SUMMARY

Freight Transport in Québec

ISSUES IN CONTEXT

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MINISTÈRE DES TRANSPORTS DIRECTION DE L'OBSERVATOIRE EN TRANSPORT SERVICE DE L'INNOVATION ET DE LA DOCUMENTATION 700, Boul. René-Lévesque Est, 21e étage Québec (Québec) G1R 5H1

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FOREWORD

The Direction de la mobilité en transport is making public a document dealing with the issues of freight transport in Québec. The document is a recent update based on the work in 1997 and 1998 of a team at the Direction de la mobilité en transport.

For the first time, a comprehensive view of all of the department's concerns related to multimodal freight transport is presented. Based on an examination of the overall context and the main trends affecting transport supply and demand, the document analyses the various aspects of department intervention in freight transport and points out the main issues and challenges the department must face in this field in the year 2000.

I trust that this publication will make possible fruitful discussions on the major challenges of tomorrow and the ways in which the department can best ensure the mobility of goods in Québec.

Jacques Pelletier Director Direction de la mobilité en transport

1. INTRODUCTION

Freight transport poses very specific when with concerns compared Québec transport. passenger government action regarding passenger transport fits into a dynamic of regional and local movement, and government financing. It's action with regard to freight transport, however, must take into account a very competitive global economic environment fostered by economic deregulation. This means that concerns must be addressed not only within Québec and on a pan-Canadian scale, but also internationally. Another consideration is that goods are moved essentially by the private sector, which is also responsible for investment decisions. Furthermore, there has been significant and rapid change in the types of services demanded by shippers, leading to substantial adjustments at the "supply" end of transportation. A final factor, at the institutional level, is the new federal policy, which affects all modes of freight transport and increases the need for a new vision.

The following pages deal with the overall problem of multimodal freight transport in Québec, analysing it from the perspective of the department's current jurisdiction. This means that particular attention is paid to freight transport by land, i.e. by rail and by road. Specific issues are considered in light of a shipper-oriented vision. In addition. the department's role is within situated а government perspective.

First, the major economic, political, social and technological trends and their influence on the supply and demand of freiaht transport are described. Particular emphasis is placed on the of freight transport characteristics demand, considering that transport infrastructures and systems exist to shippers and constitute а serve significant tool for Québec's economic development. Second, a summary of the freight transport infrastructures and systems in Québec is provided. Third, for department the framework intervention in freight transport is briefly explained. The final part of the summary deals with the major issues to be faced.

This booklet is a support document for the activities of the working group on the integration of road and rail transport. We trust it will provide useful guidance for those activities.

2. CONTEXT

A multitude of external factors influence the direction freight transport is taking in Québec. Because it is dependent on other economic sectors, its level of activity and characteristics are directly determined by general economic trends. And, like all other sectors, freight transport is influenced by the prevailing political, social and technological environment in Québec.

2.1 Economic context

Significant change in the economic environment is thoroughly transforming freight transport demand in Québec.

The main factors are internationalization of the economy, structural changes and new logistics practices. The following table summarizes these factors and their impact on transport demand.

Table 1Main factors in the economic environment and their impact on
demand

FACTORS	ІМРАСТ
 Internationalization Trade agreements Rapid growth of external trade 	 Tonnes/km and average distances for international traffic are growing Main flow north-south rather than eastwest
Structural changes	
 Tertiarization A manufacturing sector: relying heavily on natural resources with high-tech industries gaining in importance 	 Slower growth in volume Growth of tonnage in absolute figures (natural resources) Increased value of movements
Logistic practices by shippers Just-in-time Partnership with carriers 	 Increase in number of small-size shipments Quest for high-quality transport services: reliability, frequency, transit time

Internationalization

Québec's economy has always been characterized by great openness to outside markets. Over the last decade, significant changes in trade rules have this openness accentuated and Québec's reinforced, particular, in into economic integration North Trade rules have been America. liberalized at three levels: multilaterally, through the World Trade Organization (formerly GATT); in North America, through the Free Trade Agreement (FTA) and the North American Free Trade Agreement (NAFTA); and in Canada, through the Agreement on Internal Trade (AIT).

These external trade developments have favoured international trade, which rose from 43% of GDP to 71% between 1981 and 1995, while interprovincial trade fell from 48% to 45%. From the standpoint of international trade alone, economy is verv Québec's open compared with other Western economies, given that the degree of openness of the G-7 countries as a whole (in terms of value of international trade as a percentage of GDP) is 35%.

The ongoing reorganization of production and distribution throughout North America favours north-south movement over east-west movement. Volumes for international transport are increasing, as are distances travelled.

Structural changes

Given their size and industrial structure, Canada and Québec are major consumers of transport services. Their economies are transport-intensive in comparison with most others. The situation in Canada, with a transport intensity of 0.9 tonne-kilometres/dollar of GNP, is similar to that in countries like Australia and Russia; Canada's transport intensity is 25% to 40% higher than that of the United States and greater by far than that of European countries (0.2ⁱ tonne-kilometres/dollar of GNP).

Among the major changes that have affected Québec's economy in recent decades, tertiarization has no doubt had the most pervasive influence. From 1961 to 1994, the tertiary sector's share of GDP rose from 56.6% to 72.35%, while the manufacturing sector's share fell from 37% to 24.6% and the primary sector's, from 6.3% to 3.1%.ⁱⁱ

The manufacturing sector has seen a growing share of its production provided by higher-value, high-tech industries (aerospace, electronic and communications equipment, computers and pharmaceuticals), whose share reached 11.8% in 1992, up from 4.4% in 1976. This growth was at the expense of low-tech industries (traditional or natural resource-based: lumber, paper, primary metal processing, food, textiles), whose share of manufacturing GDP fell from 58.2% to 52.5% over the same period. Nevertheless, the low-tech sector is still very significant in Québec in comparison with the rest of Canada and with the G-5 countries, which registered production figures of 45.8% and 38% in this sector, respectively. This reflects the very great importance natural resource-based industries continue to have in Québec.

