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Interim Report

**QUÉBEC/ONTARIO HIGH SPEED RAIL PROJECT
TRENDS IN INTERCITY PASSENGER TRANSPORTATION
AND GOVERNMENT SUPPORT**

Issues Paper

Prepared for

Steering Committee
Québec-Ontario High Speed Rail Project

Submitted by

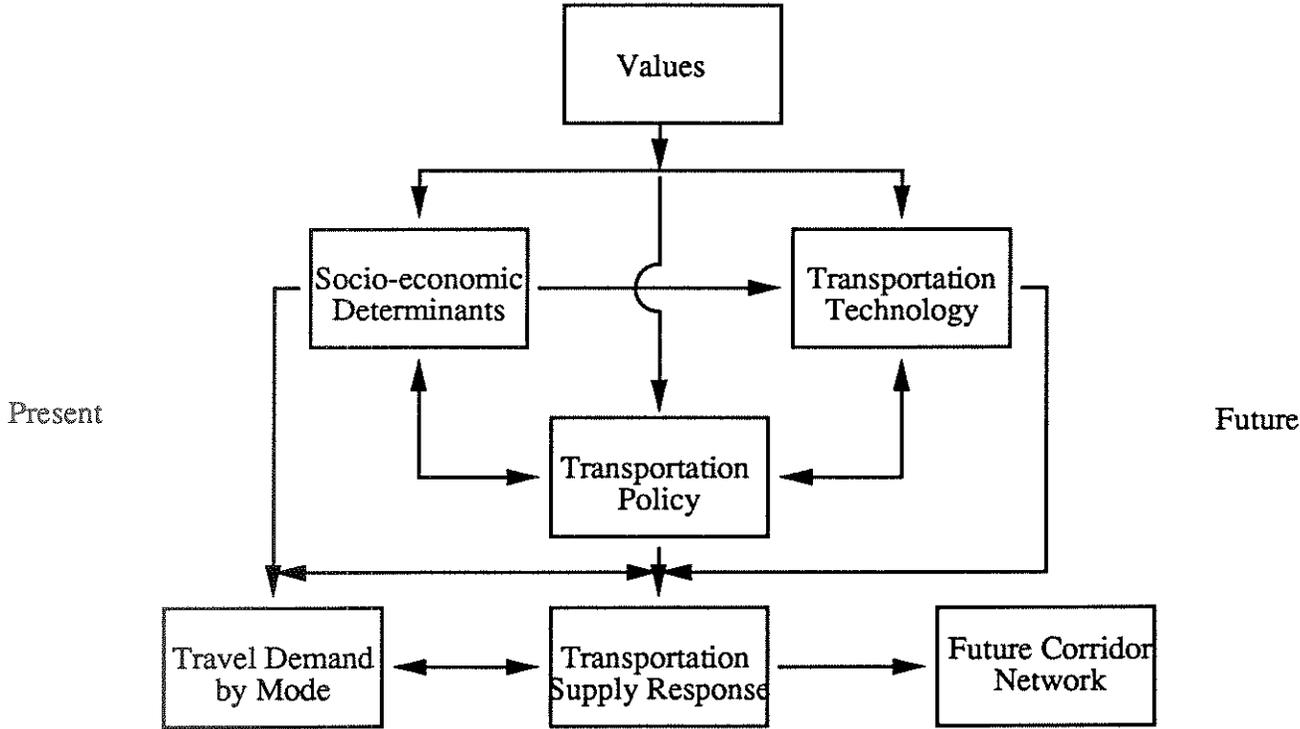
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Montreal
February 15, 1993
2030/THL/92/tl

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Exhibit 1
Issues affecting the Evolution of the Corridor Transportation Network



Trends in Intercity Passenger Transportation and Government Support—Issues Paper

A. Introduction

The present document is part of a study of long term trends in passenger transportation and government support for the various modes and carriers serving the Quebec-Windsor corridor. It is based, in large part, on the results of an extensive literature survey (Appendix A), supplemented by discussion with representatives of government, the carriers and other stakeholders (Appendix B).

The purpose of this paper is to provide context and to provoke discussion that will assist in the design of a portrait of the corridor transportation network for the period 2005-2025 without high speed rail (HSR). This portrait is to be known as the "reference scenario" against which the impact of introducing HSR may be judged.

The reference scenario will contain general descriptions of the road and airport network and certain service, environmental and cost parameters needed in the work of several of the High Speed Rail Project's other component studies. Those studies deal with passenger and revenue forecasting, environmental impact analysis, cost/benefit analysis, economic impact analysis, and financial analysis.

