appear destined to remain on the back burner until Ottawa gets its fiscal house in order in 2012. As a result, there appears to a policy vacuum in the nation's capital. But is this really so? The federal government recently retained former trade minister David Emerson to study the aerospace industry and its future; former Alberta treasurer Jim Dinning is studying rail access issues for Ottawa; and a nationwide energy policy keeps popping up as a principal priority for the Harper government. The challenge for the transport community will be to try and get infrastructure renewal on the front burner with some of these issues.

Provinces, cities and the transport community must try and nudge Ottawa towards creating new incentives for infrastructure renewal and moving towards solutions that will not rely on the public purses of the country for the full costs, or perhaps any costs, of renewal. In November 2011, Finance Minister Jim Flaherty said no more stimulus money will be forthcoming from the federal government for most purposes in 2012 and beyond. And Prime Minister Stephen Harper is known to oppose use of the federal spending power for most purposes. In view of the foregoing, what kind of incentives should be espoused in Canada? Should the transport community try to encourage the federal government to learn from other parts of the world that are well ahead of us in finding new ways of attacking their infrastructure deficits? The answer must be a resounding yes.

Climate Change and Its Discontents

Regardless of what is causing it — whether the causes are anthropogenic, sunspot-related or just due to changing, cyclical world weather patterns — climate change will be an overhanging reality for Canadians in the next decade and beyond. It will be exacerbated by the addition of almost one billion more humans on Earth during the same period. If governments are not keen to introduce policies to prevent further climate change, the least they should do is to help economies and citizens adapt to climate change, particularly in the transport sector.

What Black Swans Swim Towards Us?

As transport policies for the next decade are being crafted, can policymakers or advisors foresee any major energy-related game changers, or black swans, that might help or hinder infrastructure renewal? Electricity-driven vehicles, more efficient hybrid car batteries, natural gas-powered trucks and buses and better hybrids will, for example, continue to have a significant effect on the collection of gas taxes as a ready source of government capital for infrastructure renewal, even with Ottawa's demonstrated willingness to share these taxes with provinces and municipalities. The current federal-provincial gas tax agreement on gas tax sharing will run out someday. What might replace it?

The Shrinking Gas Tax Base

The shrinking of the gas tax base is being recognized everywhere, even by states and the federal government in the United States. That decline is already pushing people in other parts of the world towards other revenue sources, such as road pricing, more sophisticated tolling or congestion charging. The debate on these issues must now finally begin in Canada. Who will lead it? If the current federal government is unwilling to lead the debate, will the provinces step into the breach? Maybe. But success in starting the debate probably rests in the hands of major city mayors. Perhaps the mayors of Canada's five or 10 largest cities should convene a meeting with only one issue on their agenda: who will pay for their infrastructure in the next decade and how can this best be done?

Will Robots Save Us?

The robotic revolution may be another game-changer. Sophisticated algorithms could take over the driving of many kinds of vehicles, thereby eliminating human error and making vehicular traffic flows much more efficient. IBM, through a unit called "Smarter Cities," has designed a city-wide transportation system for Rio de Janeiro that is state of the art. The IBM system integrates data on subjects from weather to congestion to power failures. It then processes the data in a central location and subjects it to "sense-making software." IBM's newly created algorithms allow an unprecedented ability for city officials to control and to "smooth" Rio's traffic patterns.[3] Are Canadian city managers studying this important experiment? One hopes so.

The Trust in Politicians Problem

Apart from the lack of money, not to speak of the political will to embark on John A. Macdonald-like visions, the most secretive and controlling government in Canadian history intensely dislikes divisive public debate. It has also carefully avoided convening conventional, all-province federal-provincial meetings, preferring to deal with provinces one at a time. In the light of this new approach, it may be impossible for provinces to engage Ottawa in a traditional public debate on infrastructure renewal or the question of who will pay for it. When this reality is added to the deepening distrust by the public of politicians of all stripes and government-led solutions to problems, there may be few prospects for traditional solutions coming from Ottawa. That will be a huge challenge for anyone who fondly hopes for a return to olden days.