The transformation of Québec's economic structure in favour of the tertiary sector and a high-tech secondary sector has appreciably altered transport demand. The relative importance of bulky, heavy goods has decreased. It is in this sense that one can speak of "dematerialization" as we move into a service economy. Generally speaking,

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i JOSEPH, Jones. Canadian Institute of Guided Ground Transport, Queen's University.

MINISTÈRE DES FINANCES. L'économie du Québec : revue des principales tendances, 1996, p. 41.

the economy is becoming centred around less transport-intensive sectors. As a result, shipments are expected to decrease in average weight and volume, and increase in value.

Nevertheless, even though their relative the economy importance in is diminishing. natural resource-based industries have seen a continuing increase in their production volumes over the last ten years. These industries remain responsible for a significant proportion of the total volume of goods transported, particularly from outlying regions.

New logistics practices

In today's global economy, Québec shippers, driven by competition and influenced by developments in information technology, are attaching greater importance to logistics and are reexamining all of their supply and distribution processes. In this context, transport is no longer considered in isolation, but as an integral part of the logistics system. The new practices are changing the types of transport services in demand and influencing shippercarrier relations.

consequences for transport The demand are many. Restocking is more frequent (the number of shipments is increasing) and shipment sizes are decreasing. With respect to services, greater demands are being made with regard to reliability, delivery times and The conditionina. ever increasing integration of transport into logistics is increasing the demand for value-added logistics services.

Effects on transport infrastructures and systems

These changes in freight transport demand have an impact on the transport infrastructures and systems designed to meet it.

With regard to modes of transport, it is clear that changes in demand, i.e. the focus on more rapid, flexible and reliable transport, continue to favour trucking on a North American scale. However, rail transport remains essential for hauling heavy goods over long distances and for meeting the demand for intermodality in land movements for international trade, the main growth niche for rail transport. International maritime transport is continuing to take advantage of the excellent navigation corridor provided by the St. Lawrence River in order to meet the needs of Québec's economy, as well as for transit, although it cannot rely on the same growth prospects as offered at West Coast ports serving Asia.

Transport infrastructures and systems that support external commerce are increasing in importance, particularly those that serve Québec's main trade corridors.

The Montréal region is particularly affected, because it is both a multimodal transport hub for external markets and Québec's main manufacturing centre. The road infrastructures in the Montréal region must support, among others, the needs related to external trade, a significant portion of which flows through the region, and adequate service of intermodal nodes must be assured. Outlying regions must also have infrastructures and systems linking them effectively to external markets.

Transport needs tied to the new logistics approaches that enterprises are taking demand that the multimodal freight transport system be better integrated and coordinated while offering a more diversified range of services. The demand for high quality services and complete, integrated logistics services poses a major challenge for the Québec transport industry, which must meet it or see the related markets slip through its fingers.

2.2 Political context

Several elements in the political context condition interventions in freight transport.

Federal reform of transportation

Historically, the federal government has played a significant role in funding and operating the maritime, air and rail transport infrastructures and services under its jurisdiction. In response to budgetary imperatives, however, its intervention has radically changed over the years. The federal government has decreased its involvement by privatizing some activities and by transferring responsibility for ports and airports to local, regional or provincial entities. Its aim has been to withdraw from purely operational activities and concentrate, notably. on policy, safety and protection. environmental This disengagement has made it possible to considerably reduce Transport Canada's budget and personnel by eliminating direct transport subsidies (\$1.6 billion per year) and commercializing the largest possible number of activities.

Major trends in public sector management

Public sector management is feeling the impact of several major trends, such as the drive toward greater effectiveness and efficiency, the struggle to eliminate budget deficits and the lack of faith in government, together with its corollary, recourse to the private sector. An OECD working groupⁱⁱⁱ has reported on the initiatives various countries have taken to guide their reform of public services: transfer of jurisdiction, increased flexibility, implementation of performance criteria, development of competition and improved quality of regulations. The Québec government subscribes to these policy directions.

Québec government priorities

In Québec, the policy directions (1999-2002)^w that the government has adopted are in part conditioned by the major trends mentioned above. Five large-scale objectives are being sought: to foster economic and social prosperity by spurring economic development and job creation, to continue to build a more just society that assumes responsibility for its most disadvantaged members, to provide leeway for the state once again by putting public finances in order, to serve Quebecers better through competitively priced public services that are adapted to the new needs, and, finally, to preserve and promote the various traits that characterize Québec society. Although transport is not directly identified as a priority, it is nevertheless connected with three of the main objectives, namely, economic prosperity, public finance and public services at competitive prices.

2.3 Social context

A similar conditioning influence is exercised by the social context, whose principal dimensions are safety, environmental protection and social equity.

iii Governance in Transition: Public Management Reforms in OECD Countries (1995).

iv GOUVERNEMENT DU QUÉBEC, Secrétariat du Comité des priorités, Lignes directrices et rappel des orientations stratégiques 1999-2002.

Safety

Public safety is an important aspect of the government's social mission. In the last 20 years or so, transportation safety aimed at drivers. measures carriers and vehicles infrastructures. have had a major positive impact. society is increasingly However, demanding and extremely sensitive to road and rail accidents. Government policy must take into account the constant demands of interest groups in this regard.

A first report on the safety of all modes of freight transport revealed that road accidents involving trucks accounted for 75% to 80% of all fatal accidents in this sector in 1995. For the same year, 130 fatal accidents and about 15 000^v accidents of all levels of seriousness were attributed to trucking.

