# Québec/Ontario High Speed Rail Project: Effects On The Urban System & Settlement Patterns

Project No. TRA-9004(412)

FINAL REPORT

February 1995
(Revised June 1995)

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## EXECUTIVE SUMMARY

This document is the Final Report of the High Speed Rail Impacts On The Urban System And Settlement Patterns. The major findings of this assignment are as follows:

- **HSR Will Reinforce The Québec-Windsor Corridor As Canada's Primary Urban Area**

  The High Speed Rail (HSR) will reinforce the Québec-Windsor Corridor as Canada's primary urban area. However, other factors such as immigration, free trade, the Auto Pact, etc. will have far more significant impacts on urban systems and settlement patterns. Most importantly, the HSR will not substantially alter the Corridor's relationship to other areas in Canada and the United States since the Corridor already contains a highly developed inter-community transportation network. The HSR will, however, enhance the Corridor and make it more attractive to visitors, particularly those from Europe and the Far East.

- **Rail Travel Will Become A Much More Significant Mode Of Travel Within The Corridor**

  Currently there are an estimated 1.8 million trips taken annually on VIA Rail (Canada's passenger train service) between Corridor communities. According to the *Composite Ridership and Review Forecasts*, it is estimated that there will be 15 to 20 million trips taken on the HSR by the year 2025. Thus, the HSR will make rail travel a significantly more appealing mode of travel than it is today.

- **However, *Total* Passenger Trips Between Communities Will Only Change Marginally**

  While travellers would substitute air and auto trips with rail trips, the HSR is unlikely to change the total amount of passenger trips within the Corridor to any great degree.[1] For this reason, it is difficult to argue that the HSR will have a major effect on the urban system or settlement patterns within the Corridor.

[1] *The amount of additional travel triggered by the HSR — induced demand — is in the order of 3 per cent to 5 per cent over the base level of demand without HSR.*

- **The HSR Will Benefit Larger Communities, But There Are Many Exceptions To This Rule**

  The HSR will tend to reinforce the general trend towards larger urban areas. However, the *magnitude* of this centralizing effect can vary significantly depending on how well HSR stations are linked to the transportation services to communities not directly served by the HSR. There are also pressures for larger urban areas to decentralize, a trend that the HSR could facilitate.

  A more important finding is that the HSR effect on communities will vary greatly depending on many local factors which include:

  - The degree to which community growth prospects are linked to inter-city passenger accessibility;
  - Proximity of a community to other centres within the Corridor;
  - Relative size of a community and its role within the urban hierarchy;
  - The degree to which the HSR station is linked to other travel modes;
  - Existing inter-city accessibility and passenger volumes;
  - Relative improvement of door-to-door travel time provided by HSR service;
  - The extent to which communities are established tourism destinations; and
  - The role of the service sector within a community.

- **In Larger Communities, Downtown HSR Stations Are Preferable**

  Commercial interest (passenger ridership) and urban redevelopment potential generally suggests that downtowns are preferable as HSR station locations. This is due to the following:

  - Core areas contain dense concentrations of potential HSR riders;

- Economic activity in the core is more likely to involve inter-city passenger travel;
- Downtowns are a focus of major tourist attractions;
- Downtown-to-downtown service is the HSR's key competitive advantage over other modes; and
- Development pressure will be more focused in the core area, thus enhancing the potential real estate value increases that might be triggered by an HSR station.

- **HSR Stations Located In The Fringe Of Large Urban Areas Must Be Assessed On Individual Merits**

From a *land use planning* perspective there is no obvious answer regarding whether or not large urban centres should have a second HSR station located in a fringe location. The provision of a second HSR station generally increases accessibility to the HSR system, but it may reduce system efficiency. Fringe stations do not generally act as growth catalysts (see below).

- **HSR Stations Would Not be Growth Catalysts Unless Supported By Existing Market Pressure And Careful Planning**

HSR stations are sometimes considered to be a development catalyst, however, the findings of this report suggest that this is only true in certain circumstances. HSR stations are likely to focus or accelerate *existing* market pressure rather than create *new* market pressure. Development potential adjacent to HSR stations will have to be supported by active marketing efforts and effective use of public land holdings. This also suggests that the effect of station location on real estate prices will be modest, except in situations where HSR stations are in areas where there is already a well established market for new development.

- **In Smaller Communities, HSR Station Location Is Not As Important**

The location of an HSR station is less important in smaller communities because access is less of an issue. Ease of travel and shorter core-fringe distances in smaller communities mean that the station location is less of an issue than whether or not HSR service is available.

In terms of the specific findings for Corridor communities, the following points summarize the key conclusions that have been reached:

- **Effect On Windsor Will Be Modestly Positive**

  The HSR effect on Windsor would be modestly positive, but by no means as important to the community as having a healthy automobile sector.

- **Benefits To London May Be Partially Offset By Other Factors**

  The HSR would improve London's accessibility to other centres in southern Ontario. However, the net benefit of this improvement is likely to be moderated by the fact that the HSR provides a modest rather than a dramatic improvement in accessibility to Kitchener and Toronto which are located under 200 km away from London.