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[3] "Mission control, built for cities: I.B.M. takes 'Smarter Cities' concept to Rio de Janeiro," *New York Times*, March 4, 2012.

The Shadow of 9/11 Still Haunts Us

Security concerns, particularly those still harboured by a fearful United States, will continue to suck federal money from useful infrastructure projects to economically ineffectual ones. Canada will not easily be able to avoid this reality.

Citizen Input in Transport Issues

In the next decade, more efficient supply chains and shifting international trade networks, combined with the explosive growth of social media and networking, will offer the possibility of more citizen and transport-user involvement in infrastructure renewal. The big questions are: how much democratic input will citizens demand or will governments allow?

Will social media techniques be used to force revolutionary change in transport? Direct citizen involvement will be crucial whether road pricing, tolling or congestion charging, carbon taxes, increased license fees based on vehicle size, local development fees or any other fund-raising solutions are deemed to be the best ways to achieve transport infrastructure renewal.

Better citizen involvement could also provide a way for the general public to become more aware of productivity and competiveness issues in the economy. Canada's transport system has always been one of the country's productivity jewels. Canadians must be made aware of this and encouraged to help Canadian transport productivity and competitiveness become better. Cities must face up to the fact that the federal government may not be able to provide the kind of easy revenue-raising fix some mayors seem to think is still going to come from Ottawa. Those days are probably over.

Infrastructure and Incomes of Canadians

One of the main drivers of new and creative transport policies could be the aging of the Canadian population, and the need by individuals and pension funds for more and better sources of good income. An obvious way to meet this need would be to create new infrastructure securities that might be issued, for example, by an infrastructure bank, using bonds, preference shares or mortgage-backed securities as the investment vehicles. There is room for much Canadian creativity in meeting this need.

LESSONS FROM CANADA'S TRANSPORT POLICY PAST

The great French historian, Ernest Renan, said that being a great country means having done great things — and wanting to do them again. Unbeknownst to most Canadians, Canada has been among the most innovative of countries in its transport policies and in the creation of unique institutions to deliver on those policies. Canadians should be challenged to continue this great tradition.

Crown corporations — unique hybrids combining the features of public and private corporations — have been used for many initiatives from the days of Trans-Canada Airlines and Canadian National Railways to the Canadian Air Transport Security Authority (CATSA). A new Canadian infrastructure bank could be created as a Crown corporation and could continue this tradition. Perhaps a better kind of Crown corporation, one more akin to a PPP institution, and one further removed from direct government influence, could be created as a new model for the future.

When the wave of privatization of public entities was sweeping the world two decades ago, Canada chose a *via media* — commercialization — between government ownership and full privatization for key transport assets like Canada's large airports and ports. This policy allowed the renewal of Canada's deteriorating airports and ports. And this renewal was paid for by users, not the general public. Devolving control of airports and ports to communities has been a most successful public policy. Making NavCan a not-for-profit institution allowed Canada's air navigation system to modernize and, as was the case with airports and ports, allowed the improvements to be paid for by users, not by the public purse.

Canada has an airport and airline security system that is uniquely public-private, one that gives airports and airlines a right to have representatives at the board table, one that is paid for by users of airplanes and one that, most importantly, separates the regulator from the deliverer of the service — thereby removing a dangerous conflict of interest from the system. CATSA is unique in the world.

Allowing the privatization of CN and Air Canada, thereby letting these key transport assets be financed by the stock market, not by government, has turned CN into one of the best railways in the world. Air Canada, despite its time in Companies' Creditors Arrangement Act (CCAA) protection and its continuing travails, is more likely to survive in its present state than if it were still government-owned. Canada's system of railway regulation, long a thorn in the side of government, farmers and industry, has largely been put right through unique uses of the forces of competition. Decennial royal commissions, blue ribbon panels and individual appointees have allowed Parliament to resolve many difficult transport-related irritants, of which the Crow rate and the At-and-East subsidies were but two.