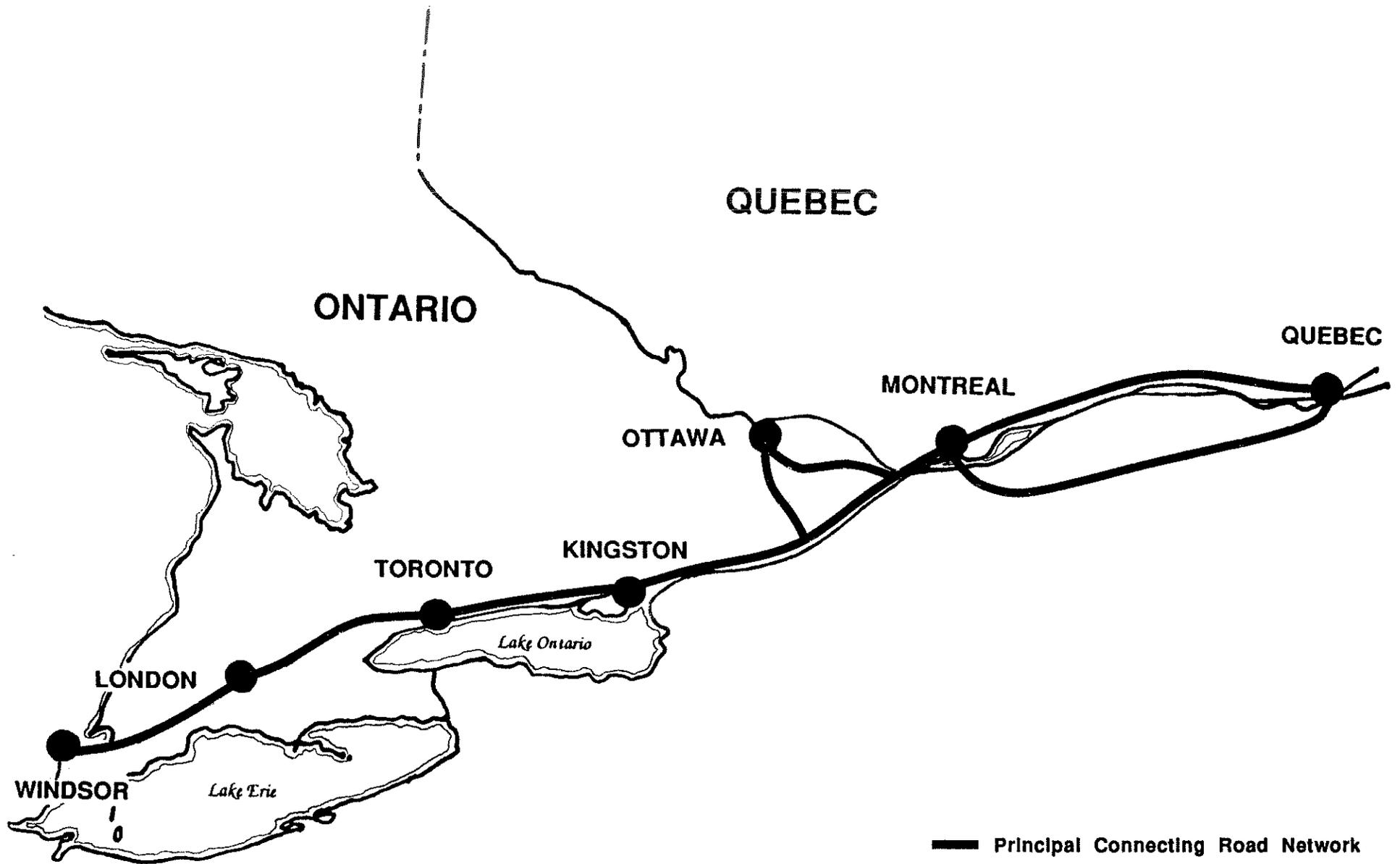
Generally, the focus of the reference scenario will be on the supply of transportation infrastructure and service in the Quebec-Windsor corridor.

B. Methodology

The task we are faced with is a challenging one. The way into the future is not conveniently mapped by some integrated multimodal transportation plan (the policy recommendations of the recent Royal Commission on National Passenger Transportation notwithstanding). Neither do we have some unique navigational tool that could steer a course towards the most likely "open" (i.e., plan-free future) alternative system. Clearly, the corridor's transportation network during the period 2005-2025 will not be a simple extension of the present but some non-linear function of a variety of socio-economic, political, technological and institutional determinants.

The number of variables involved in projecting the future network is huge, and in lieu of a purely quantitative approach, Exhibit 1, **opposite**, is offered as an idea-generator for discussion of some of the key issues. The main topics have been grouped into individual

Exhibit 2—Quebec-Windsor Corridor



boxes of issues that must be resolved in moving from present to future conditions without high speed rail. Ideally, "consensus statements" about these, and any other issues that might come up in the review of this document, would translate into the parameters of the future corridor network.

Analysis of the reflection and discussions generated by this paper will thus produce a "most probable future" without high speed rail, based on conclusions about the major issues that will determine the cumulative and synergistic effects of these transportation determinants over time. Such a portrait will not necessarily represent what will occur during the period 2005-2025, but it will offer an imaginative construct of the most likely possibilities that the present contains.

C. Corridor Transportation, 1992

Exhibit 2, **opposite**, presents a sketch of the Quebec-Windsor corridor, showing the location of the principal cities. The corridor is some 1,200 kilometers in length measured by road.

Exhibit 3, **opposite** page 3, shows selected characteristics—frequency and schedule line-haul times—of the public modes in the corridor for a sample of city pairs. A more detailed description of the services provided is presented in Appendix C. A brief description of the current operating environment for each of the public modes of passenger transportation is presented below.

1. Bus Services

Entry, pricing, and exit is regulated in the Canadian intercity bus industry. Typically, an intercity carrier is licensed to provide exclusive service on a lucrative route as well as service on lower density routes in the more rural areas of the province.

At present, there are five carriers providing scheduled bus service in the Quebec-Windsor corridor. Except where noted, all service is provided with conventional 43-seat coach equipment:

- ▶ Orléans Express provides service between Montreal and Quebec City. Service is provided with a mixture of conventional and articulated equipment.
- ▶ Voyageur Colonial Ltd. provides service between the following points:
 - Montreal-Ottawa;
 - Ottawa—Mirabel Airport;
 - Montreal-Toronto;
 - Toronto-Ottawa;

Exhibit 3
Selected public mode characteristics, 1992

| City Pair | Distance (km) | Bus | | Rail | | Air | |
|------------------|------------------|---------|------|---------|------|---------|------|
| | | Freq/wk | Time | Freq/wk | Time | Freq/wk | Time |
| Quebec-Montreal | 255 | 254 | 3:00 | 54 | 3:16 | 418 | 0:45 |
| Montreal-Ottawa | 205 | 301 | 2:20 | 52 | 2:10 | 252 | 0:35 |
| Montreal-Toronto | 555 | 137 | 6:30 | 76 | 4:35 | 571 | 1:10 |
| Ottawa-Toronto | 435 | 149 | 4:30 | 50 | 4:06 | 490 | 1:00 |
| Toronto-London | 195 | 80 | 2:20 | 97 | 2:05 | 236 | 0:45 |
| Toronto-Windsor | 380 | 105 | 4:55 | 60 | 4:18 | 151 | 1:05 |

Source: Consumer Contact Limited

Note: Distances shown are for travel by highway. Frequencies represent total weekly departures (both directions). Transit times are representative, although actual transit times vary with type of service, departure time and other factors. Air frequencies include services to/from Toronto Island and Buttonville airports, but exclude services to/from Mirabel.