- **HSR Will Reinforce Kitchener's Strong Links To Toronto**

  Kitchener-Waterloo has a very high rate of inter-city travel — mostly to Toronto — and the HSR would provide improved service along the key Highway 401 corridor. Kitchener-Waterloo will continue to grow and have a strong economy with or without the HSR. The HSR would, however, accelerate development in the vicinity of the station.

- **Toronto Will Become More Central Within The Corridor**

  Toronto is one of the focal points for inter-city passenger travel within the Québec-Windsor Corridor. A total of 26 million trips are undertaken between Toronto and other major urban areas within the Corridor. The HSR, to the degree that it brings other Corridor communities "closer" to Toronto, will tend to reinforce Toronto as a centre of social and economic activities. There is some potential for the HSR to increase Toronto's commutershed (to Kingston, London and Kitchener-Waterloo) but the anticipated HSR fare structure is likely to limit the magnitude of this effect.

- **Kingston Has Many Opportunities To Benefit From The HSR**

  Kingston is not a large community compared to the other HSR centres but it plays an important role both as a regional centre for eastern Ontario and as an important institutional centre. The increase in accessibility brought about by the HSR for Kingston would be very significant as the City currently has poor air service to other Corridor centres. To some extent this increased accessibility could have a negative effect. It would become easier for Kingston businesses and residents to use Toronto, Montréal and Ottawa more often to meet their needs. However, Kingston is also in a good position to benefit from the HSR because it is an attractive community, an important tourist destination and has a strong institutional and research sector.

- **Ottawa-Hull's Business, Tourism And Government Activities Will Benefit From The HSR**

  Ottawa-Hull has important relations with all other centres of the Corridor and the HSR will strengthen these links. Ottawa-Hull's strength as a business, tourism and government centre will be reinforced by the increased ease of inter-city access brought about by the HSR.

- **HSR Will Reinforce Montréal As A Key Urban Centre**

  The outlook for Montréal is positive, and this community will continue to have an important influence within Québec and Canada based on both its economic and cultural significance.

  Montréal has extensive relations with other communities, particularly with Québec City and Ottawa-Hull. HSR would benefit both the business and tourist sectors of Montréal's economy as it will facilitate the expansion of their markets.

- **HSR Will Have A Modest Effect On Trois-Rivières**

  Trois-Rivières is a manufacturing and natural resources-oriented region which has experienced a relative decline in its economic importance. HSR will have a limited effect on the outlook for Trois-Rivières for two important reasons. First, HSR would provide only a modest improvement

in accessibility to the region. Most people will continue to drive to Montréal, a 70 km distance. Secondly, Trois-Rivières does not have an economic structure that would significantly benefit from HSR; business service, tourism activities and institutional functions are not a primary component of the regional economy.

- **Québec City Could Experience Significant Benefits From The HSR**

  Québec City is an important regional service centre and the provincial capital. The HSR would have a positive effect on Québec City, particularly as a result of its increased accessibility to Montréal. Although Québec could lose out to Montréal in some areas of specialized services, the HSR could also help retain some government or other activities that might otherwise move to Montréal. Québec's attraction as a tourist destination will clearly benefit from an improved level of accessibility with other Corridor centres.

- **Hamilton And Drummondville Will Be Well Connected To HSR System, Even Without A Station**

  The HSR would provide a modest improvement to Hamilton's and Drummondville's socio-economic outlook *even though an HSR station is not proposed within these communities.* In Hamilton's case there is an existing GO Train service which provides Hamilton with a direct rail connection to the proposed HSR station at Union Station in Toronto. In Drummondville's case, the approximate 75km distance to an HSR station in Montréal would be relatively easy to access.

The findings of this report should be considered within the context of the many other technical investigations prepared as part of the HSR project. These include environmental, economic, social, etc., all of which provide another perspective to the HSR proposal.

# 1.0 INTRODUCTION

This Final Report of the Impacts of High Speed Rail On The Urban System And Settlement Patterns is prepared as part of an assignment being undertaken by Consortium Hemson/Pluram. The report documents the findings of a three-phase work plan which addresses corridor-wide effects (Phase I), community-specific effects (Phase II) and station location issues (Phase III).

The basis for conclusions is a review of population and economic trends, as well as an analysis of inter-community linkage data. Also completed as part of this task were interviews with Provincial government representatives and academics. Finally, an extensive review of reports and analysis was conducted of relevant foreign experience with high speed rail systems and, in particular, the French TGV.

The report is structured as follows:

- Corridor-wide effects of the HSR;
- Effects on urban areas within the Corridor; and
- Effects of HSR station location.