In Canada's cities, local transport entities like TransLink in Vancouver — plus the sharing of gas tax and GST revenues with these entities — have relieved many transport pressure points. Perhaps new federal and provincial incentives are needed to encourage smaller cities to create similar institutions and to encourage larger cities to improve their transport commissions. In the heart of the continent, the St. Lawrence Seaway and the Great Lakes Joint Commission were groundbreaking international arrangements that continue to function well.

As the rest of the advanced economies of the world begin to implement new and sometimes radical methods of financing 21st century infrastructure renewal, the challenge for Canadians will be to demonstrate that its impressive transportation past can be matched by new and creative 21st century innovation. To achieve that though will require remedying the twin deficits of up-to-date research into many of Canada's transport problems, and of establishing a credible national institution to promote new ways of doing things.

The problem of making renewal happen is as much political as it is economic. And the best economic solutions to problems will always need politicians with the will to help implement those solutions. Even the new paradigm achieved in the awarding of the shipbuilding contracts required responsible politicians to allow the process to be used. With the continued historic decline in the influence of political parties as policy promoters, single-issue organizations or lobbies have emerged as the most influential forces. Who will speak for transport and infrastructure issues in the next decade?

THE WAY AHEAD

In considering the following suggested policy initiatives, it is important to remember that transport policy in Canada — at all levels of government — has always been, and continues to be, one of the most politically charged parts of the economy. Accordingly, when dealing with the following policy proposals, one must remember that one is always dealing with the *political* economy, not just *the* economy, when considering transport policy issues. Because of this, we must always carefully distinguish the public sector's role as policymaker from its other role as deliverer of public services.

Before proposing sweeping solutions for the renewal of transport-related infrastructure, better use of existing infrastructure should always be a first priority. Economic existentialism, that is to say, simply extrapolating what is happening now more or less indefinitely into the future, should be eschewed. If anything is known about the postmodern world, it is that things are capable of changing incredibly quickly — both for good and for bad. So, any policies that appear to be ideal for the next decade must be kept nimble, and capable of being changed quickly where circumstances demand that change.

A. PAYING FOR INFRASTRUCTURE — ROADS AND THE REST

> "Roads — and the cars, trucks and buses that use them — are the core of the transportation system and likely to remain so for the foreseeable future... Most passenger travel is entirely by road, using private vehicles, or, much less frequently, bus service (urban transit, school, chartered or scheduled intercity buses). Of all freight traffic, something approaching half makes its entire journey by truck, and most of the remainder that is hauled by train, ship or aircraft relies on truck transport at one or both ends of its trip."[4]

Although these words and the ones that followed in Chapter 10 of the CTAR report were written more than a decade ago, they are still largely true. Since those words were written, road traffic has continued to grow at a rate faster than the general economy. According to a recent study for the Macdonald-Laurier Institute by Ross McKitrick:

> "In 2005, 74% of Canadian adults reported going everywhere by car, up from 68% in 1992. In 2012, 82% of Canadians commuted to work by car, 12% took public transit, and 6% walked or cycled. Trips between cities are also mainly by car."[5]

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4 Transport Canada, *Vision and Balance: Report of the Canada Transportation Act Review Panel*, P.175 Ottawa: Government of Canada Publications. 2001.

5 "Gas price up, but how about a $2.30 tax?" *National Post*, FP Comment, February 25, 2012.

So, road traffic continues to be the principal transport problem in 2012 — and will continue to occupy that position in the years to come. Studies also keep telling us that the cost of public transit appears not to change the preferences of car drivers for their cocoons. And cars get people to where they want to go twice as fast as public transit. So convenience plays a part in transport choices too.