- Kingston-Ottawa;
- Kingston-Toronto;
- Ottawa-Belleville; and
- Kingston-Montreal.

- ▶ Greyhound provides service between Toronto and London, and between Toronto and Windsor.
- ▶ Gray Coach lines provides service between Toronto and Kitchener.
- ▶ Chatham Coach Lines provides service between Kitchener and London and between London and Sarnia.

2. Rail Services

Via Rail Canada is the only carrier operating scheduled passenger rail services in the Quebec-Windsor corridor. Service is provided between the following cities:

- Montreal-Quebec;
- Montreal-Ottawa;
- Montreal-Toronto;
- Ottawa-Toronto;
- Toronto-Windsor;
- Toronto-Sarnia; and
- Toronto-London.

3. Air Services

The Canadian airline industry has been largely "deregulated". Air carriers wishing to provide a new service in southern Canada are only required to demonstrate that they are fit willing and able to operate safely, that they are Canadian, and that they have the prescribed liability insurance. However, carriers must give at least 120 days notice if they propose to discontinue scheduled services or reduce frequency to less than one flight per week.

Scheduled air services in the Quebec-Windsor corridor are dominated by two major carriers—Air Canada and Canadian Airlines International—and their affiliates. A third carrier, Nationair, whose principal business has been charter service, recently

Exhibit 4
Passengers by mode, 1992 (thousands)

| City Pair | Auto | Bus | Rail | Air | Total |
|-----------------------------|---------------|--------------|--------------|--------------|----------------|
| Quebec–Montreal | 5,955 | 405 | 138 | 39 | 6,537 |
| Quebec–Ottawa | 319 | 22 | 9 | 35 | 385 |
| Quebec–Toronto | 108 | 6 | 32 | 70 | 216 |
| Quebec–London | 2 | 0 | 0 | 2 | 4 |
| Quebec–Windsor | 0 | 0 | 2 | 1 | 3 |
| Montreal–Ottawa | 3,888 | 418 | 205 | 40 | 4,551 |
| Montreal–Kingston | 176 | 34 | 36 | 0 | 246 |
| Montreal–Toronto | 1,236 | 187 | 459 | 1,211 | 3,093 |
| Montreal–London | 81 | 7 | 14 | 21 | 123 |
| Montreal–Windsor | 14 | 0 | 8 | 5 | 27 |
| Ottawa–Kingston | 833 | 69 | 31 | 0 | 933 |
| Ottawa–Toronto | 1,781 | 119 | 212 | 679 | 2,791 |
| Ottawa–London | 111 | 7 | 10 | 33 | 161 |
| Ottawa–Windsor | 56 | 3 | 8 | 5 | 72 |
| Kingston–Toronto | 1,872 | 80 | 205 | 9 | 2,166 |
| Kingston–London | 93 | 2 | 7 | 1 | 103 |
| Kingston–Windsor | 13 | 2 | 4 | 0 | 19 |
| Toronto–Kitchener/Waterloo | 11,020 | 232 | 32 | 0 | 11,284 |
| Toronto–London | 3,994 | 155 | 217 | 23 | 4,389 |
| Toronto–Windsor | 1,086 | 36 | 111 | 64 | 1,297 |
| London–Windsor | 1,409 | 23 | 23 | 0 | 1,455 |
| Same origin and destination | 4,993 | 56 | 9 | 15 | 5,073 |
| All other | 58,054 | 790 | 1,146 | 1,829 | 61,819 |
| Total | 97,094 | 2,654 | 2,918 | 4,082 | 106,748 |
| Modal Shares | 91.0% | 2.5% | 2.7% | 3.8% | 100.0% |

Source: Consumer Contact Limited

began scheduled service between Montreal and Toronto. Two smaller carriers, Pem-Air and Skycraft, focus on serving smaller cities in the corridor.

Exhibit 3 shows the service provided by all air carriers for the more heavily travelled routes.

Exhibit 4, **opposite**, shows estimated 1992 passenger volumes by mode by city pair in the corridor. As shown, passenger trips by automobile represent 91% of total intercity travel, although the percentage varies by city pair. Travel by air represents 3.8% of all trips in the corridor but accounts for 39% of trips between Montreal and Toronto. The shares of bus and rail are similar for the entire corridor, with bus accounting for more passengers on shorter trips and with rail accounting for more passengers on longer trips.

D. Issues and Questions

Each of the labels shown in Exhibit 1 is a generic descriptor of a broad range of important keys to the shape of the future transportation system. The following summary of these issues also includes a brief description of their links and interactions and poses a number of questions regarding them.

1. Values

Values are important for the pressures they exert on transportation developments and governments. The main issue here is to determine the effect of values on travel behaviour and the propensity to travel by the various modes, and on emerging government initiatives in transportation.

The Royal Commission on National Passenger Transportation (hereinafter called the Commission) is a good example of how prevailing attitudes can translate into objectives and principles of transportation policy (cf. Commission recommendations 4.1 to 4.5 included in Appendix D). Prominent in their proposed "foundations for a new passenger transportation network" are the values of *safety* and the *protection of the environment*. What comes through most forcibly in the recommendations, however, are the values of *transportation efficiency* and *equity* (with respect to taxpayers as well as to both travellers and carriers). Energy economy was not emphasized in spite of the fact that, in the United States at least, two thirds of all oil is consumed by the transportation sector.