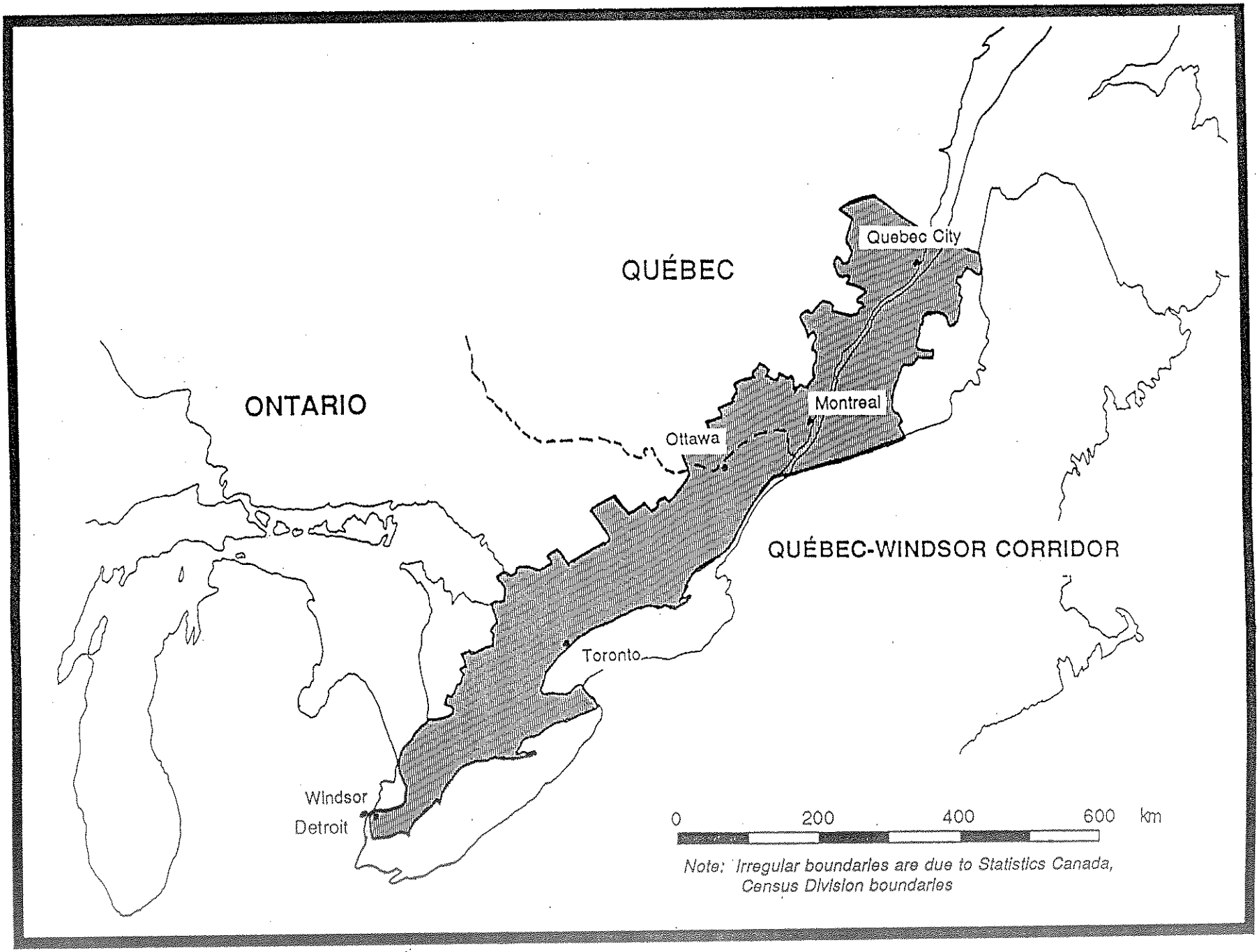
This report relies on a separately bound technical appendix that has three sections:

- Urban systems theory as it applies to the effect of HSR;
- The land use effects of HSR in other countries; and
- Detailed analysis of the HSR effect on communities within the Québec-Windsor Corridor.

The reader is also encouraged to refer to the numerous other investigations being undertaken as part of the High Speed Rail project. Many of these other assignments, particularly the environmental, economic impact and route planning studies, have implications on the land use, urban system and settlement patterns in the Québec-Windsor Corridor.

HEMSON

EXHIBIT 1

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## 2.0 CORRIDOR-WIDE EFFECTS OF HSR

This chapter analyzes the relationship between the Québec-Windsor Corridor and other areas of Canada and North America. The effect of an HSR on these relationships is examined, with particular emphasis on the role of this area as Canada's urban centre. For the purpose of the study, the "Corridor" is defined generally as the area within 100 km of potential HSR stations (Exhibit 1).[2]

Key findings of this chapter are that, with or without an HSR, the historic trend of increasing dominance of the Corridor within Canada's population and employment structure will continue. Although the HSR will tend to reinforce this outlook, the highly developed existing infrastructure, and the fact that the HSR will not significantly change accessibility between the Corridor and other places in North America, suggest its effects on the Corridor *as a whole* will be modest.