Any proposals therefore for renewal of transport-related infrastructure must start (and end?) with roads and who pays for them, who maintains them, who owns them and the most important question: can users eventually be charged for the real costs — including the externalities — they impose on the road system? Can the Canadian public ever be weaned from thinking of roads as free, public goods? As noted earlier, media reports have begun to emerge in Canada's two largest cities, suggesting that the public is ready to pay for roads provided there is a real reward to those who pay for and use the roads.

A subsidiary question that is not often asked is: can a new system be devised whereby proposed road projects are made to compete for public or private funds with other means of moving people and freight such as buses, LRTs, subways, ferries, commuter trains, trucks, freight trains or other means of transport? Competition is an important driver in getting more productivity from any system. Competition, even if artificial, must therefore be encouraged when the public is making expensive infrastructure choices.

In the last decade, the questions of road pricing, tolling and congestion charging have been front and centre in debates about the future of transportation infrastructure around the world, but not in Canada.[6]

As governments everywhere struggle with debt and deficit — and there continues to be a hardening of public attitudes against general taxation increases — conversations about transport infrastructure renewal usually start with discussions about gas tax sharing and finish with proposals to charge users for road use. In the end, as David Lewis said at the Calgary roundtable:

> "Traditional mechanisms for financing infrastructure via fuel taxes and property taxes will not meet financing needs in the future. What are the alternatives?"[7]

Crude stimulus spending will not solve the problem, he said and continued:

> "Both new financing approaches and new revenue streams are needed to solve the infrastructure problem."[8]

Congestion pricing and tolling were at the top of his list of potential new revenue sources.

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6 See *Road Pricing*, http://roadpricing.blogspot.ca for a contemporary review of all facets of these issues.

7 Lewis, D. and E. Tomaszewska. 2011. "Canada's Infrastructure Network Needs: New Approaches to Investment and Finance." P. 9. Paper presented at *Reforming Canada's Transportation Policies for the 21st Century*, a roundtable discussion hosted by the University of Calgary School of Public Policy and the Van Horne Institute, Nov. 29, 2011.

8 Ibid.

Robin Lindsay's paper echoed these conclusions when he said that "road pricing should be implemented."[9] Lindsay observed that:

> "Fuel taxes are effective at targeting greenhouse gas emissions, but they are crude instruments for targeting congestion and other externalities that vary strongly with location, time of day and population density. Road pricing in some form is a much more flexible instrument."[10]

Chapter 10 of the 2001 CTAR report came to the same conclusion. The advantage cities and provinces have today, in 2012, is that the technologies for implementing road pricing have greatly improved since 2001. The ubiquitous iPhone technology, for example, will allow roads to be priced in a way that could not have been imagined eleven years ago.

It is puzzling, given what is happening elsewhere, that there has been little public debate in Canada today about the many kinds of road pricing that are being successfully used around the world. Several presenters at the Calgary roundtable claimed the problem was politics. Regional authorities in major cities of Canada were said to be essential in integrating public policy choices. The Vancouver TransLink model shows the rest of Canada how a transportation authority can delegate important functions to an agency that

> "...guides municipalities toward consistent decision-making across road and public transportation networks that span multiple jurisdictions...[even if they] lack sufficient powers to carry out their mandates in full."[11]

Lindsay concluded that provincial governments must, in the end, give up some of their control in these matters if Canadian cities are ever going to move forward with appropriate road pricing schemes. He suggested the federal government role in this process might be to sponsor demonstration projects that will lead eventually to more focused funding of road networks. A former federal deputy minister of transport, Nick Mulder, made a similar case at the Calgary roundtable.

If, for example, the federal government decided to help provinces and cities create a "National Roads Fund" that had the powers suggested by the World Bank in 1997-1998, such a fund would be given:

- Network-wide responsibility;
- Financial self-sufficiency — with revenues matching spending;
- Direct charges reflecting infrastructure costs and potentially congestion and other external costs;
- Rational priority setting for maintenance and investments, using economic evaluation;

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[9] Lindsay, R. 2011. "The Case and Opportunity for Efficient Modal Pricing of Urban Transportation." P. 20. Paper presented at *Reforming Canada's Transportation Policies for the 21st Century*, a roundtable discussion hosted by the University of Calgary School of Public Policy and the Van Horne Institute, Nov. 29, 2011.