Environmental protection

The creation of Québec's ministère de l'Environnement in 1979 raised awareness of environmental concerns and helped integrate them into a majority of people's activities. The notion of sustainable development for the benefit of future generations was proposed by the World Commission on Environment and Development (Bruntland, 1987) and reaffirmed at the Earth Summit in Rio de Janeiro (1992). These two events gave international exposure to environmental concerns, essential which were now considerations for a society, such as Québec's, that was open to the world. Following the Rio Summit, the Québec government (Order in Council 1669-92)

adhered to the goal of stabilizing greenhouse gas emissions at the 1990 level by the year 2000. At the recent Kyoto Summit, held in December 1997, the Canadian and Québec governments committed themselves to reducing their greenhouse gas emissions by 6% between 2008 and 2112.

In 1994, freight transport (all modes combined), with a consumption of 145 petajoules, vi accounted for 35% vii of the total energy consumption in the transport sector. Of this total, 75% was attributable to trucking, 19% to maritime transport, 4% to rail transport and 1% to air transport. It is projected that freight consumption, which transport represented one third of the demand for energy in the transport sector in 1991, will represent two fifths of that demand in 2011.

Social equity

Social and regional equity consists in ensuring that people have access to goods and services. Because of Québec's size and the dispersal of its population, freight transport plays a significant role in enabling the state to fulfil its mission in this regard.

3. FREIGHT TRANSPORT INFRASTRUCTURES AND SYSTEMS IN QUÉBEC

In order to ensure the movement of goods within Québec and trade with external markets, Québec has built a transport system composed of a complex network of infrastructures and a versatile transport industry.

v It must be noted, however, that road accidents differ widely, in their nature and characteristics, from accidents that occur in conjunction with rail, maritime or air transport. Data are not always comparable.

vi A petajoule is equivalent to 10^{15} joules. It takes 1 000 000 joules to transport a tonne of goods one kilometre by truck.

vii Data obtained from the ènergy sector of the ministère des Ressources naturelles.

3.1 Road transport

Freight transport is provided, above all, by trucking, which has become the dominant mode of transport in recent decades. Flexibility, rapidity and competitive costs have continued to provide it with an edge over other modes of transport. Trucking handles almost all local and urban freight transport, where very large quantities of goods (more than 100 million tonnes) are transported annually. It ensures, other things. almost all among interurban freight services in Québec (excluding volumes transported bv mining companies operating their own railroads). On the extraprovincial market, trucking moves the most tonnage to and from other provinces, and accounts for a significant proportion of the volume of goods traded with the United States. Internationally, in 1996, the value of goods transported by truck was approximately \$44 billion, or 48% of total Québec trade. Trucking makes a major contribution to Québec's economy not only because of the revenue it generates, but above all because of the mobility it brings to Québec production and trade.

Trucks can count on a vast road network in Québec, with a total length of 165 000 km. Given the growth in road transport, trucks now account for a large percentage of road traffic. As a result, they place a significant and growing burden on roadways and on road safety.

Freight transport by road is ensured by a large number of carriers, close to 50 000, making it a very atomized industry.

3.2 Rail transport

Railways are continuing to play a determining role, particularly in the transport of primary products (lumber, ore), the volumes of which are substantial. They also ensure the transport of heavy manufactured goods or manufactured goods shipped over long distances, as well as providing part of the intermodal chain for container import-export via the port of Montréal. But. although rail transport has successfully maintained its share of the freight transport market in Canada over time, even increasing it in recent years, its market share in Québec has diminished constantly. On the international market, the rail network transports \$11 billion worth of goods, or 12% of the value of Québec's international trade.

The current rationalization of transport services has meant the abandonment of a number of rail lines in Québec that were unprofitable for large carriers and a redistribution of less important lines to new carriers. The ownership of rail infrastructures in Québec is changing rapidly: an increasingly large portion of the rail network belongs to short-line railway companies that are under provincial (Québec) jurisdiction.

Employment in the rail sector is still significant, although it is decreasing constantly. It still benefits from the longstanding presence in Québec of the head offices of Canadian National and of St. Lawrence & Hudson, a CP subsidiary. This situation is sometimes called into question.

3.3 Maritime transport

Because the St. Lawrence River is such an excellent navigation corridor, maritime transport in Québec is oriented above all toward international trade. Its contribution to Québec's GDP for freight transport as a whole has been falling since the 1960s. The value of goods shipped overseas by water represents 21% of Québec's international trade, or \$18 billion, but, in terms of volume, maritime transport accounts for nearly 100% of our exports. Imports and exports of other provinces and of the United States also pass through Québec ports.

Although Québec's port network is comprised of more than 47 ports used for freight transport, four major ports handle most of the volume (76%) of maritime trade. The Port of Montréal is specialized in the handling of general container goods, while the ports of Québec, Sept-Îles and Port-Cartier are used mostly for liquid and solid bulk shipments.

Canadian overseas and internal maritime transport is ensured by foreign or Canadian shipowners whose fleets are registered abroad, while Québec carriers focus on the intraprovincial market and service to isolated regions.

3.4 Air transport

Although rapidly growing, air freight in Québec is still very marginal in volume. Air transport is reserved above all for high-value products that, because of their cost, are sensitive to shipping deadlines, with the result that 15% of Québec's international trade, or \$13 billion worth, is transported by airplane. The percentage is 28% if exports to the United States are excluded. This brings out the extent to which air transport concentrates on high-value products, since the value of goods exported from Québec by air is nearly equivalent to the value of goods transported by sea.

Québec air freight traffic is predominantly international in nature

(82% of the volume handled) and passes through the Dorval and Mirabel airports.