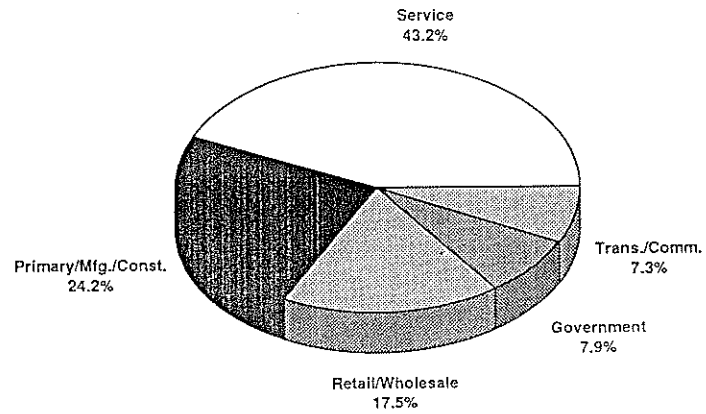
This being said, there is likely to be an important perceptual effect of implementing an HSR which will further enhance the image of the Corridor and encourage additional tourism development.

[2] *There is considerable precedent in Canadian urban geographical analysis for this definition of the Corridor. For the statistical aspects of the Study, Statistics Canada Census Division boundaries that best conform to this definition have to be adopted. Although this Corridor definition does not include the urban area of Detroit, our analysis does recognize the proximity of this important market.*

**EXHIBIT 2**

## CORRIDOR EMPLOYMENT IS DIVERSIFIED

### Distribution Of 1991 Employment In The HSR Corridor




*Source: Statistics Canada*

**EXHIBIT 3**

## SERVICES HAVE ACCOUNTED FOR MOST OF THE GROWTH

### Increase In 1981 - 1991 Employment In The HSR Corridor


*Source: Statistics Canada, CMA's Within Corridor*

## 2.1 QUÉBEC-WINDSOR CORRIDOR WILL CONTINUE TO GROW AND BECOME MORE URBANIZED

At the risk of stating the obvious, demographic and economic characteristics of the Québec-Windsor Corridor demonstrate the dominant position it holds within Canada. This will not change since the outlook for this area is for continued growth and more urbanization driven by a large number of factors, many of which are "external" in nature.

### 2.1.1 The Québec-Windsor Corridor Is At The Top Of Canada's Urban Hierarchy

According to well-established urban systems theory,[3] the communities that comprise the Québec-Windsor Corridor are at the top of Canada's urban hierarchy. This conclusion is based on historic and current share data of population and employment, economic concentration measures, as well as on the outlook for this area.

- **Large Share Of Population**

  The Québec-Windsor Corridor contains over half of Canada's population but occupies less than two per cent of its land area.

  The communities which comprise the Corridor account for 14.5 million people made up of about 8.9 million residents in Ontario and 5.6 million residents in Québec.

- **Canada's Economic Centre**

  About seven million jobs are located in the Québec-Windsor Corridor. Industrial activities account for almost one-quarter of these jobs (Exhibit 2), while the broadly defined service sector accounts for over 43 per cent. Changes in the mix of employment between 1981 and 1991, such as the increasing role of the service sector (Exhibit 3) and the relatively modest rate of growth in the

[3] *See Appendix A for a summary of urban systems theory as it applies to the HSR.*

manufacturing sector, confirm the impact of broad economic trends on the Corridor.

It is also evident that the Québec-Windsor Corridor accounts for more than its per capita share in economic sectors involving higher levels of value-added activities and economic decision-making.

| Jobs Per 1,000 Residents[4] | | |
|---|---|---|
| **Industrial Classification** | **Corridor** | **Canada** |
| Primary | 16.5 | 34.2 |
| Manufacturing | 116.1 | 86.8 |
| Construction | 29.5 | 29.9 |
| Transportation/Comm./Utilities | 37.4 | 38.6 |
| F.I.R.E. | 91.9 | 86.6 |
| Trade | 32.4 | 27.3 |
| Government | 37.2 | 38.3 |
| Services | 163.9 | 161.6 |
| **Total** | **525.0** | **503.4** |

These are sectors such as manufacturing, and finance/insurance/ real estate (F.I.R.E.). The concentration of manufacturing is particularly evident with close to 70 per cent of all manufacturing in Canada located in the Corridor. The large number of corporate head offices, particularly those located in Toronto and Montréal, also indicate that the Corridor accommodates a disproportionately high share of the country's corporate decision makers.

The large share of employment, particularly in those sectors which involve high levels of economic decision-making, demonstrates the extent to which this 1,200 km urban area is Canada's economic centre.

- **The Corridor Continues To Increase Its Importance Within Canada**

The Corridor has increased its share of overall population since 1971 and now accounts for 52 per cent of Canada's population. Within Ontario and Québec the concentrating trend is more evident

[4] *Statistics Canada, 1986 Census.*

with the Corridor's share increasing from 81 per cent to 84 per cent over the past two decades.

| Corridor Share Of Population | | |
|---|---|---|
| **Corridor Share Of:** | **1971** | **1991** |
| Province Population (Que & Ont) | 81.4% | 84.2% |
| Canada Population | 51.8% | 52.4% |

This large share of the nation's population is further confirmed by the fact that 12 of the 27 CMAs in Canada are located within the Corridor.

