

A NATIONAL HIGHWAY SYSTEM

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INTRODUCTION

In 1987, the Board of Directors of the Transportation Association of Canada (TAC) recommended that the 10 provinces and two territories join with the Government of Canada in examining the establishment of a national highway policy for a designated national highway network. Later that same year, the Council of Ministers Responsible for Transportation and Highway Safety agreed to create and sponsor a National Highway Policy (NHP) Study for Canada which would :

- establish future needs and define standards for the Canadian primary highway system;
- establish the benefits and costs of meeting these needs; and
- establish funding alternatives for meeting those costs with a view towards recommending adoption of the Policy by their governments.

Three broad objectives for the National Highway Policy Study were established as follows:

- to ensure that all regions of Canada are provided with adequate and equal levels of service, safety and efficiency in highway transportation in order to serve inter-provincial and international trade and travel and enhance Canadian economic competitiveness;
- to bring cohesiveness, prestige and uniformity of standards to the major highway transportation linkages of national significance in Canada; and
- to provide emphasis and support by all levels of government for a highway network of national significance at a time of growing regional transportation needs. To achieve these

broad policy objectives, three principal goals for a multi-phased study were established as follows:

- criteria for identifying highways that serve national transportation needs;
- minimum standards of design, operation and service that these highways should provide; and
- a funding mechanism(s) for ensuring that the needs of a national highway transportation system are met.

PRINCIPAL FINDINGS AND RECOMMENDATIONS OF THE NHP STUDY

The study, which was divided into four phases, took place over the period 1988-1992.

A. Phase One - Identification of a National Highway System

Criteria for identifying a national system of highways were adopted as follows:

- a national highway is any existing, primary route that provides for the interprovincial movement of people and goods by connecting a major provincial population/commercial centre in Canada as directly as possible with:
 - another major provincial population/commercial centre,
 - another major population/commercial centre in an adjacent province or territory,
 - a major port of exit/entry to the United States, or
 - another transportation mode directly served by the highway mode (e.g., ferry terminal).

These criteria were used to identify a national system of 25,000 kilometres which would provide for the safe and efficient movement of people and goods from region to region in Canada.

This phase also established minimum acceptable design and operational standards for this system as follows:

- geometric design standard - two-lane rural arterial, undivided with full shoulders and a minimum of 0.8m paved shoulder and a design speed of 100km-h;

- geometric design maximum - four-lane rural divided arterial (full access control) with a design speed of 130km-h;
- serviceability - a minimum operating speed of 90km-h;
- structural adequacy - capable of providing all-weather service (no seasonal load restrictions) and capable of carrying the national standards for vehicle weights and dimensions; and
- comfort - provision of a riding comfort index of 6.0 or greater or the equivalent rating under other measurement systems.

The application of these criteria revealed that 38% of the system is deficient. In addition, 75% of the identified national highway system consists of two-lane paved highway and 790 of the 3,534 bridges are in need of major strengthening or rehabilitation.

B. Phase Two - Costs of Upgrading the National Highway System

The second phase of the study assessed the cost of achieving the established highway design and operation standards. The assessment considered two options.

Option A consisted of correcting the identified deficiencies and upgrading, where necessary, to a minimum of a two-lane paved highway and a maximum of a four-lane divided highway. The cost was estimated to be \$13 billion.

Option B consisted of Option A plus completion of a continuous four-lane divided highway across Canada. The cost was estimated to be \$18 billion.

An analysis was also carried out of highway revenues and expenditures over the period 1983 to 1988. The results were as follows:

- federal, provincial and territorial expenditures on highways totalled \$24.4 billion;
- road-related revenues totalled \$32.9 billion;
- federal and provincial fuel taxes accounted for 90% of road-related revenues;
- provincial fuel tax revenues remained relatively constant over the five-year period;
- annual capital expenditures on the system remained constant at \$600 million; and
- annual maintenance costs of the system averaged \$280 million.