There appears to be some freight activity in regional centres (seven airports) in the Côte-Nord, Bas-Saint-Laurent-Gaspésie, Abitibi-

Témiscamingue and Saguenay-Lac-Saint-Jean regions. However, it should probably be regarded as a by-product of passenger transport.

In the area of express services, road transport has gained a lot of ground and air transport is limited to the Canada-United States market, based in major centres, and to same-day shipping to destinations in Québec.

There is some air freight transport in the Nord-du-Québec and Basse-Côte-Nord regions, primarily for the purpose of supplying isolated areas.

3.5 Intermodal transport

In Québec, 99% of regular intermodal container transport involving a maritimeland connection passes through the Port Montréal, whose geographical of location 1 500 km inland and rail and road links give it an undeniable comparative advantage. A total of 95% of this traffic is international, the container remainder consisting of shipments between Montréal and Newfoundland.

For the Port of Montréal, intermodal transport is the largest freight category in terms of tonnage and added value. Intermodal shipments constitute 40% of all tonnage handled at the port, and 65% of the container traffic in Eastern Canada passes through the Port of Montréal. The recent annual growth rate of container traffic, 8%, is higher than that of bulk shipments. On the whole, container traffic consists of

manufactured products, agrifood products, pulp and paper, semi-finished products and steel. A total of 55% of containers are shipped to or from the United States; the figure is 25% for Ontario and 20% for Québec. It has been estimated that 60% of these containers are moved on land by rail, corresponding to 5 million tonnes of goods in 1996.

With reference to internal intermodal transport, 3.9 million tonnes of goods are carried by rail, and 85% of this amount is container traffic, the rest being piggyback transport (transport of truck trailers).

In addition to container shipments, intermodal transport is used for bulk shipments. Bulk transport through the St. Lawrence system involves complex linkages, as in the intermodal chain for grain, which includes railways, the St. Lawrence Seaway, and elevators at St. Lawrence ports for overseas shipments. This chain competes with routes via Western Canada and the United States (the Mississippi River and the Gulf of Mexico).

Table 1Freight transport supply in Québec

Mode	Infrastructures	Carriers	Labour force	GDP ⁱ
Road transport	 A 165 000-km road network 28 600 km under provincial jurisdiction Autoroutes: 4 701 km Québec highways: 9 958 km Québec highways: 9 958 km Regional roads: 5 785 km Collector roads: 8 156 km 91 000 km under municipal jurisdiction 45 000 km of resource roads 400 km under federal jurisdiction (five bridges) 	 For-hire 7 300 Québec carriers in general trucking, plus 3 300 foreign carriers 8 200 carriers in bulk truckingⁱⁱ Private 35 000 carriers 	 For-hire 33 000 direct jobs for paid employees and about 15 000 for subcontractors and independent workers Private Not available 	\$1 892 million (excluding transport by private carriers)
Rail transport	 A 6 555-km rail network 887 km of main lines 4 855 km of regional and local lines: Canadian National: 2 473 km St. Lawrence & Hudson: 145 km Short-line companies: 1 802 km Québec Central: 380 km (not in operation) Other: 55 km 813 km of company lines 	 19 carriers two Class 1 carriers (CN and StL&H) 12 short-line rail companies five companies operating their own railroads, including four mining companies 	 9 300 direct jobs 6 500 for Class 1 carriers, including about 5 000 in Montréal about 1 250 jobs in short-line rail companies about 1 550 jobs in related services (excluding Via Rail) 	\$640 million (about \$70 million must be subtracted for VIA Rail activities)

i Gross domestic product at the cost of factors in 1994 expressed in 1986 dollars. Source: MTQ. Les transports au Québec, 1997, p. 6.

ii CTQ. Rapport annuel 1997-1998. Number of permit and licence holders (excluding subcontractors).

Table 1 Freight transport supply in Québec (cont.)

Mode	✓ Infrastructures	Carriers	Labour force	GDP
Maritime transport	 A network of 47 ports for freight transport 23 commercial ports: Ports Canada: 5 ports (60% of traffic)ⁱⁱⁱ Transport Canada: 15 ports (15% of traffic)^{iv} Other: 3 ports (Québec government) Bécancour, Valleyfield (municipal), Port-Cartier (private, 20% of traffic) 24 ferry infrastructures and remote area ship services: Transport Canada: 19 ports (9 isolated ports and 10 ferries) Québec government: 5 ports Plus the St. Lawrence Seaway: 4 locks 	 <u>Québec cabotage</u> Maritime services: Groupe Desgagnés, Énerchem, Sonamar, NANUK Ferries and remote area ship services: COGEMA, STQ, CTMA <u>Canadian cabotage</u>: Fednav, Algoma Central, Upper Lakes Shipping, Oceanex, Canada Steamship Lines <u>International traffic</u>: Canadian decision centres: CP Ships, Fednav, CSL International decision centres: a multitude of container carriers (OOCL, Maersk, Sea Land, P&O Nedloyd) and bulk carriers. 	8 400 jobs for freight and passenger transport	\$330 million (including passenger services)
Air transport	 A network of 88 airports Primary network: 39 Fédéral: 19 Major centres: 3 (Montréal airports: 98% of freight traffic) Regional centres: 7 Isolated/remote: 9 Provincial: 20 Isolated: 17 Remote: 2 SDBJ: 1 Local network: 49 (little freight) 	Freight transport handled primarily by regular airlines depending on their passenger transport, and by all-freight air services and courier services.	14 000 jobs for passenger and freight transport.	\$410 million (freight transport is estimated at 10%, or about \$40 million)

iii Montréal, Québec, Trois-Rivières, Sept-Îles, Port Saguenay.

iv In addition to these 15 ports, there are 12 others under Transport Canada jurisdiction with no freight traffic or ferry services.

