

NATIONAL INFRASTRUCTURE STRATEGY (NIS) REBUILDING CANADA WITH A A SUSTAINED & PREDICATABLE COMMITMENT

INTRODUCTION

Canada's quality of life, economic prosperity and international competitiveness, depend upon her core municipal infrastructure (streets, bridges & structures, water distribution and waste treatment systems) and an efficient, seamless multi-modal transportation system including a national highways system linking all modes of transportation.

This brief outlines the benefits of a sustained, predictable and comprehensive National Infrastructure Strategy (NIS).

INFRASTRUCTURE DEFICIT

Like any capital asset, infrastructure has a finite life cycle. The extent to which its useful life can be maximized depends upon the level of investment made during its life (life cycle). Much of Canada's core infrastructure – roads, highways, bridges & related structures, sewer and water systems - are quickly coming to the end of their useful life cycle and require rehabilitation or replacement.

The *Infrastructure deficit* is defined as the 'gap between the investment required to maintain or upgrade existing infrastructure to an acceptable standard and the amount actually invested.'

Like the fiscal deficit which passes the costs of today's government programs to future generations, an infrastructure deficit passes on the costs of today's use and consumption of infrastructure to future generations, limiting their ability to meet future infrastructure needs. Failure to address the infrastructure deficit breaches the principles of sustainable development.

PUBLIC SUPPORT

National polling of more than 2565 Canadians conducted by Probe Research between November 2002 and January 2003 in seven major Canadian cities (Vancouver, Calgary, Edmonton, Winnipeg, Toronto, Ottawa and Montreal) found that:

- 81% of the public supports allocation of a portion of federal fuel taxes to fixing urban roads and bridges.
- A majority of urban Canadians want to see federal and provincial governments acknowledge and address the urgent need for investment in infrastructure;
- 51% of Canadians are worried that unless more federal and provincial money is spent on infrastructure, their quality of life will deteriorate "very soon." That sentiment is most pronounced in Toronto (63%);
- Concerns about transportation infrastructure are more prevalent in Calgary and Winnipeg;
- Torontonians cite highest concerns about water treatment and waste management;

In a public opinion survey of Canadians, conducted in July 2002 for the Coalition to Renew Canada's Infrastructure (CRCI), by Pollara:

- 58% supported federal funding for the National Highways System (NHS) through an allocation of federal road use fuel taxes;

- 55% believed that funding improvement of Canada's NHS should be shared between the federal and provincial governments;
- 38% of prairie respondents believe that the federal government should fund 75% or more, of the NHS cost;
- 56% are willing to pay on their monthly water bill to ensure that water is safe for drinking and sewage is properly treated.

Polling in western Canada by the Canada West Foundation in 2002 found that transportation was regarded by western Canadians as one of the top 3 priorities to the economic success of the region.

The conclusions, which might be drawn from the national, regional and provincial polling, are:

- There is dissatisfaction with the condition of streets and highways;
- Canadians believe that the federal and provincial governments are responsible to improve the condition of the National Highways System with a sizable percentage believing that the federal government should shoulder the primary responsibility;
- There is strong support for dedicating provincial fuel taxes towards provincial highways and federal fuel taxes towards the National Highways System;
- There is strong support for increased funding towards streets and highways;
- Canadians are willing to pay to assure safe drinking water and properly treated sewage.

It is submitted that all levels of government are aware of the public's overall concerns about the state of streets and highways, their drinking water and sewage treatment. They have made it clear that they don't believe the federal and provincial governments are pulling their fair shares of responsibility to ensure that we drive along streets and highways that are safe and fit for the purposes intended. They also believe that gasoline taxes should be allocated towards these purposes.

What remains is that practical, cost-effective solutions be implemented to address the problems.

POLICY TARGETS

The National Infrastructure Strategy (NIS) should target three broad and distinct program areas:

- *National Infrastructure Program (NIP)* to address rehabilitation of the core municipal infrastructure deficit, estimated by the Federation of Canadian Municipalities (FCM) to be in the vicinity of \$57 billion¹;
- *National Highways Program (NHP)* to tackle national highway system deficit estimated by the Council of Transportation Ministers to be in the vicinity of \$19 billion²; and
- *Strategic Infrastructure Fund (SIF)* which serve to create new areas of economic activity and enhance quality of life, as a component of each of the NIP and NHP.