[10] Lindsay, ibid.

[11] Ibid.

- Independent executive authority (without political decisions on revenue allocation);
- User representation in decisions on charging and spending; and
- Third-party monitoring of performance.[12]

An important, indeed crucial, feature of this fund would be that **projects in other modes of transport that address the same objectives would be permitted, nay, encouraged, to compete with road projects** — and to be funded instead if they are proven to be more efficient and less costly. Thus, a new road proposal, in order to be funded, might have to compete with an LRT or a bus proposal or ferries providing the same service to the public. This would put current subsidies for urban transit within cities and for intercity services like Via Rail squarely on the table. The fund could even be called a Transport Infrastructure Fund rather than a Roads Fund.

New Zealand and other jurisdictions have sponsored the creation of roads funds similar to the one the World Bank suggested. Most importantly, a roads fund must be completely transparent in its activities and have safeguards built in to prevent them from becoming arrogant and uncontrollable monopolies, or creatures of government alone. As in the defence procurement example noted above, this would be a new paradigm for infrastructure spending.

B. PAYING FOR INFRASTRUCTURE — CREATING AND USING INFRASTRUCTURE BANKS

The Calgary roundtable heard a number of calls for the creation of various kinds of infrastructure banks in Canada. Lewis and Tomaszewska suggested the creation of:

> "Provincial and federal infrastructure banks that promote use of innovative tools, public-public and public-private partnerships and intergovernmental cooperation and coordination."[13]

The growing need for more and reliable funding to renew roads and other forms of infrastructure has triggered calls in several countries for the creation of new infrastructure banks or iBanks. But in the United States and the United Kingdom there appears to be no consensus about how to capitalize and manage these banks.

In the United States, President Obama, in 2010, proposed an iBank that would initially be capitalized with $50 billion in federal money. More recently, he has scaled back the amount of initial capital the federal government would invest to $10 billion. Obama suggested that the federal Department of Transportation would be the best institution to run such a bank. Needless to say, and not surprisingly, his ideas on iBanks have not found much support with Republicans in Congress. Several Republican leaders have countered with ideas for more funding of state iBanks — which already exist in 39 states — with federal money.

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[12] Transport Canada 2001. Op. cit. P. 186.

[13] Lewis and Tomaszewska 2011. Op. cit. P. 9.

Perhaps the most influential call for an iBank in the US came in 2004 in a study for the Center for Strategic and International Studies (CSIS), authored by Felix Rohatyn and former Senator Warren Rudman. The central idea of this study was the creation of a "National Infrastructure Bank" that would be similar in structure and power to the World Bank. The thrust of the new bank would be to utilize federal financial resources more efficiently. And as Rohatyn and Everett Erlich wrote,

> "The bank would replace the various 'modal' programs for highways, airports, mass transit, water projects, and other infrastructure, streamlining them and folding them together into a new entity with a new culture and purpose... Our plan would preserve almost entirely the existing balance of power between federal, state and local government, but would change dramatically the way priorities are set and projects funded."[14]

Critics of the Rohatyn proposal asked where the money would come from for such an iBank and questioned how decisions would be made by what appeared to be a democratically unaccountable body. The Obama proposals, and the counter-proposals in Washington, all get their capital from the public purse. Other iBank ideas were floated in the U.S. — one by Senator John Kerry — in the last decade but none of them, to this day, have been able to gain much political traction.

Late in 2011, the Cameron government in the United Kingdom signed an MOU with the National Association of Pension Funds in an attempt to encourage the fund managers to invest more private money in infrastructure projects. The agreement will cause a new platform — an iBank? — to be created that will see at least £20 billion to go into infrastructure projects. The Association for Consultancy and Engineering proposed a more coherent idea in January 2010, for a United Kingdom Infrastructure Bank (UKIB) that would be capitalized by the sale of bonds to the general public rather than with public money. Other countries and political jurisdictions either have iBanks or are debating their creation.