The values espoused by the Commission lead directly to a user-pay philosophy and reliance on competition and market forces as the prime agents in providing viable and efficient transportation services. Government involvement is reduced and subsidies may no longer be justified on traditional grounds of nation-building and regional development.

Socio-economic values are the major inputs to individual decisions related to travel and modal choice. Since they are implicit rather than explicit, it is difficult to judge the incidence and amplitude of their effects.

Question 1—*Will "Freedom to Move", the theme of Canada's National Transportation Act of 1987, continue to be the guiding philosophy behind the delivery of passenger transportation systems in the corridor into the future?*

Question 2—*Will the values espoused by the Commission prevail or will the current system of political variables weigh more heavily in determining which modes receive government support in the form of subsidies?*

Question 3—*Will the private automobile claim the same allegiance during the period 2005-2025 as it does today? As the Commission correctly points out: "Even a small shift in private car use could have a dramatic impact on the public modes of passenger transportation."¹*

Question 4—*How does one anticipate the emergence or effects of "not-in-my-backyard" or even "no-growth" attitudes to public infrastructure development (as evident in California)?*

Question 5—*What will be the effect of environmental pressure in inhibiting/promoting the development of the individual modes of passenger transportation in terms of:*

- ▶ *relationships among transportation, land use and economic development;*
- ▶ *the "greenhouse effect;"*
- ▶ *traffic congestion;*
- ▶ *noise pollution;*
- ▶ *air quality concerns;*
- ▶ *need for public involvement.*

Values and goals related to society as a whole could also affect transportation systems in the corridor, such as felt needs for:

- ▶ North American integration;
- ▶ deficit reduction;
- ▶ community economic development (as per the Florida Transportation Plan and High Speed Rail Act);

Exhibit 5
Socio-economic variables of the Transport Canada "Base Case" Scenario
(Interpolated for the Year 2015)

| A. Demographic Data | Ontario | | Québec | | Total | |
|---|---------|---------|--------|--------|-------|------|
| | 1992 | 2015 | 1992 | 2015 | 1992 | 2015 |
| Population | | | | | | |
| Province (millions) | 10.3 | 13.8 | 6.9 | 8.2 | 17.2 | 22.0 |
| Corridor zones (millions) | 9.4 | 13.2 | 6.4 | 7.9 | 15.8 | 21.1 |
| Households | | | | | | |
| Province (millions) | 3.7 | 5.6 | 2.7 | 3.5 | 6.4 | 9.1 |
| Corridor zones (millions) | 3.4 | 5.2 | 2.5 | 3.2 | 5.9 | 8.4 |
| Employment (millions) | | | | | | |
| Province (millions) | 4.7 | 6.6 | 2.9 | 3.7 | 7.6 | 10.3 |
| Corridor zones (millions) | 4.5 | 6.4 | 2.7 | 3.6 | 7.2 | 10.0 |
| Labour Force (millions) | | | | | | |
| Province (millions) | 5.4 | 6.6 | 3.5 | 3.9 | 8.9 | 10.5 |
| Percent "White Collar" | 70.0 | 76.0 | 68.7 | 76.2 | 69.5 | 76.1 |
| B. Economic Data | | | | | | |
| GDP at factor cost (billions of current \$) | 244.2 | 838.7 | 137.6 | 440.7 | | |
| Hourly Salaries (\$) | 14.01 | 37.91 | 13.39 | 33.24 | | |
| Average Household Income (\$) | | | | | | |
| Province (\$) | 56,583 | 120,000 | 42,573 | 92,650 | | |
| HSR zones (\$) | 57,531 | 123,400 | 43,816 | 98,350 | | |
| Household Expenditures on Transport (billions of current \$) | | | | | | |
| | 22.6 | 62.7 | 14.3 | 37.06 | | |
| Transport Price Index (1986=100) | 124.9 | 249.8 | 118.0 | 249.7 | | |
| Car ownership per household | 1.37 | 1.58 | 1.19 | 1.28 | | |

Source: Transport Canada. *Québec/Ontario High Speed Rail Project: Socio-economic Variables, Forecasts for 2005 and 2025 Three Scenarios*. Economic Analysis Directorate, December 1992. ("Base Case" Scenario).

- ▶ job creation;
- ▶ aesthetics.

2. Socio-economic Determinants

Socio-economic determinants do influence transportation policies and technologies to a certain degree. However, their main influence is on transportation demand. The main issue here is the extent to which demographic and economic changes in Québec and Ontario will shape intercity passenger demand in the corridor in general, and modal choice in particular.

Overall demand. Demand for intercity travel and associated transportation facilities in the short and medium term (up to 10 years) tends to follow fluctuations in business and personal incomes related to the business cycle. Thus, the number of passenger-kilometres of intercity travel per person declined during the last two recessions (between 1980 and 1984 and again between 1988 and 1990) according to Commission analyses.² U.S. figures also show a high correlation between intercity passenger miles and GNP.³ For purposes of information, we summarize the relevant "Base Case" demographic and economic magnitudes developed by Transport Canada for the High Speed Rail Project in Exhibit 5 opposite.⁴

Among the issues to be considered in assessing what might happen to overall demand in the longer term (beyond 10 years), account may be taken of the following possibilities:

Slower economic growth than that experienced over the past 25 years. According to the Transport Canada "Base Case" scenario, this will occur for demographic reasons after the year 2005.⁵

Slowing growth of the population. This will result in slower growth in the labour force and in the creation of new households after 2005.⁶

Question 6—*Would this reduce expenditures for automobiles, increase transportation labour costs, slow overall transportation demand?*

The "graying of Canada." This will be in full swing after 2005 as the baby-boom generation moves into retirement.

Question 7—*Could it be, as the Commission report suggests, that: "An aging population, which would have more leisure time and a higher proportion of citizens with disabilities, could have different preferences in choosing modes of transportation"⁷, and if so, what will be the effects?*

Increasing suburbanization of population at major corridor hubs. Currently, over 50% of the O/D traffic at Pearson International Airport originates or terminate their trips north of highway 401.