FUNDING & PRINCIPLES

Funding of Canada's National Infrastructure Strategy (NIS) should support the following principles:

- Federal road use fuel taxes, should be **allocated to support** the NIS policy objectives;
- Funding must be **sustainable, reliable, predictable, transparent and accountable**;
- Participating jurisdiction contributions are **incremental** to their established base line budgets;

¹ As estimated by the Conference Board of Canada

² Figure based on National Highway System Update reports.

- Project funding should be rationalized, based on **objective selection criteria** including cost/benefit, environmental, remoteness, population density, national interests, and social benefit considerations;
- Management of priorities, investment strategies, selection process and funds, should involve the participation of all levels of government, users groups and industry, to assure **transparency** of decision making;
- Funds should be **allocated to a separate account**, and subject to annual technical and financial audits to assure public accountability.

OPPORTUNITIES THROUGH TECHNOLOGY

Investment in research & development of new technologies and materials for application in the construction, rehabilitation and maintenance of Canada's infrastructure, should be an essential element of the NIS.

The recently published Technology Road Map (TRM)³ represents a strategy for meeting the long-term needs of Canada's Civil Infrastructure Systems (CIS). The TRM, a shared vision among the CIS community, identifies challenges and associated technological needs that will influence the infrastructure industries for the next ten years. Its goal is to facilitate the introduction of new technologies and improved management practices that will ensure the sustained prosperity of Canadian communities. Some of the recommendations of the TRM include:

- The establishment of a national innovative technologies demonstration program that could be employed by municipalities and other CIS owners to demonstrate and validate projects that use new adapted and innovative technologies;
- The establishment of a Network of Centres of Excellence, or equivalent for infrastructure;
- Dedicated funds to infrastructure research and development by the federal, provincial and territorial governments as well as industry;
- Encourage Infrastructure Canada to establish a national innovative-technologies demonstration program; and
- The establishment of an infrastructure technology transfer program to encourage the movement of technology from research facilities to the market place.

Whether it is linkage to the Network of Centres of Excellence (NCE) program, Infrastructure Canada's Research Division, partnering with the National Steering Committee for Innovation in Construction⁴, working with the Canadian Construction Association (CCA) Construction Research & Innovation Task Force, or implementing the TRM recommendations, the vigorous application of new Canadian technologies, which realize positive life cycle benefits to infrastructure, is an approach which is practical and strategic in nature:

- X It can serve to showcase federal and provincial government investment in research initiatives, such as the Network of Centres of Excellence (NCE) program⁵.
- X Canadian-developed technologies can position Canada to seize a sizeable share of the world-wide, \$2 trillion infrastructure deficit⁶, and take full advantage of the economic opportunities associated with this challenge.

³ Published in June 2003 as a result of the combined efforts of the Canadian Council of Professional Engineers (CCPE), the Canadian Society for Civil Engineering (CSCE), the Canadian Public Works Association (CPWA) and the National Research Council (NRC). The TRM report is available at www.csce.ca/TRM/index.htm.

⁴ The website address is www.nscic.ca.

⁵ One example of topic relevant research and technology is ISIS Canada – see Schedule "A."

⁶ "Canada's Deteriorating Infrastructure," M. Mirza, P.Eng., FCSCE – Prof of Civil Engineering, McGill University.

- X Rigorous support for the use and commercial application of Canadian technologies can enhance Canada's ability to export both knowledge and experience, as well as products, goods and services, which will thereby strengthen our abilities as an export nation.
- X Finally, use and application of new technologies to address world-wide infrastructure opportunities, will measurably enhance Canada's international reputation as a problem solver.

NATIONAL BENEFITS

The benefits to the nation of a national infrastructure strategy are many and include the following:

- X The value to national unity and pride of a common national objective to rebuild Canada with an improved and more efficient transportation and municipal infrastructure, capable of visibly enhancing the standard of living Canadians enjoy and seek to have preserved;
- X As the Trans-Canada Highway is the *Aribbon that binds us@*, so too can a national infrastructure strategy be the *Afoundation that unites us@*;
- X A sustained and predictable National Infrastructure Strategy benefits planning, human resource and capital investment decision making by provincial and municipal governments and the private sector.