This increased concentration reflects a general trend towards urbanization (refer to Appendix A), as well as to the strength of the area in terms of employment, education, culture and residential amenities.

### 2.1.2 Corridor Growth And Settlement Patterns Will Be Influenced Mainly By External Factors

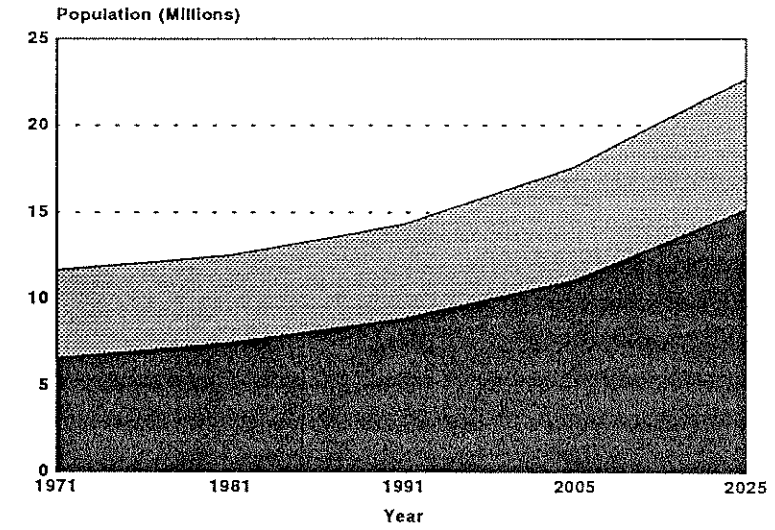
There are many factors that will significantly affect Corridor growth and settlement patterns. In many cases, these factors are external in origin and would be unaffected by the HSR or other internal infrastructure investments. This situation is not unique to the Québec-Windsor Corridor but rather a common characteristic of "open" systems of its type.

> *"The reorganization of urban systems, defined here as a substantial change in the relative size, role and interdependence of member cities, is largely determined by events occurring outside the system. Autonomous urban systems change very slowly and predictably. Open systems have the potential for very rapid change."*[5]

[5] *"The Reorganization of Urban Systems: The Role & Impacts of External Events," Jim Simmons, Research Paper 186, Centre for Urban and Community Studies, University of Toronto, September 1992, p. i.*

EXHIBIT 4

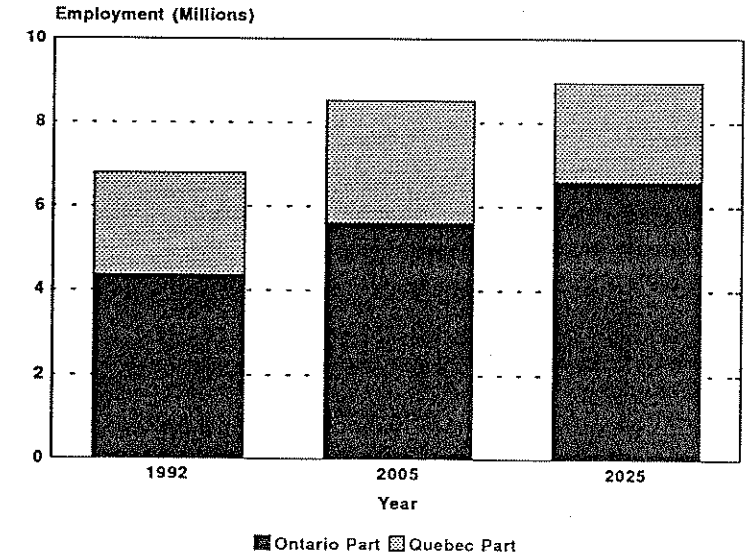
## CORRIDOR POPULATION WILL GROW CONSIDERABLY




*Source: Statistics Canada (1971 - 1991)*
*Socio Economic Forecasts (2005 - 2025)*

EXHIBIT 5

## EMPLOYMENT WILL ALSO GROW RAPIDLY




*Source: Socio Economic Forecasts (2005 - 2025)*

The Québec-Windsor Corridor, when viewed as an urban system is, by and large, "open" to a wide variety of external social and economic factors which could significantly change future settlement patterns.

Migration pressure caused by international upheaval is one such external factor affecting growth in Toronto, Montréal, and Ottawa-Hull since they are extremely popular destinations for migrants. By the same token, the North American Free Trade Agreement or changes in the price of oil both could have significant impacts on the outlook for growth in the Corridor and resulting settlement patterns.