Question 8—*Could this phenomenon result in a reduction in demand for downtown to downtown intercity travel?*

Increasing urban congestion. Road congestion is growing in urban areas, increasing access times to intercity highways and airports.

Question 9—*Will this weaken Canadians' preference for car travel or will congestion penalize all modes more or less equally?*

Social change that might affect the relative value of intercity transportation might also be considered, such as the more widespread use of flexitime work practices, increased numbers of single-parent and two worker households, the increased use of "telecommuting", etc.

Modal choice. Modal choice is normally considered to be a function of cost and service differentials such as perceived cost, frequency of service, flexibility, etc. However, as a recent CIGGT report points out: "There is evidence to suggest that many travellers do not trade off modal prices, frequency or trip times, but make their modal choice on the basis of factors such as their proximity to a terminal, their need for privacy or their need to travel to multiple destinations."⁸ Commission work suggests that, "the dominant position of car travel is increasing, rather than diminishing."⁹ However, it is not entirely clear at what level saturation will take place in this country.

Question 10—*When will automobile ownership reach saturation in Quebec and Ontario?*

There is little doubt that the cost of travel is a major factor. Commission analysis suggests that the actual costs of a one-way trip between Montreal and Toronto in the year 2000, under "status quo" assumptions, would vary between \$37 for bus and \$166 for air. Automobile and train costs would be \$84 and \$121 respectively. What really matters, however, is the perceived cost. This is often lower than the actual cost as a result of subsidy. In the case of the automobile, this "subsidy"—in the form of the sunk cost of the vehicle—is not normally taken into account when making an intercity transportation decision. In the case of rail, Commission figures suggest that the Montreal to Toronto cost in the year 2000 will be reduced by subsidy to a fare of only \$59.

Question 11—*What are the prospects for the institution of tolls on existing highways in the corridor to reduce congestion and enhance the viability of the public modes? What level of tolls would be needed to achieve these goals?*

3. Transportation Policy

Travel choices and modes are shaped in large measure by public policies and powers to plan, own/operate, regulate or support transportation facilities and systems. The involvement of governments in these areas tends to wax and wane according to the ascendancy of cost-efficiency over other values such as regional development, stability of service, nation-building etc. The public mood has once again swung back in favour of private market-driven methods of directing and/or controlling the demand and the supply of transportation services.

The following are the traditional areas of government transportation policy:

Planning policy. The scope of public planning initiatives will have profound effects on the shape of the future corridor transportation network. The planning continuum may run from piecemeal development along jurisdictional and modal lines to the possibility of some visionary inter-governmental cross-modal initiative that would seek to co-ordinate the modes in a balanced evolution. In this connection we might ask:

Question 12—*What level of government involvement will predominate in the future development of corridor transportation systems?*

Question 13—*Will planning responsibilities be assigned to "the lowest level of government that can efficiently handle them, be that municipal, regional, territorial, provincial or federal, or a combination of these," or in some other fashion?¹⁰*

Question 14—*What consultative mechanisms will there be to plan and implement public initiatives in the most cost-effective manner?*

Question 15—*Are we moving towards comprehensive planning of systems and modes on an integrated basis, or will public planning responsibilities continue to be fragmented among various jurisdictions as at present?*

Question 16—*Will we see the development of multimodal terminals with good transit/intercity co-ordination, development of package fares (e.g., including car rentals) and integrated baggage handling to shift people from private to public modes of intercity transportation?*

Planning is influenced to a certain extent by technologies that have demonstrated their effectiveness in facilitating the design, construction, operation, or control of passenger transportation systems. Government is also an influential partner in funding research and development of new technologies, hence the double arrows between the "Transportation Policy" and "Transportation Technology" boxes in Exhibit 1.

Crown ownership and operating policy. This may range from full Crown ownership and operation of all major transportation facilities and services to fullscale privatization. We have to determine how we can maximize the productivity of investment in transportation infrastructure through an optimum mix of private or public/private sector involvement by mode. Ontario has just announced plans to establish an "Ontario Transportation Capital Corporation" to finance and manage its highways on a self-sustaining basis.

Question 17—*Will this lead to regulated monopolies, perhaps modelled along hydro or phone company lines, able to electronically monitor road vehicles and periodically bill customers for highway use?*

Question 18—*Will there be any new privately-developed highways in future?*

Question 19—*Will rail infrastructure be separated from rail operations in the future?*

Question 20—*Will there be a separate "Canadian Air Navigation Corporation" to run the nation's air traffic control network?*

Government regulatory policy in terms of both economic and technical/safety regulation. The issue is whether the prevailing deregulatory philosophy of the National Transportation Act (1987) and the Royal Commission recommendations will have effect throughout the period 2005-2025.

Question 21—*Will regulation continue to focus on competition between modes, or will it move towards policies of modal integration and co-operation designed to achieve what is, in effect, already taking place in the freight sector through containerization?*

Question 22—*Will the intercity bus industry be deregulated, and if so when?*

Government support policy. Federal subsidies for transportation alone are currently around \$1.5-1.7 billion per annum. The degree of cost recovery may fall anywhere within a range from zero to full recovery of the social and environmental costs of transportation facilities and services provided at public expense. At the present time, the NTA requires the government to recover a "fair proportion" of the costs of transportation facilities and services provided to carriers and modes at public expense. Current imbalances between the passenger modes arise from VIA subsidies and the way infrastructure is provided and paid for in this country.

Question 23—*How will funding priorities evolve between the provision of freight and passenger transportation facilities and services?*

Recovery of public costs may be achieved through one, or a combination, of the following strategies:

User charges (e.g., roadway pricing through tolls, fuel taxes, mode-specific taxes for other modes);

Non user subsidies from income or sales taxes, tax-exemptions through accelerated depreciation, tax-exempt bonds, loan guarantees, etc.;

Special benefit fees (e.g., land value capture, developer exactions such as donations of rights-of-way, etc.);

Private enterprise participation (e.g., public/private ventures, tax-exempt multimodal transportation corporations);

Debt financing.