Table 2Mode characteristics and markets

Mode	Characteristics	Markets and transport flow	Main products
Road transport	Rapid and reliable (hence well-adapted to just-in-time management), and also flexible (making door-to-door service possible on a schedule or on request). The most competitive mode for trips under 1 100 km. Supply is flexible as a result of low fixed fees in comparison with rail. Ready access to any point in North America. More expensive than rail beyond a certain distance.	Intraprovincial market (interurban) For-hire 39 million tonnes ^v Private 18 million tonnes ^{vi} Note: Urban transport, in comparison, is a market of over 100 million tonnes ^{vii} Interprovincial market For-hire 19 million tonnes ^{viii} Private 3 million tonnes ^{viii} Private 19 million tonnes ^{viii} Private 1 million tonnes ^{ix} International market For-hire 11 million tonnes ^x - ^{xii} Private 1 million tonnes ^{xiii} Total: 91 million tonnes for the interurban market, including 69 million for for-hire transport	Intraprovincial market (interurban) Rough lumber, petroleum products, nonmetallic minerals (sand, gravel, etc.) Interprovincial market General goods, iron, steel and alloys, paper and cardboard, nonmetallic minerals, semifinished wood products International market North-South: paper and cardboard, textiles, nonferrous metals, semifinished wood products, iron, steel and alloys South-North: Unclassed general freight, automobiles, vegetables, other food
Rail transport	Relatively cheap, well adapted to long distances and to heavy goods, in large quantities, that are less time- sensitive. Provides access to the whole of North America. Requires large, long-term contracts because of significant inherent fixed costs.	 Intraprovincial market A total of 52 million tonnes: 5 million by CN and StL&H 7 million by short-line rail companies^{xiii} 40 million by North Shore mining companies (private) Interprovincial market 15 million tonnes International market 15 million tonnes Total: 82 million tonnes, including 35 million tonnes by CN and StL&H 	Intraprovincial market ^{xiv} Wood chips, ore, wood pulp, newsprint <u>Interprovincial market</u> Timber, automobiles and parts, salt, sulphuric acid, wood pulp, cereals, ore, containerized products <u>International market</u> Newsprint, timber, aluminum, automobiles and parts, containerized products

v Statistics Canada data for 1996 adjusted to take account of small carriers (with revenues between \$100 000 and \$1 million). Carriers with \$1 million in revenue or more transported 26 million tonnes in this market.

vi Estimate based on the 1995 CCMTA survey of trucking.

vii According to a 1993 study on freight transport in the Montréal region, carriers (for-hire and private) in that region transported 83 million tonnes of freight with vehicles whose net weight was 3 000 kg or more.

viii Statistics Canada data for 1996 adjusted to take account of small carriers (with revenues between \$100 000 and \$1 million). Carriers with \$1 million in revenue or more transported 17 million tonnes in this market.

ix Estimate based on the 1995 CCMTA survey of trucking.

x Statistics Canada data for 1996 adjusted to take account of small carriers (with revenues between \$100 000 and \$1 million). Carriers with \$1 million in revenue or more transported 10 million tonnes in this market.

- xi Excluding activities of American carriers, or 30% to 40% of the market.
- xii Estimate based on the 1995 CCMTA survey of trucking.

xiii A large part of this trade turns up in the tonnages indicated for interprovincial and international markets.

xiv Statistics Canada (52-216), Rail in Canada, 1994.

Table 2Mode characteristics and markets (cont.)

Mode	Characteristics	Markets and transport flow	Main products
Maritime transport	The least expensive per tonne. Particularly adapted to the massive transport of large quantities of heavy goods. Indispensable for international trade overseas. International container traffic is rapid and integrated into worldwide company logistics.	Intraprovincial market (Québec cabotage) • 7 million tonnes Interprovincial market (Canadian cabotage and preshipments for international markets) • 15 million tonnes International market (excluding direct transit) • 81 million tonnes Total: 103 million tonnes	Intraprovincial market (Québec cabotage)Petroleum products, ore, semifinished metal products, paper and waste paperInterprovincial market (Canadian cabotage)Cereals, iron oreInternational market (excluding transit)Iron ore, petroleum products, cereals, containerized products, newsprint ^{xv}
Air transport	The most expensive. Very rapid, well adapted to goods that are very time-sensitive, perishable or high value- added. Within Québec, this mode serves certain destinations that are inaccessible by road.	Intraprovincial market • 11 000 tonnes Interprovincial market • 31 000 tonnes International market • 194 000 tonnes Total: 236 000 tonnes (EEC study, 1995)	International exports (high- value) Airplanes, telecommunications equipment, electronic components, electronic equipment, electronic machinery, pharmaceuticals

xv Statistics Canada (54-205), Shipping in Canada, 1994.

4. FRAMEWORK FOR INTERVENTION

The scope of the Québec government's action in this sector is determined by its iurisdiction within the institutional framework governing freight transport. Jurisdiction is shared among the various levels of government. Broadly speaking, by virtue of the jurisdiction given each level of government and the powers delegated to the provinces, interprovincial and international transport is the responsibility of the federal government, while intraprovincial transport, with the exception of air transport, is under Québec government responsibility. Québec also has jurisdiction to legislate with respect to road use and road safety.

The overall framework for the department's intervention is determined by its mission: to ensure the transport of and freight through people the development, planning and operation of integrated, reliable and safe transport infrastructures and systems that contribute to the economic and social development of Québec and its regions. This mission must be carried out with a constant concern for the impact of departmental actions on land use planning and the environmentⁱ

Thus, there are four major government concerns to which departmental action should be geared: economic development, safety, the environment and social equity.