In addition, studies estimated the economic impacts of a capital works program to correct the deficiencies, the benefits to highway users of upgrading the system, and the expected environmental impacts of the work. The major findings of these studies were as follows:

- employment in construction and related sectors would be expected to increase by between 146,000 person-years (Option A) and 205,000 person-years (Option B) during a 10-year program;
- growth in the economy;
- improved market accessibility and trade competitiveness for Canadian industry in both east-west and north-south corridors;
- increased tourist travel;
- benefits to highway users in all regions of the country, including a reduction in vehicle operating costs of \$360 million annually, a reduction in travel time of 46 million person hours annually, a 4% (160) reduction in current annual traffic fatalities, and a reduction in annual personal injury accidents of 2,300; and
- minimal social and natural environmental impacts since construction would primarily take place on existing highway alignments.

C. Phase Three - Solicitation of Public Comment and Review of International Experience

In general, there was a strong expression of support for a National Highway Policy from users and stakeholders; the estimated impacts and benefits of an improved system were judged to be reasonable or understated. In addition, the concept of user pay was generally supported, provided that all existing road-use taxes were applied to road needs and any new road-use taxes were dedicated to the system.

A review of international experience revealed that Canada is the only federal state without a national highway policy or program for major highway links and is virtually alone in not having national government support for a national highway transportation infrastructure. Other findings of the review included:

- Canada trails all other federal states (U.S., Germany and Australia) in the percentage of road-related revenues spent in support of a national road system;

- Canada's level of capital and maintenance investment in highway infrastructure is among the lowest of OECD countries; and
- Canada's annual expenditures per kilometre of the system are among the lowest of the developed countries examined. In the context of North American trade, the United States has historically been spending about six times more per kilometre than Canada on its interstate system.

D. Phase Four - Funding and Cost Sharing

This phase concentrated on appropriate and sustainable means of funding the national highway system and an appropriate cost-sharing formula for the contributions of the federal and provincial/territorial governments to this project. It was recommended that:

- the federal government establish a national highway system fund based on an amount equal to the revenue generated nationally by two cents per litre of fuel consumed for road use nationally;
- the fund be allocated in two components;
 - base allocation - 80% of the fund to be made available to provinces and territories in proportion to the percentage of national road-use fuel consumed in each jurisdiction; (The annual allocation of these funds would remain available for up to four years, after which they would be transferred to the pool allocation.)
 - pool allocation - 20% of the fund to be made available for projects proposed by jurisdictions, after their base allocation was exhausted.
- projects undertaken with federal funding from the base allocation be subject to a 65% federal and 35% provincial/territorial cost-sharing formula;
- projects undertaken with federal funding from the pool allocation be subject to a 90% federal and 10% provincial/territorial cost-sharing formula; and
- an amount equal to one-half of one percent of the total cost of capital works funded under the base allocation program be dedicated to cooperative research projects on enhancing the quality of design, construction, maintenance and operation of the system.

In addition, during this fourth phase consensus was sought on a number of technical issues associated with the initiation of a cooperative national policy and program. The agreements reached included:

- establishment of a framework for setting priorities among the identified needs of the system according to key criteria of safety, highway strength, highway service and economic development, competitiveness and productivity;
- detailed design and maintenance standards for routes on the system, covering such aspects as geometric design, bridges and overpasses, traffic control devices, and rest areas; and
- detailed development of expenditure types that should be eligible for a cost-sharing program based on federal-provincial/territorial cost sharing of capital works and associated costs but with right-of-way acquisition and maintenance costs borne by the provinces and territories.

DEVELOPMENTS 1992-1995

The National Highway Policy Study laid the foundation for a remarkable federal-provincial consensus on various aspects of the roads that make up the national highway system, including their condition, the requirements for bringing them up to the agreed minimum standard of efficiency, the costs of doing so, and the resulting benefits. The only (admittedly major) question left to be agreed upon was how the system would be funded and the cost-sharing formula to be applied by the federal government and the provinces/territories.

Discussions followed between the Minister of Transport and the provinces/territories for reaching an agreement on these two issues. These were overshadowed, however, by the need for the federal government and provinces to put their fiscal houses in order. After concentrated negotiations during the fall of 1994, the federal government concluded in December of that year that there was not a sufficient consensus to go ahead with a national highway program as proposed by the National Highway Policy Study.

In March 1995, Transport Canada launched the Special Infrastructure Project to assess the economic competitiveness and productivity impacts of the Canadian highway system and investigate the economic rationale for federal highway policy and involvement in highway infrastructure. In other words, the Project simply updated the findings of the National Highway Policy Study.