Question 24—*What changes will occur in fuel and tire taxes?*

Question 25—*Will user charge revenues be earmarked in trust fund accounts in this country as practiced in the United States?*

Question 26—*Will future subsidies, if any, be paid directly to the users, incorporated into contracts by open bidding, or applied in some other manner?*

Question 27—*Can land banking of peripheral lands (e.g., around airports) become a viable method of funding transportation infrastructure in the future?*

Question 28—*Will we see increased interest in private participation in the provision of transportation infrastructure in future (as is already happening in the air mode)?*

Question 29—*Will we see a shift towards debt financing of transportation infrastructure as in the U.S. (e.g., with bonding of toll/fuel tax revenues)?*

The following specific issues or problem areas are also particularly relevant:

Future of VIA subsidies;

Question 30—*Will we see the elimination of VIA subsidies within ten years as proposed by the Commission?*

Possibility of full highway cost recovery (although this is a Commission recommendation, it would seem unlikely to benefit the public modes unless the perceived cost of using the car is raised substantially);

Question 31—*Will highway pricing structures reflect the perceived or actual costs of using the highway?*

"Yield management" techniques to maximize the efficient use of transportation facilities in the corridor on an integral basis. By pricing high yield, a transportation authority could moderate automobile travel, should desire, by channeling highway dollars to a public mode. (This would appear in line with the values of the present NDP government of Ontario).

Question 32—What is the likelihood of such developments?

4. Transportation Technology

Transportation technology is an important determinant of traffic demand and government policy over the longer term. It is influenced by social values and by the direction of government policy in the field of transportation regulation and of research and development. Technological developments that may have implications with regard to the development of transportation facilities in the corridor include techniques of expanding the capacity of facilities, mitigating the environmental effects of travel activity and improving system performance and control.

Expanding the capacity of existing facilities. Operational improvements designed to increase the capacity of existing terminals and highways is one way of reducing the huge costs of transportation infrastructure. Intelligent Vehicle Highway Systems (IVHS), for example, have been suggested to increase the capacity of the highway, thus reducing congestion and increasing safety of transportation rights-of-way.¹¹ Potential includes:

Driver augmentation systems, including driver information systems, automated route planning and guidance, in-vehicle navigation systems, collision avoidance, night vision, lane following, adaptive speed controls, of these systems are currently under test in the United States and elsewhere (e.g., the PATHFINDER program in California). This leads to systems of

Automatic vehicle control (AVC) or "smart cars" that provide vehicle spacings, faster speeds and finally to,

"Automatic highways" as proposed, for example, by the PROMETHEUS program in Europe (Program for European Traffic with Highest and Unprecedented Safety).

Mitigating the environmental effects of travel activity. Concern for environmental protection and petroleum-based fuel conservation has spawned a number of attempts to promote "clean" fuels (including ethanol) and to improve the energy efficiency of cars and airplanes through "clean" technologies:

Lower weights. New aluminium/lithium alloys, and designer materials such as thermoset and thermoplastic polymers and fibre-reinforced composites are on the horizon;

Lower performance requirements. High speed flywheels used as a floating energy store in conjunction with constant output conventional sources could allow vehicles to operate at lower horsepower;

Improved propulsion efficiency. Ceramics may be used in internal combustion and gas turbine engines in the future. Alternative fuels will become more important as the supply of petroleum product declines.

Improving System Performance and Control. Developments currently under consideration include the possibility of:

New short-haul aircraft technologies and systems such as the use of Vertical Take off and Landing aircraft for downtown to downtown travel (the "Vertiport" idea). The first civil tiltrotor aircraft is scheduled for certification towards the end of the century;

New techniques of demand management designed to "take the wheels off the wagon." Ridesharing, public education, appropriate land use planning, improved vehicle monitoring and billing systems for highway use, etc. have been mooted. One government respondent in our discussions with stakeholders suggested that demand management could eventually be expanded into a "yield management" scheme to optimize demand and supply on a multimodal network basis;

Improved (more cost efficient) engineering/construction techniques and practices to reduce the costs of transportation infrastructure.

Question 33—Will sufficient R & D funds be available, and if so, what are the prospects for some of these developments? How will they effect transportation in the corridor?

5. Travel Demand by Mode

Travel demand is the prime focus for the Forecasting consultant teams working on the High Speed Rail Project. Travel demand is important for our purposes to the extent that, over the longer term, it provides the context within which transportation policies and technologies evolve (as represented in Exhibit 1 by the appropriate arrows). It is also sensitive to certain policy and technology initiatives.

As already discussed, demand over the longer term is governed largely by demographic/economic factors and the value preferences behind modal choice. This is represented in Exhibit 1 by the boxes marked "Values" and "Socio-economic determinants."

The Commission report expresses doubt that there will be dramatic change in the way Canadians travel in the next 30 years. "Markets will continue to change, but the providers of passenger transportation services are unlikely to face dramatic shifts in demand or radically new forms of travel in the near future."¹²

Question 34—*To what extent is this a valid observation?*

6. Transportation Supply Response

The demand for transportation draws a response in the form of modal services and facilities. There is clearly a certain amount of mutual influence and feedback between the two sides of this equation, as indicated by the bi-directional arrows between the "Travel Demand by Mode" and the "Transportation Supply Response" boxes of Exhibit 1. The existing corridor services have already been described briefly under section C above. Collective insight into the cumulative effects of the various transportation determinants reviewed above transports us to a future vision of transportation in the years 2005 to 2025. The parameters of this future network will be defined by the answers given to the following questions:

Question 35—*How will the modal split in the corridor evolve during the period 2005-2025? Will there be any new modes?*