ECONOMIC & ENVIRONMENTAL BENEFITS

- X It is generally regarded that every \$1 of direct expenditure under the current CIWP generates \$1.30 in Gross Domestic Product (GDP).
- X Countries with whom Canada competes are making sizeable investments in their national infrastructure. Canada is the only G-7 without a national highways program.
- X The safe and timely (just in time inventory control) movement of goods east and west, and north and south along an efficient national highways system, is of paramount importance to Canada's export industries which collectively sustain in excess of three million Canadian jobs.
- X A Study under Transport Canada's Special Infrastructure Project demonstrated a positive relationship between public highway capital investment and private sector output and productivity. Macroeconomic analysis suggests that a shortfall in the stock of public highway capital in Canada exists, and that increased highway investment would result in a gain in economic output of over \$3 for every \$1 invested.
- X Our ability as a nation to take full advantage of the economic opportunities presented through FTA and NAFTA requires no less a national commitment to our strategic transportation system, than those made by each of the United States and Mexico, the countries with whom we are partnered in the aforementioned agreements.
- X The Canadian tourism industry is the fourth largest in Canada at \$54 billion annually. A safe efficient, seamless, user friendly system is critical to ensuring a vibrant and viable industry.
- X Canada's ability to expand as a nation exporting goods, services and technologies will be strengthened by a national strategy that reinforces core infrastructure and strategic transportation systems as vital to national and international economic competitiveness.
- X Improve transportation safety, thereby saving injury and lives, property damage and more than \$10 billion in annual economic and health care costs.

X Investing in the upgrading and thereafter maintaining Canada's national highways system, is consistent with environmental stewardship and sustainability objectives. Its contribution therefore to the environment is positive and includes:

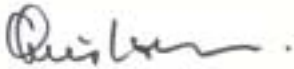
- * Vehicles on good roads cost 20 per cent less to operate than those on substandard road surfaces;
- * A reduction on one minute of 'unexpected' travel time is worth 2.5 minutes of travel under normal circumstances;
- * The cumulative impact of the above two points is lower fuel consumption, less greenhouse gas emissions, cleaner air;
- * A substantial portion of asphalt removed in road projects is recycled, reducing demand for new aggregates and petroleum based products.

CONCLUSION

Failure by Canada to address this issue will result in an infrastructure, unable to support our competitiveness, to sustain our quality of life and allow Canadian enterprise to fully take advantage of existing or new market opportunities. Neglect of our infrastructure would leave a national infrastructure deficit the size of which will be financially unmanageable for future generations.

A commitment to a national infrastructure policy renews the national spirit, helping to ensure that the next century belongs to Canada.

Respectfully submitted,
Western Canada Roadbuilders &
Heavy Construction Association (WCR&HCA)



Chris Lorenc, B.A., LL.B.,
President

November 2003

SCHEDULE "A"

Intelligent Sensing for Innovative Structures (ISIS Canada), a Network of Centres of Excellence (NCE), applies new technologies to combat age-old infrastructure-related problems. Its approach includes developing innovative materials to combat the rapid deterioration of concrete structures reinforced with corroding steel, and using intelligent optic sensors built into fibres to gather and communicate information between structures and remote computers anywhere in the world.

It has developed "**Civionics**," the science of meshing electronics with the design of civil structures, to provide engineers with the ability to precisely determine what is happening within the confines of engineering structures. By combining the disciplines of electrical and civil engineering, and replacing conventional steel reinforcement with new materials of fibre reinforced polymers, Civionics facilitates new design concepts for concrete structures, thereby stretching the envelope of civil engineering design parameters.

Applying ISIS Canada developed technology to infrastructure addresses practical owner concerns including: longer life cycle, reduced maintenance costs, superior strength, enhanced durability, resistance to corrosion, increased job site productivity, cost efficiencies, substantial savings over conventional build or repair technologies, design options, early warning system for catastrophic failure and elimination of costly (financial and human risk) site visits.