Within its jurisdiction and given its mission, the department must focus its intervention on a certain number of areas. These areas have been identified by asking the following question: What are the main aspects of freight transport that the department must consider in order to carry out its mission? Nine areas have been identified, which are either major components of government intervention (regulatory and framework. administrative harmonization, protection of interests and promotion, infrastructures, taxation and funding) or particularly strategic dimensions of the freight transport market on which government action can be taken (human resources, technology, intermodality and logistics).

The overall problem linked to the major concerns of the department and to the areas of government action has been given detailed treatment in the main document which need not be repeated here. The following section will take up the main elements of that problem in order to explain the underlying issues.

5. ISSUES AND CHALLENGES

Given the foregoing analysis, what are the major issues facing the department in the field of freight transport? The answer to this question will make possible a summary of the areas where action is needed in light of the major trends in freight transport. This approach will make it easier for the department to identify the action it intends to pursue in the coming years.

As we have seen, the context for the issues and challenges is one of rapid change, both in the freight transport market (impact of internationalization of the economy, information technologies, etc.) and in the role played by the various governments (reform at the federal level, deregulation, etc.).

Considering that the department's intervention must attain the chief government objectives that are part of its mission, namely economic development, safety, environmental

i Ministère des Transports du Québec. Plan stratégique 1997-2000, December 1996.

protection and social equity, the issues and challenges are presented below in terms of these main government concerns. A final section deals with the specific issues raised by the need to strike a balance between these objectives.

5.1 Economic development issues: a transport vision geared to shippers' needs

Freight transport is vital to Québec's economy. Without it, stores would run out of stock and manufacturing facilities would be unable to bring in raw materials or ship their products locally or to external markets. In a word, the economy would grind to a halt. Ensuring the effectiveness of freight transport therefore constitutes a significant aspect of the economic mission of the state.

It is an accepted fact that highperformance infrastructures and a competitive and efficient transport industry can be significant catalysts for development in today's economy, where economic activity is increasingly mobile and dependent on the international character of the specialization of production.

The needs of freight transport users are changing rapidly. The contribution of freight transport to development in Québec will depend on the adoption by the department and the government of a transport vision that is more closely geared to the needs of shippers and to the interventions required to meet those needs.

This means that the department must deal with a certain number of more specific issues and challenges so that freight transport can contribute adequately to Québec's economic development in the years ahead.

ISSUE: a competitive and strong freight transport industry in Québec

In order to serve external markets effectively and meet internal demand, transport service users, whether they are manufacturers, distributors or developers of natural resources, must be able to rely on a competitive and strong transport industry, i.e. an industry able to offer low-cost, high quality transport services that meet users' needs.

A competitive and strong Québec transport industry will also maintain and create direct and indirect jobs in Québec, which will in turn contribute to a dynamic Québec economy. The following challenges arise from this issue.

The regulatory framework

 An effective transport oversight system in a context of economic deregulation, in which administrative relations with the state are simplified and priority is given to relaxation of prescriptive standards.

With a view to making Québec shippers more competitive, the government, through the Act respecting owners and operators of heavy vehicles (S.Q., 1998, c.40), adopted in June 1998, continued the economic deregulation of the transport industry begun about a decade ago. The economic regulation of general trucking was significantly reduced in 1988, with the coming into force of new Canadian and Québec legislation that redefined the rules of access to the market. In 1996, the Agreement on Internal Trade. through its implementation act, set forth a timetable that led to an almost complete economic deregulation of trucking and cabotage.

In the new context, efforts should focus on oversight of companies without inordinately affecting their profitability through excessive control measures.

Reducing regulatory and the imposed administrative burden on companies is still a current issue. The to simplify government is aiming administrative procedures and, for that purpose, has adopted a policy on regulatory activity and created the Secrétariat à la déréglementation. The reduction in bureaucracy covers two aspects of company activities: relations with government bodies and the revision of standards.

The change in relations with government bodies will take place in a context of streamlined, integrated service. Singlewindow services and specialized service centres will provide one-stop access to several government bodies. This simplification will speed things up for companies and increase their horizontal compliance with the various government programs.

The revision of standards will consist essentially in refocusing on the objectives pursued, leaving it, as much as possible, to companies to decide on the means of attaining them.

• The bulk trucking industry's gradual transition to a deregulated economic environment

The very strict economic framework provided for bulk trucking over the last 25 years has led to a very specific way of organizing the delivery of services in this sector, which relies mainly on very small carriers. In a context of open trade and liberalization it is increasingly difficult to maintain this system. Setting the deadline back to the year 2000 should allow this segment of the industry to prepare for economic deregulation by phasing in the relaxation of current economic rules.

 Harmonized standards that meet the needs of Québec shippers and carriers in a context of North American economic integration.

The increased integration of economies makes necessary greater coherence or harmonization in transport standards between trade partners. This matter was recognized as a priority by the North who. authorities American political other things, included among harmonization provisions in the trade agreements entered into in recent years. Québec needs a proactive approach in this area in order to ensure that the harmonized standards are in line with the interests of shippers and carriers and thereby of benefit to all Quebecers.

• A framework for railways under provincial jurisdiction that defines operating conditions in the best interests of shippers.

The current economic regulation of short-line rail company activities is minimal. New provisions would ensure greater competitiveness in operating conditions for connections between rail companies, particularly interswitching rates and competitive line rates. They would have a similar impact on relations between rail companies and the public.

Promotion and protection of interests

• Development of Québec maritime and air routes.

In the fields of maritime and air transport, Québec routes compete with the transportation systems in other provinces and in the United States. The promotion of Québec systems in support of targeted industries and associations helps them take advantage of the opportunities provided by these modes of transport.

 Maintenance of Québec's position in the Canadian and North American transportation systems in the face of external initiatives constituting a threat.