Question 36—*Assuming deregulation of the intercity bus industry, what markets will each mode serve?*

Question 37—*How will changes in costs and productivity affect fares?*

Question 38—*Will these costs/fares include a provision to recover the full environmental costs associated with the use of these modes?*

Question 39—*What equipment and equipment configurations will be in operation in the corridor? How will the capacity of public mode equipment change?*

Question 40—*How is the frequency of service by mode likely to change in the corridor?*

Question 41—*Will line haul times between cities in the corridor change materially?*

Question 43—*How will downtime to downtime travel time for each of the private and public modes change?*

Question 44—*What is likely to happen to the cost of parking at downtown/airports locations?*

7. Future Corridor Network

The various answers to these and other questions—mediated by all the other factors mentioned above—will determine the future transportation network in the Quebec—Windsor corridor. Evolution is thus seen to be primarily dependent on the rules of the transportation game as these are elaborated in regulatory and financial policy, enshrined in statute, and gradually institutionalized in the administrative and financial structures that govern the operations of the transportation system.

¹*Directions, Vol. 1, p. 28.*

²*Directions, Vol. 2, p. 49.*

³*U.S. Department of Transportation, Moving America: New Directions, New Opportunities. Vol. 1, Building the National Transportation Policy, Washington, D.C. 1990, p. 9.*

⁴*Pierre Zalatan and Michelle D'Amico, Québec/Ontario High Speed Rail Project: Socio-Economic Variables. Forecasts for 2005 and 2025: Three Scenarios. Ottawa, December 1992.*

⁵*Transport Canada. Québec/Ontario High Speed Rail Project: Socio-economic Variables, Forecasts for 2005 and 2025 Three Scenarios. Economic Analysis Directorate, December 1992, p. 14.*

⁶*Transport Canada, Op cit, p. 13.*

⁷*Directions, Vol. 1, p. 28.*

⁸*Canadian Institute of Guided Ground Transport, Modal Integration in Passenger Transportation: a Discussion of Key Issues. CIGGT Publication No. 91-09, submitted to Economic Research Branch, Transport Canada, February 1992, p. vi.*

⁹*Directions Vol. 1, p. 216.*

¹⁰*Directions, Vol. 1, p. 10.*

¹¹*The Federal Ministry of Transport currently has 34 IVHS related projects underway with a total value of \$2 million. The Department of Communications' Communications Research Centre has undertaken an IVHS research program looking at communication of information to vehicles. Ontario's Ministry of Transportation is launching the TravelGuide project. Vapour Canada/FP Electronics is testing a communications system for electronic licence plates. Québec's Ministère des transports has a project relating to traffic and road construction in Montreal. In the United States, IVHS America published a June 1992 "Strategic Plan for Intelligent Vehicle-Highway Systems in the United States" on behalf of the U.S. Dept. of Transportation.*

¹²*Royal Commission on National Passenger Transportation Directions, Vol 1, p. 29.*

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Appendix B—List of Stakeholders Consulted

A. Carriers

1. Intercity Bus

| | | |
|-------------------|---|--------------------------------|
| Chatham Coach | ▶ | Reg Denure, President |
| Gray Coach | ▶ | William Verrier, Vice-Chairman |
| Greyhound | ▶ | Roger Pike, Vice-President |
| Orléans Express | ▶ | Sylvain Langis |
| Voyageur Colonial | ▶ | Don Haire, President |

2. Rail

| | | |
|----------|---|--|
| Via Rail | ▶ | Steve Delbosco |
| | ▶ | Gerry Kolaitis, Director, Strategic & Financial Management |
| | ▶ | Gabor Matayas |
| | ▶ | John Udell |

3. Air

| | | |
|-------------------|---|--|
| Air Canada | ▶ | (unavailable to date) |
| Canadian Airlines | ▶ | Robert Hamilton |
| | ▶ | Peter Wallace, Vice-President, Government and Regulatory Affairs |
| Nationair | ▶ | Daniel-Yves Durand, Vice-President, Public Affairs |
| Pem-Air | ▶ | D. A. O'Brian |
| Skycraft | ▶ | (unavailable to date) |

B. Government

1. Federal Government

- | | |
|---|--|
| Transport Canada | ▶ Clyde McElman, Director, Rail Policy & Programs Branch |
| | ▶ Ian Henderson, Director General, Airports Corporate Management |
| Environmental Review Agency | ▶ John Connelly |
| Transportation Development Agency | ▶ Brian Marshall, Senior, Projects Officer |
| | ▶ Barry Myers, Senior, Project Officer |
| Royal Commission on National Passenger Transportation | ▶ John Sargeant, Director of Research |

2. Provincial Government

- | | |
|---------------------------------------|---|
| Ministry of Transportation of Ontario | ▶ Ian Chadwick, Director, Passenger Transportation Policy |
| Ministère des Transports du Québec | ▶ Liguori Hinse, Sous-ministre adjoint, Direction générale du transport terrestre |
| | ▶ Michel Auclair, Service des politiques en transport des personnes |

C. Other

- | | |
|--------------------------------------|----------------------------------|
| Transportation Association of Canada | ▶ Norm Brown, Executive Director |
|--------------------------------------|----------------------------------|