In August 1995, at their annual Conference, the Premiers “urged the federal government to enter into negotiations with the provinces and territories with a view to implementing a coordinated National Highway Policy as soon as possible, with an appropriate level of federal funding to be provided within existing fiscal frameworks.”

In September 1995, the Coalition to Renew Canada’s Infrastructure urged the Minister of Finance to include in the 1996 Budget a fuel tax increase to be dedicated to the funding of a national highway program.

THE 1997 REPORT OF THE HOUSE OF COMMONS STANDING COMMITTEE ON TRANSPORT

In the spring of 1996, the Standing Committee on Transport (SCOT) undertook a study on the renewal of the national highway system. After reviewing all the investigations that had taken place over the previous few years, it concluded, in its report of February 1997, that the issue was not whether we need to renew our highways – we do; the critical issue was how to pay for doing so. SCOT examined three funding options: the status quo, a dedicated tax, and the application of public-private partnerships.

A. Status Quo

The Committee was of the opinion that the status quo, whereby the federal government funds highway upgrading through a series of *ad hoc*, piecemeal, bilateral federal-provincial agreements, does not provide coherent national planning for the rebuilding of our highways. Thus, the Committee did not believe that the status quo was a viable option.

B. A Dedicated Tax

Another option for funding highway renewal, one supported by many, is to establish from existing gasoline tax revenues a dedicated tax to be placed in a highway trust fund. Against this solution are the fiscal debt issue and the reluctance of finance ministers to impose dedicated taxes. The Committee did note, however, that, once the debt situation is under control, dedicated long-term funding might prove to be a more workable option.

C. Public-Private Partnerships

Given the drawbacks of the other options, the Committee looked at alternative funding mechanisms. It felt it had to “look outside the box” of the traditional approach and think in terms of how the private sector builds an asset and uses it over its full lifecycle. The view was that public-private partnerships could be a key component of a national highway renewal strategy.

The public-private partnership model allows a range of funding options based upon upfront government investment, explicit tolls and the UK “shadow toll” model whereby the government pays the private sector partner a sum based upon the number of vehicles using the highway. The critical factor in the success of these partnerships is the way in which the risk is allocated and managed between the public and private partners. The British policy is to optimize the transfer of risk to the private sector and to demonstrate to the public and to its own auditors that this solution is clearly superior to the public approach.

In order to do this, the British have developed an analytical method of risk assessment through the Public Sector Comparator Model. Under this model, a comparison is made between the cost to government of delivering the project and the estimated cost to government of “shadow tolls” paid to the private partner over the life of the project. To date, the British experience has demonstrated that such involvement of the private sector has resulted in an overall reduction in road infrastructure costs of approximately 25%.

Because public-private partnerships are relatively new in Canada, there are no uniform national guidelines for their application. SCOT stated that a framework of standard practices, terms, clauses and methodologies is needed to carry out cost-benefit calculations, priority setting and risk evaluation; within this, public-private partnerships would be able to develop and succeed. The Committee also emphasized that for public-private partnerships to be implemented successfully, the federal government must make a long-term, secure, sustainable funding commitment to the rebuilding and maintenance of the national highway system.

To this end, SCOT recommended that the federal government make such a long-term commitment to a national highway renewal program. It also recommended that the federal government, in cooperation with the provinces and territories, encourage public-private partnerships and appoint a public-private partnership panel to develop a model for rebuilding and maintaining our highway infrastructure.

CONCLUSION

Historically, and especially in the first half of this century, the federal government has played a role in assisting the development and construction of parts of Canada's highway system through assistance to the provinces. The TransCanada Highway was constructed originally on a 50%-50% cost shared basis between the federal and provincial governments, revised to allow a higher federal share in parts of Atlantic Canada and British Columbia. Not since the completion of the Highway in 1971 has the federal government taken a role in the provision of national highway networks. Since that time, the federal government has provided limited assistance in particular regions of Canada for highway programs falling under various federal and provincial economic regional development agreements and cost-shared highway programs. These agreements and programs have usually been small in scale and of short duration.

Canada needs a National Highway Policy for the 21st century in order to rebuild and maintain our highways. The question is, how is this to be paid for. SCOT reported evidence of a growing consensus among stakeholders that the best and most realistic approach to this question would be through the implementation of public-private partnerships and federal government leadership in providing a long-term, secure source of funds.