The federal government holds much of the power related to freight transport, and its interventions often have a very significant impact on the freight transport system (costs, competitiveness, access, safety), on Québec's economy and on the Québec government. This impact is even greater in the current context of federal disengagement. Certain interventions by other provinces, by the US government and even by the private sector can also have a considerable impact on Québec. Consequently, the protection of Québec's interests is an essential part of the department's mission.

Taxation

 Competitiveness of extraprovincial road carriers and of rail carriers threatened by noncompetitive taxation.

Comparative studies of taxes imposed on Québec carriers and on foreign carriers in the fields of rail and road transport have revealed a certain competitive disadvantage in Québec's taxation system, notably in the area of amortization. This matter must be given special attention.

Human resources:

• A qualified labour force able to meet the increasing demands of the trucking industry and large enough to operate in long-distance markets. Given the demands that come with technological change and a changing regulatory framework, the qualifications of the trucking labour force are becoming increasingly important both for the economic efficiency of transport and for the safe operation of vehicles. The availability of a labour force with the skills to ensure the management of modern trucking companies also poses a challenge.

• Labour oversight that takes into account the new reality of selfemployment.

The trend toward outsourcing, in conjunction with self-employment, poses the problem of the work conditions of subcontractors and their relations with their employers. This raises the question of the most appropriate oversight framework for this clientele.

• The availability of a qualified and versatile labour force in small rail companies.

The emergence of a secondary railway industry in Québec poses, in the medium term, the problem of the availability of a qualified and versatile labour force.

Technology and intermodality

 Critical contribution of new technologies to the effectiveness of freight transport by road.

The integration of new technologies, particularly information technologies, is a critical factor for the development of the trucking industry and the efficiency of freight transport by road in general.

• Intermodal technologies adapted to the realities of the Québec market.

New technologies integrating rail and road transport have been technically and commercially tested in Québec and hold out promise for the Québec market, which often does not meet the density distance criteria that make and traditional intermodal services profitable. Illustrations of the problem are the Montréal-Toronto corridor, which is heavily used but covers a short distance. and Québec's regional where short-line railways markets. supply national rail carriers.

• Place of the Port of Montréal in North Atlantic container traffic.

The Port of Montréal is at the heart of the main intermodal corridor in Québec, which makes a very strategic contribution to Québec's economy. The place of the port in North Atlantic container traffic is a constant challenge.

ISSUE: high-performance multimodal infrastructures

High performance multimodal infrastructures are complementary to and indissociable from the freight transport industry in contributing to the productivity of Québec's economy.

The availability of efficient and integrated high-performance multimodal infrastructures makes it possible to meet the needs of shippers for rapid, reliable service using the most appropriate mode or combination of modes.

A certain number of challenges result from changes in demand, technological developments and changes in the roles and responsibilities of the various levels of government.

The road infrastructures

• Taking formal account of freight transport needs in road planning.

The flow of goods on Québec's road network follows patterns that make certain road links strategic. The movement of goods on the roads of Québec's main external and internal trade corridors must be unimpeded to be efficient. Systematic economic analysis of road infrastructure improvement or development projects would bring a better estimate of their overall economic impact into the planning process.

• Preservation of the road network through appropriate load limits

Trucking means large-scale use of the road network, and truck traffic, along with our northern climate, is the most important factor in the deterioration of that network. Government intervention through regulations (load limits, thaw periods) and their enforcement is required to ensure preservation of the road network.

 Integrated management of truck traffic throughout the Québec road network.

The designation of trucking networks by provincial and municipal authorities, along with the transfer of responsibility for road infrastructures, poses the challenge of the harmonization of truck traffic management measures with a view to ensuring efficient movement throughout the network. The management of outsized vehicles on the primary and municipal networks requires the integration of the operational environment.

Rail infrastructures

• Survival of the secondary rail network to meet regional needs

The withdrawal of large rail companies secondary lines poses from the challenge of the survival of the secondary rail network. In the wake of the significant rationalization of regional lines over the last few years, the rail network has reached a threshold beyond which, barring a few exceptions, any further abandonment could companies jeopardize service for essential to the economies of certain regions.

Port infrastructures

• A port network corresponding to the needs of trade and industry and to the financial capabilities of localities and regions.

The reform of ports effected by the federal government, combined with the prevailing overcapacity in this sector and the limited financial capabilities of localities and regions, poses the challenge of maintaining a port network that is in line with needs and adequately financed.

Multimodal infrastructures

• Effective connections between the infrastructures of different transport modes

Responding to transport needs related to the internationalization of the economy and to the new logistics approaches of shippers requires a well integrated network òf multimodal infrastructures. Effective intermodal connections must link the infrastructures of the various modes. Integrated multimodal planning of infrastructures

also calls for the development of appropriate tools.

<u>ISSUE</u>: a transport vision based on a broader approach, shared with the other partners

The significant changes under way, particularly the rapid internationalization of the economy and the new logistics practices of shippers, demand a broader approach by government, one that sees beyond, even as it provides a framework for, actions on infrastructures or on the development of the freight transport industry. Another essential consideration is that several departments may be affected by or have to deal with transport problems.

The following challenges stem from this situation.

 Infrastructures and a transport industry that support companies' logistics

The fact that transport service users increasingly need put quality to (reliability, transit time, flexibility) first in their logistics practices means that suitable monitoring of the characteristics of demand related to company logistics is necessary, as well as an increased concern for overall quality performance by the freight transport system (infrastructure and industry).

 Development of an integrated multimodal transport system

The increased internationalization of the economy and the new logistics practices require recourse to transport chains that are often more complex and call for a better integrated and coordinated multimodal freight transport system to ensure rapid, seamless movement of goods over ever longer distances. Departmental action closely coordinated with departments responsible for other sectors

To better optimize government action with a view to economic development, a by various concerted approach departments is a necessity. Indeed, several Québec government departments, because of their sectoral responsibilities to transport service users (industry, commerce, natural resources, agriculture, etc.), must take transport problems into account in carrying out their missions.