If the federal government of Canada wanted to create an iBank with public funds, it could dedicate some or all of future gas taxes, after 2014, to allow the bank to be capitalized. A more radical way to capitalize the bank would be by selling federal assets that are not central to the operation of government. There is, for example, no good reason why the federal government should be the landlords of airports or ports, own Via Rail or office buildings. A sale of these kinds of assets would raise substantial funds that could be used to capitalize an iBank.

There is no reason either why new iBanks must be federal creations. Provinces, either individually or jointly, could create iBanks and use them for investments not only in their own provinces, but across Canada. Alberta's Heritage Fund has provided financing for Alberta and other provinces in the past — why not for infrastructure projects in the future?

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[14] Rohatyn, F. and E. Erlich, 2008. "A New Bank to Save Our Infrastructure," *New York Review of Books*, October 8 2008, P. 7.

If any of these new iBanks were to be created as public-private institutions for which capital came from both the public purse and from private sources — like pension funds or private investors — then much more sophisticated structures could be established. The iBanks could then become much-needed vehicles for retirement funds of Canadians in a country that is aging. Even a Crown corporation structure, or an equivalent PPP institution, could allow private investment vehicles like bonds, preference shares and mortgage-backed securities to be issued to create capital and to pay back investors as the objects of its investments repaid the capital borrowed. Governments might even consider guaranteeing all or some of these securities.

Any Canadian iBank would face some of the same questions as National Roads Funds (see previous section). First and foremost, how would the political will to create and support such new institutions be generated? Would the federal government, as the level of government responsible for fiscal and tax policy, have to lead the movement towards these banks? If that federal leadership did not emerge, could larger provinces, either alone or in concert with pension funds, motivate the public to agree to the establishment of these banks?

It might even make sense to try to go for broke by combining the ideas for creating national infrastructure funds with those for setting up infrastructure banks. The debate should include considering the idea that any new iBank or roads fund should be kept at the same arms-length distance from politicians that the recent defence procurement process was.

C. PAYING FOR INFRASTRUCTURE — SMART SOLUTIONS AND CONSERVATION OF RESOURCES

In keeping with the productivity gains that Canada has always achieved in the past, it is imperative that new, intelligent systems for moving goods and people efficiently must be adopted soon after they appear on the scene. As Barry Prentice said:

> "The interaction between communications and transportation technology may be competitive, complementary or in some cases may modify behavior... [Intelligent Transportation Systems — ITS are] a use of communications and information technology that [is] complementary to transportation."[15]

The technologies underlying robotics and Unmanned Aerial Vehicles (UAVs) are moving forward rapidly. These technologies could change the way freight moves, the ways automobiles are driven, the way airplanes are controlled, the way busy bridges age and the way roads can be made more efficient. ITS technologies will also allow people and companies to reduce fuel consumption and thereby to reduce greenhouse gas emissions. ITS will also make the transportation system safer. Most importantly, some of the ITS solutions will allow a more efficient use of existing infrastructure assets in a way that will obviate the need to pour more concrete and spend vast amounts of money.

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[15] Prentice, B. 2011. "Integrating Technology in Vehicles and Infrastructure." P. 9. Paper presented at *Reforming Canada's Transportation Policies for the 21st Century*, a roundtable discussion hosted by the University of Calgary School of Public Policy and the Van Horne Institute, Nov. 29, 2011.

As new transportation initiatives are instituted in the future, innovation and productivity gains must be taken into account before funding follows. Other countries are developing proprietary solutions in the area of ITS. That is what IBM is doing in Rio. Governments must give appropriate incentives for the Canadian companies or individuals who invent new ways of making transport more efficient. Some experts correctly claim there is currently a huge "data deficit" in many sectors of the Canadian transport economy. Without a way to get the needed data, many perceived problems will not be corrected, or will be corrected improperly. This is definitely a project for the federal government.