Differential migration patterns between provinces, triggered by social and economic factors, also play a key role in the growth prospects of urban areas.[6] As an example, Exhibit 4 shows that the Corridor's rapid population increase has been largely fuelled by growth within the Ontario component of the Corridor. This demonstrates that factors such as the shift in economic roles played by Toronto and Montréal can have significant impacts on settlement patterns.[7]

### 2.1.3 Rapid Growth And Concentration Is Anticipated Within The Corridor

Corridor population and employment is expected to grow substantially over the next 20 to 30 years. The socio-economic forecasts which have been prepared for the HSR project anticipate a substantial increase in both population and employment with over seven million new residents and 2.5 million new employment opportunities between now and 2025 (Exhibits 4 and 5).

Estimates of Canada's population over this period suggest that close to 60 per cent of the nation's population growth is likely to occur within the Québec-Windsor Corridor. This outlook represents a continuation of the historic trend towards growth and urban concentration, with the Corridor remaining Canada's premier urban area.

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[6] *Particularly since natural increase will generally decline in importance as Canada's population ages.*

[7] *Over the 1986-1991 period, there were two Montréal residents who moved to Toronto, for every one Toronto-Montréal migrant.*

## 2.2 HSR WILL TEND TO REINFORCE URBANIZATION TRENDS IN THE CORRIDOR

The HSR will reinforce the likelihood of the Corridor becoming even more urbanized and centralized within Canada. This conclusion is based on the fact that the Corridor is already prominent within Canada and North America and that improvements to transportation within the Corridor will to some extent enhance its competitive position. While HSR will certainly offer consumers more choice, it is not likely to alter settlement patterns to any great extent since the transportation infrastructure that already exists in the Corridor is well developed.

### 2.2.1 The HSR Will Modestly Reinforce The Corridor As Canada's Urban Centre

As the HSR would improve, but not fundamentally change transportation within the Corridor, it is likely to have only a minor and indirect impact on the relationships between the Corridor and other parts of Canada.

- **Significant Transportation Innovations Can Foster Urban Growth And Concentration**

  The relationship between transportation and settlement patterns is well established. A summary of the theory explaining this pattern is presented in Appendix A of this report. The main ideas are as follows:

  - Urban Systems Benefit From Increased Accessibility Between Communities

    The theory of urban systems suggests that linkages between communities are a reflection of social and economic interaction. In general, urban systems benefit from increased accessibility between communities as a result of the greater social and economic linkages that are made possible.

- Better Inter-Urban Accessibility Increases Urban Concentration

  Changes in the accessibility between communities generally results in increased growth of the larger centres. This is a direct result of two important factors:

  - *Economies of scale, based on reduced transportation costs between communities; and*
  - *Larger multiplier effect in larger communities.*

Study after study has confirmed this trend towards increased urban concentration, not only in Canada but in many areas of the world. In fact, there are clear temporal links between significant innovations in transportation technology (introduction of trains, automobiles, airplanes, etc.) and the resulting patterns of urban settlement.

- **The HSR Will Improve Accessibility**

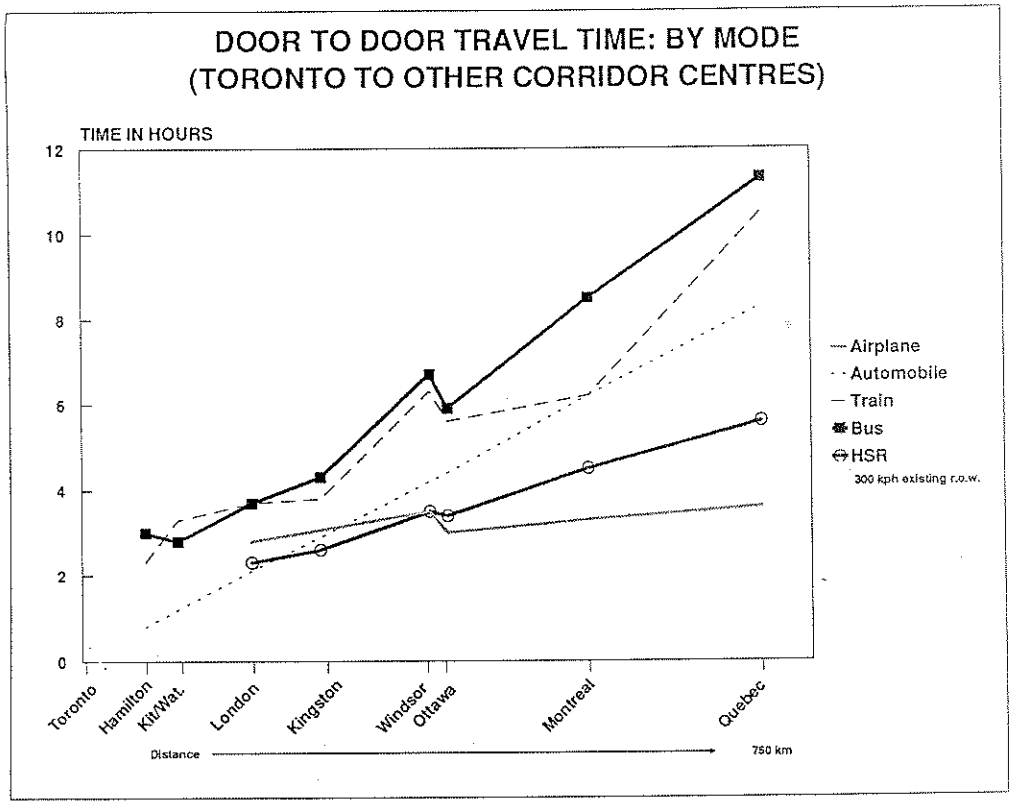
HSR represents a significant advance in passenger rail service but it must be considered in the context of the extensive transportation network that the Québec-Windsor Corridor already possesses.