Appendix C—Existing Passenger Service

A. Bus Services (Orléans Express, Voyageur Colonial, Greyhound, Gray Coach Lines, Chatham Coach)

- ▶ Orléans Express provides service between Montreal and Quebec City with 125 westbound departures and 129 eastbound departures per week. Express buses depart hourly through most of the day, and there is one local trip daily in each direction. Service is provided with a mixture of conventional and articulated equipment.
- ▶ Voyageur Colonial Ltd. provides service between Montreal and Ottawa with 154 westbound departures and 147 eastbound departures per week. Express buses depart hourly through most of the day, and there are three local trips daily in each direction. Voyageur also has an Ottawa–Mirabel express service with three departures daily in each direction.
- ▶ Voyageur Colonial Ltd. provides service between Montreal and Toronto with 72 westbound departures and 65 eastbound departures per week. There is one local trip per day in the westbound direction only.
- ▶ Voyageur Colonial Ltd. provides service between Toronto and Ottawa with 76 westbound departures and 73 eastbound departures per week. Approximately one quarter of these departures are local trips, with the remainder being express services.
- ▶ Voyageur Colonial Ltd. provides service from Kingston to Ottawa with 15 local departures per week.
- ▶ Voyageur Colonial Ltd. provides service from Kingston to Toronto with 14 departures per week (mixture of express and local).
- ▶ Voyageur Colonial Ltd. provides service from Ottawa to Belleville with 7 local departures per week.
- ▶ Voyageur Colonial Ltd. provides service from Kingston to Montreal with 7 local departures per week.
- ▶ Greyhound provides service between Toronto and London with 44 westbound departures and 36 eastbound departures per week (mix of express and local service).

- ▶ Greyhound provides service between Toronto and Windsor with 49 westbound departures and 56 eastbound departures per week (mix of express and local service).
- ▶ Gray Coach lines provides service between Toronto and Kitchener with 104 westbound express departures and 101 eastbound express departures per week.
- ▶ Chatham Coach Lines provides service between Kitchener and London with 27 departures per week in each direction (primarily local service).
- ▶ Chatham Coach Lines provides service between London and Sarnia with 12 local departures per week in each direction.

B. Rail Services (VIA Rail Canada)

- ▶ There are three daily departures in each direction between Québec and Montreal (North Shore route), plus service six days per week between Levis and Montréal (South Shore route).
- ▶ There are 26 departures per week in each direction between Montreal and Ottawa.
- ▶ There are 38 departures per week in each direction between Montreal and Toronto.
- ▶ There are 25 departures per week in each direction between Ottawa and Toronto.
- ▶ There are 30 departures per week in each direction between Toronto and Windsor.
- ▶ There are two departures daily in each direction between Toronto and Sarnia
- ▶ Between Toronto and London there are forty-nine departures per week in the eastbound direction and forty-eight per week in the westbound direction.

C. Air Services (Air Canada, Canadian Airlines International Ltd., Nationair, Skycraft, Pem-Air)

1. Québec–Montréal

- ▶ Air Canada has 121 departures per week from Quebec to Dorval Airport in Montreal, and 117 departures per week from Dorval to Québec. It also has flights between Quebec and Mirabel Airport, with 27 departures per week in the westbound direction, and 7 departures per week in the eastbound direction.

- ▶ Canadian Airlines has 89 departures per week from Quebec to Dorval Airport in Montreal, and 91 departures per week from Dorval to Québec.

2. Montréal–Ottawa

- ▶ Air Canada has 82 departures per week from Dorval to Ottawa, and 100 departures per week from Ottawa to Dorval. It also has flights between Ottawa and Mirabel, with 13 departures per week in the westbound direction, and 7 departures per week in the eastbound direction.
- ▶ Canadian Airlines has 32 departures per week from Dorval to Ottawa, and 38 departures per week from Ottawa to Dorval.
- ▶ Skycraft flies between Ottawa and Dorval with 10 departures per week in each direction.

3. Montréal–Toronto

- ▶ Air Canada has 120 departures per week from Dorval to Toronto, and 118 departures per week from Toronto to Dorval. It also operates 30 flights per week in each direction between Dorval and the Toronto Island airport.
- ▶ Canadian Airlines has 92 departures per week from Dorval to Toronto, and 84 departures per week from Toronto to Dorval. It also operates between Dorval and Buttonville Airport, with 30 departures per week in the westbound direction and 29 departures per week in the eastbound direction.
- ▶ Nationair has 38 departures per week in each direction between Dorval and Toronto.

4. Ottawa–Toronto

- ▶ Air Canada has 82 departures per week from Ottawa to Toronto, and 90 departures per week from Toronto to Ottawa. It also operates between Ottawa and the Toronto Island Airport, with 52 flights per week in the westbound direction and 46 flights per week in the Eastbound direction.
- ▶ Canadian Airlines has 83 departures per week in each direction between Ottawa and Toronto. It also operates between Ottawa and Buttonville Airport, with 27 departures per week in each direction.

5. Toronto–London

- ▶ Air Canada has 49 departures per week from Toronto to London, and 44 departures per week from London to Toronto. It also operates between London and Toronto Island Airport with 24 westbound and 26 eastbound flights per week.
- ▶ Canadian Airlines has 46 westbound and 47 eastbound departures per week.

Appendix D—Commission Recommendations 4.1 to 4.5

- 4.1 Transportation policies be guided by the following four objectives:
- a) safety;
 - b) protection of the environment;
 - c) fairness to taxpayers, travellers and carriers; and
 - d) efficiency, so that services are provided only where the benefits to the individual traveller equal or exceed the cost, and given levels of service are provided at the lowest possible cost.
- 4.2 Governments pursue nation-building and regional development objectives through other programs, rather than using the passenger transportation system.
- 4.3 Each traveller pay the full cost of his or her travel, and travellers, in total, pay the full cost of the passenger transportation system, including those costs related to protecting the environment, safety and accidents.
- 4.4 Travellers with physical or mental disabilities have opportunities similar to those enjoyed by all Canadians to use public passenger transportation.
- 4.5 Competition and market forces be the prime agents in providing viable and efficient carrier services:
- a) anyone "fit, willing and able" to supply passenger carrier services have an opportunity to do so;
 - b) carriers (including private car and private airplane owners) pay their share of the full cost of the terminals, links and traffic control services that they use, as well as any costs related to environmental damage, safety and accidents;
 - c) as long as they are willing to pay their share of the costs, carriers have equal access to terminals, links and traffic control services; and
 - d) anyone providing carrier services be able to withdraw these services, without undue delay, but with adequate notice to the public.