5.2 Safety issues

Ensuring public safety is a major aspect of the government's social mission. In recent decades, society has become increasingly demanding and extremely sensitive to transport safety.

In the realm of freight transport, economic deregulation is leading the government to apply more stringent rules of safety to carriers.

Given the safety record of the various modes of transport, it appears that the potential for improvement lies principally with trucking.

<u>ISSUE</u>: a safe freight transport system

Road transport

 Safe road freight transport in a completely deregulated economic context

The elimination of the final remnants of the economic regulation of trucking makes it necessary to redefine an oversight system for the industry that will enable the state to ensure safe freight transport. This system, which is also aimed at preserving the road network, calls for all stakeholders in the transport chain to assume their share of responsibility and relies on carrier-facility inspection as much as on on-road monitoring. Government integration of safety policy and standards constitutes another challenge for the coming years. Furthermore, if the impending revision of federal legislation on trucking is to be effective, it must not intrude upon the set up bv the Québec svstem government, but be part of a process to harmonize the programs of the various provinces.

• Technical standards ensuring a high level of safety.

The department's various technical standards for vehicles must ensure a high level of safety. They must be based on adequate research on heavy vehicle equipment and on the evaluation of the dynamic and static behaviour of heavy vehicles. On-road monitoring must be clearly oriented toward safety objectives.

 Road infrastructures designed for safer truck traffic

Since the roads are shared by truckers and other users, they must be built or modified to facilitate safe use by both groups.

Managing the risk inherent in the transportation of dangerous substances

The transport of dangerous goods raises concerns both for safety and for environmental protection. One of the major challenges is to manage the risk that goes with this type of movement, particularly in densely populated areas.

Rail transport

 Increased department responsibility for rail transport safety

The assumption of responsibility for the secondary rail network by short-line rail companies, which are under Québec jurisdiction, poses the challenge of developing a regulatory framework ensuring the safe transport of goods on this secondary network and on industrial sites where railway equipment is operated.

5.3 Environmental issues

In recent years, given the threat that human activity poses to ecosystems, governments have made commitments toward more sustainable development. Québec has adopted these international commitments, particularly with regard to greenhouse gas emissions.

Freight transport is an economic activity that contributes significantly to global energy consumption and pollutant emissions. Without seeking to minimize the role other transport modes play in environmental problems, it must be acknowledged that trucking bears by far greatest responsibility for the the record of freight environmental transport, and the trend is toward a yet greater contribution to that record on the part of road transport over the next 15 years.

ISSUE: a surface freight transport system operated with minimal environmental impact

The following challenge stems from this issue.

• Determination of the means of stabilizing or even reducing trucking's

contribution to global energy consumption and pollutant emissions.

Defining energy efficiency strategies in road freight transport is a major challenge given the imperative of competitiveness, the powers shared with the federal government and the importance of urban freight transport, where gains are harder to register.

5.4 Social issues

Social equity from a transport perspective consists in ensuring that people have access to goods and services. Given Québec's size and its dispersed population, transport plays a major role in enabling the government to carry out its social mission and help make up for market insufficiencies.

ISSUE: a freight transport system that meets the government's objectives for social development

The following challenge stems from this issue.

 The availability of a network of multimodal infrastructures and of ferry and other services required to supply people living on islands or in isolated areas.

Providing goods to people on islands or in isolated areas requires government involvement in the supply of infrastructures and, where necessary, in the supply of ferry and other services to meet the needs of these people. 5.5 Issues arising from the relation between economic development and the government's other objectives

The attainment of economic development objectives may require trade-offs with the other objectives the government is pursuing for freight transport.

ISSUE: government intervention that aims for a balance between economic development and other government objectives

This issue poses the following challenges.

 Rates for transport infrastructures and systems that increasingly reflect real costs

Gradually taking into account certain external costs in rates charged for freight transport infrastructures and systems should lead to a situation in which market mechanisms favour a more optimized use of resources. This also means that the various road users will pay their fair share of costs. However, significant problems of measurement still need to be resolved, and will require further research.

 A harmonization of policies with those of other provinces or states making it possible to reach the objectives of sustainable development and market pricing while preserving the competitiveness of our industry

Setting up a dynamic strategy for the sustainable development of transport in isolation would run the risk of substantially reducing the competitiveness of our economy. On the other hand, consensus-building would make it possible to attain our objectives more easily.

 Road vehicle load and size limits that reconcile the shipper's objective of competitiveness with the imperatives of safety, of road network preservation and of the environment, and with the impacts on other modes of transport.

Load and size limits have a significant impact on road carriers' operating costs, thereby threatening shipper competitivity. They also affect the competitive balance between rail and road transport for certain products and in certain corridors, in addition to having an impact on the environment and on safety. A better knowledge of the impact of these limits could help increase the compatibility of the various objectives.

 Availability of economically and socially profitable intermodal services in outlying regions

On the basis of their economic and social profitability, i.e. by considering all economic and social costs associated with transport activities, it might be advantageous to encourage the implementation of intermodal services in outlying regions in order to resolve specific problems.

6. CONCLUSION

This document constitutes a first attempt to integrate the various issues involved in freight transport. It has dealt with the areas for intervention and with the major government concerns in transport.

The approach used. based on operations rather than modes, and the shipper-oriented vision adopted have made it possible to identify the horizontal issues that will increasingly be at the centre of concerns in freight transport. The difficult question of striking a balance between economic development and other objectives of a more social character, such as safety, the environment and equity, was also raised.

The first step has now been taken toward providing the department with a comprehensive multimodal framework for decision-making in the area of freight transport.