- HSR Will Not Dramatically Change Accessibility

  Exhibit 6a and 6b shows the estimated door-to-door travel times between Toronto and Montréal and other centres in the Corridor for five travel modes, including HSR. For example, between Toronto and Montréal, the comparative times are:

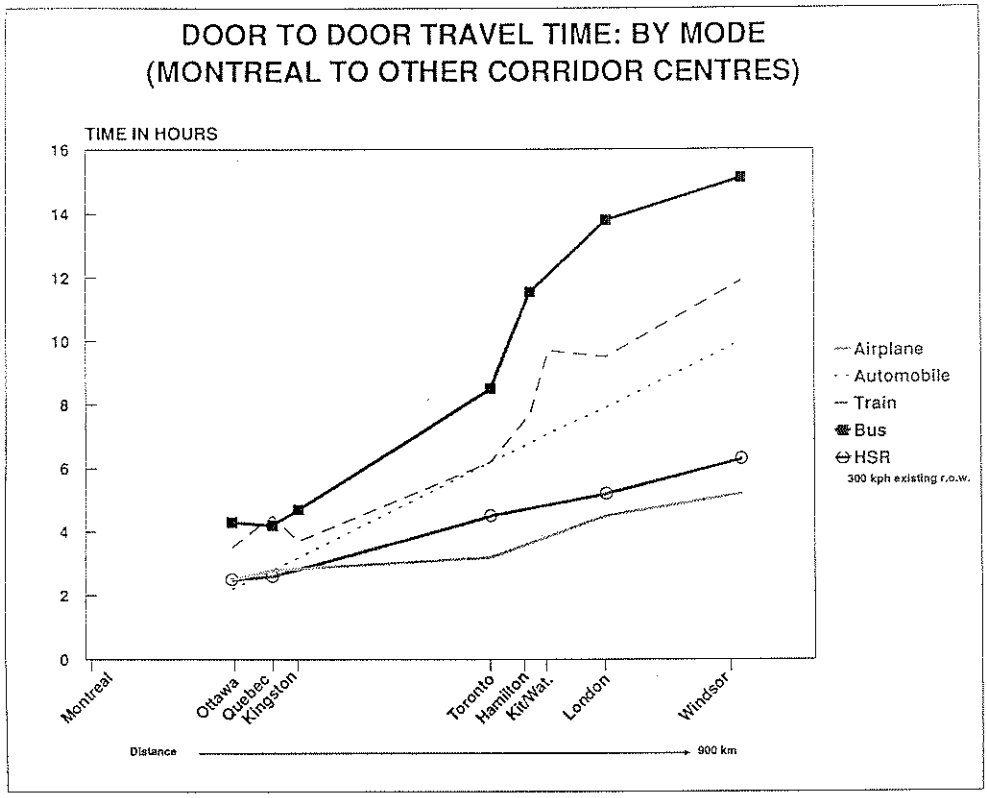
| DOOR TO DOOR TRAVEL TIMES (hours)[8] | |
|---|---|
| **Toronto to Montréal** | |
| Air | 3.3 |
| HSR | 4.5 |
| Automobile | 6.2 |
| Train | 6.2 |
| Bus | 8.5 |

**EXHIBIT 6a[8]**




[8]*Source: Hemson/Pluram estimates.*

**EXHIBIT 6b**[8]




The travel time estimates indicate that HSR is the most competitive transportation mode for trips in the 200 to 400 km range. At this distance, the HSR is faster than the automobile (the primary mode for trips under 200 km) and the airplane (the fastest mode for trips over 400 km). This optimum operating range has been confirmed by experience in other countries.

In addition to the time advantage for some trips, HSR would offer a higher comfort level than the other modes and potentially a price advantage over air travel.

While the HSR would improve inter-urban accessibility, it would not be of the same order of magnitude as was achieved by previous transportation innovations (the railroad in the late 19th century and the automobile and the airplane during this century). These innovations resulted in enormous cost/time savings and fundamentally changed North American growth and settlement patterns.

HSR Will Not Alter The Corridor's Relative Accessibility To Other Parts Of Canada

An important point to note is that HSR would not materially change the accessibility of the Corridor from other parts of Canada. This is because the bulk of long distance linkages between most communities in the Corridor and other centres in Canada would continue to be by air. Conversely, linkages to less distant communities would more likely be by automobile than by rail. The highly developed infrastructure that already exists in the Corridor means that the HSR, while certainly offering consumers better quality and additional choice, is not likely to alter settlement patterns from a national perspective.