Governments historically have been the providers of funds for researching many transport problems, either through mechanisms like CTAR or by providing money to universities to establish centres for studying transport issues. This pattern may not be as attractive to the current federal government, and provincial and municipal governments, in a time of restraint. The federal government might consider helping by advancing the timing of the next *Canada Transportation Act* review from 2015 to 2012 with a deadline of 2013 for submitting findings. That will leave enough time between the submission of the report and the next federal election to have a proper debate of many key transport questions before another federal election sweeps all issues before it.

If the latter suggestion is not welcome, then perhaps the federal government could appoint a single person, much as Jim Dinning has been appointed to study rail access or David Emerson had been asked to study the aerospace industry, and ask that person to study certain discrete transport issues — such as road pricing or infrastructure banks — and to report within 12-18 months. The Eddington study in Britain gives Canada a good model for such an initiative. Perhaps such a study could use the successful creation of gateways and corridors in Canada as a springboard to other issues. The Minister of Transport is allowed, under s. 48 of the *Canada Transportation Act*, to enter into agreements "in respect of any transportation matter that the Minister considers appropriate."[16] So, the power to study and research is there, and it is clear. Foundations, companies and universities might be called on to support this research by partnering with the federal government.

Today, millions of people worldwide are discussing many questions in public, online media sites. Cutting-edge algorithms are used today, for example, by American politicians like Barack Obama and Mitt Romney. Both have hired people who can analyze vast amounts of transactional data that allow them and their campaign teams to find out what people are really thinking, and to try and predict their voting preferences. These new algorithm-based techniques will, in due course, supplant conventional polling by telephone or even by smart phones.

Governments and transport policy researchers must soon acquire the algorithmic skills needed, or hire experts with those same skills, to mine data that will give them better, and more accurate, insights into the views of citizens on many transport-related issues, and to track changes in those attitudes in real time. No attempt, for example, to introduce road pricing or infrastructure banks should be tried without having these new tools at one's disposal.

[16] Government of Canada. 1996. *Canada Transportation Act*. Available online at http://laws-lois.justice.gc.ca/eng/acts/C-10.4/

In any studies or policy initiatives in future, green technology and the cutting of greenhouse gases will be high on the agenda to make sure that the environment is taken fully into account in decision-making. Future transport policies and practices must reflect the high returns that will come from certain kinds of green investment. Governments and private sector players should ensure that innovation, including green innovation, be included in the criteria for new public infrastructure projects, or among the objectives for infrastructure funds or infrastructure banks.

Canada is lagging behind most countries in thinking through, and implementing, policies that will produce greener results in transport. Indeed, some at the Calgary roundtable said the environment was the most important issue, and more important than narrow transportation issues. Moving Canada to a more environmentally friendly, natural gas-based economy from an oil-based economy might therefore be one of the top objectives of new research in the transport sector. This is an appropriate objective at a time when natural gas prices are at a 10-year low and shale gas is being found everywhere.

It is a hundred years since Canada paved its first highway, using cement. This country now has almost one million kilometres of paved roads. Paving is a crude and costly way to build roads. An American inventor is about to demonstrate how smart, solar-powered roads will have the capacity not only to provide clear roads in all weather (e.g., during Canadian winters) but will have the bonus of being a significant surplus power generator for the electrical grid. A solar highway could even have computer technology buried in it so that roads could suddenly be "intelligent". Indeed, IBM has already developed road sensors that can give drivers constant and accurate road condition reports. Both are green products.

Canada should be developing, or at least adopting, some of these initiatives. Highway 407, one of Canada's most successful initiatives in "smart highways," is so yesterday when one learns of how other countries, particularly in Europe and in Australia, are taking giant steps forward in their road technologies. It is time for Canada to catch up. Smart roads will lead to smart grids that in turn will lead to smart networks.

D. DRIVING CHANGE IN THE NEXT DECADE

Most participants at the Calgary roundtable agreed that continuing with the current transport situation in Canada is not an option. Most agreed too that considerable leadership will be required — publicly and privately — to move the policy process forward. The most brilliant analyses of problems or ideas for reform will founder if a non-partisan political campaign is not initiated to promote good ideas, and to have a proper public debate about the ideas. General transport policy, as opposed to politically popular road building, has frequently been the orphan of policy issues at cabinet and board tables. Canada cannot afford to allow that situation to continue.

One first step might be to retain a company or companies that are capable of providing crucial data from social media in the transport sector. A second step would be to decide which transport policy areas most need shoring up. A final step would be to decide what kind of promotional plans are needed to present the results of the first two steps to the public and to government. Will it be publications? Will it be cross-country meetings? Will it be a concerted media campaign?

A public sector institution, similar to the old Economic Council of Canada, was suggested in Calgary as a possible model to do research and to carry important messages. Whether the current government in Ottawa would create and finance such a body is an unknown. A major effort might have to be made, publicly and privately, to convince Ottawa to do this, or some variation on it. Leadership for this effort would have to come from a broad spectrum of organizations, lower levels of governments and universities. There was a suggestion in Calgary that the Australian Productivity Commission could provide a model that could be modified to fit the Canadian context.

If Ottawa were unwilling to support such an initiative, there is no reason why one province, or a number of them, could not create aTransport Council of some kind. The western provinces have successfully created a well-functioning network under the rubric of the Pacific Gateway. Could that initiative be expanded institutionally to include some of the issues discussed in this white paper? Perhaps.

If an all-encompassing institution proved to be impossible, perhaps ones that only related to road pricing or iBanks could be created, Indeed, the creation of one or more iBanks in Canada would provide a base for research into, and leadership on, many of the issues that were discussed in Calgary. Should the creation of an iBank therefore be the first objective of the transport community? Perhaps.

However the organizers of and participants at the Calgary roundtable decide to move forward, there is no question the campaign to bring some of these ideas to decision-makers and opinion-makers must be carefully thought through first. The money to wage the campaign must also be found. Finally, a public figurehead — a transport Richard Branson or former transport minister Chuck Strahl? — who is capable of leading the campaign must be identified and recruited. Ideally, that person should probably be from western Canada, which is currently the leading region in developing networks, gateways and corridors that work, and in providing many of the models the whole of Canada should be trying to achieve.

A series of public events in various cities, plus visits to governments and private sector people, must be planned. A program on CPAC that could then be streamed to computers and be available on iPhone and BlackBerries — and a new Facebook site — would broaden the discussion. But none of this will be easy, or inexpensive. It will take a gargantuan effort to make it happen.

One of the larger tasks of a planning committee would be deciding how to move in the light of the current federal-provincial situation in Canada. The current government has been reluctant to hold traditional general public federal-provincial meetings, preferring instead to deal with provinces one-on-one; any public event might only be attended by provincial ministers or officials. There perhaps could even be a national meeting where provincial ministers and civic leaders were present. The federal government would then have to be approached separately.

The challenge will be to find new ways of allowing all levels of government to meet and deal with these issues without having the kinds of punch-ups that were so common in the days of the federal-provincial publicly televised events in which the Prime Minister and Premiers jockeyed for media attention.

In planning any part of the way forward, organizers should not forget the immortal words of former US president Richard Nixon, who was once asked by a political reporter on the campaign trail why he gave the same speech over and over and how many times he had to do this before people "got the message." Nixon replied, "100 times." The astonished reporter said, "100 times — not 99 or 101 times but 100? And then they get it?" Nixon replied, "No, then you have to repeat it 100 more times."

The moral for those who would promote reform is that campaigns to change or alter public policy require extraordinary persistence, all the more so in today's time of increasing media fragmentation and the rise of social media. But it can be done. It is time to start.

Halifax, Nova Scotia,
8 March 2012

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