From a long-term business perspective, inter-community passenger travel within the Corridor, as well as within Canada, has developed to the point that it is now a minor factor in decisions about where to locate new offices, manufacturing plants or residences.

### 2.2.2 HSR Could Improve Cross-Border Corridor Links To Some Major Centres In The United States

The HSR has the potential to improve the transportation links between the Corridor and the major urban area between Chicago and Detroit.

- **The Québec-Windsor Corridor Has Links To Major North American Urban Systems**

  According to current thinking in North American urban systems analysis, the Québec-Windsor Corridor is part of a growing urban "megalopolis", stretching from Chicago to Detroit to Pittsburgh to Toronto and Montréal.[9] In total, this large urban and manufacturing-oriented area accommodates well over 40 million people and, despite interspersed areas of rural development, is a generally urbanized area.

[9] *The North American City, Maurice Yeats, 1990.*

As a result of the increased globalization of economic activity, formalized through agreements such as NAFTA and the GATT, current thinking indicates that cross-border linkages will become increasingly important. This heightens the importance of cross-border access points, whether these be for corporate decision-making or actual flows of goods and people. Notwithstanding these increased linkages, the border will not become "invisible" for the foreseeable future.

- **The Proposed HSR Could Improve Links**

  With Windsor as the entry point, the HSR would facilitate access to over four million people in the Detroit area. As well, it is a potential link to the highly developed Detroit-Chicago corridor, which is itself a candidate for HSR service. For these reasons, an HSR linkage would enhance the Corridor's strategic location within this large North American megalopolis.

  On a wider geographic scale, the potential impacts of an HSR are likely to be modest. The Québec-Windsor Corridor already possesses a highly developed accessibility network in terms of access to the United States. This, combined with the fact that distances to nearly all major United States destinations are such that air travel will remain the primary travel mode, indicates that the HSR impacts will be felt mainly in the U.S. communities near to the Corridor.

### 2.2.3 HSR Would Enhance The Corridor's Image

With HSR, the Corridor would be among the first urban areas in North America to offer modern high speed rail service between major urban centres. This would enhance the Corridor's image as an environmentally and technologically progressive region. While HSR alone would not attract substantial growth, it would focus more attention on the Corridor, particularly as an international tourist destination.

The Québec-Windsor Corridor is a well established destination for international tourists, particularly from Europe and the Far East (especially Japan and Hong Kong). Many of these visitors come to Canada as part of package tours that include considerable busing between various points of interest. High speed rail could enhance the attractiveness of these package tours by significantly reducing the travel times between major

points of interest. Currently, it is difficult to organize a one-week bus tour that covers more than three or four major destinations (e.g. Niagara Falls, Toronto, Kingston, Ottawa). With the time savings brought about by HSR it would be feasible to increase the number of major destinations to five or six (e.g. Niagara Falls, Toronto, Kingston, Ottawa, Montréal and Québec).

European and Far Eastern visitors are also familiar with high speed rail as a travel mode, further enhancing the Corridor's competitive position within North America as a destination for international tourists.

Depending on the pace of development of HSR services in the U.S., Québec-Windsor HSR service would also be a powerful attraction for U.S. visitors, especially when coupled with the draws that already exist in the corridor.

Discussions with representatives of the Ontario Ministry of Culture, Tourism and Recreation confirmed that the HSR would enhance the international attractiveness of package tours, although it was noted that the magnitude of this effect is difficult to quantify.

The HSR will enhance the Corridor's image in North America, particularly in terms of attracting foreign tourists. However, because a well developed transportation infrastructure already exists, the HSR will not significantly change accessibility between the Corridor and other places in North America. This suggests that the HSR will have modest impacts on growth and settlement patterns of the Corridor as a whole, a conclusion that is confirmed by the fact that the total amount of travel within the Corridor is not anticipated to increase dramatically as a result of HSR.

## 2.3 EUROPEAN EXPERIENCE PROVIDES VALUABLE INSIGHTS BUT THE CORRIDOR ENVIRONMENT IS DISTINCT

While there are lessons to be learned, the fundamental differences between European and Canadian circumstances require such insights from Europe to be

applied with caution to the Corridor. Nevertheless, the European experience does provide concrete support for the findings of previous sections of this chapter.

### 2.3.1 The TGV Has Had A General Concentrating Effect Within France

It is now accepted in France and other countries that not every city in a corridor can have its own HSR station; it is not the purpose of the system. The commercial focus of an HSR system dictates that it act as an urban-serving transportation system. To be efficient, to deliver what its name promises, the number of stops on an HSR line must be limited. In France, the optimal TGV line serves two major cities between 300 and 500 km apart within a minimum number of stops. In that sense, an HSR train is a plane on rails with no more relation to its hinterland than a real plane.

Just like the plane, the TGV is geared to people, not goods, and it therefore is not surprising that the increased economic activity between centres has occurred mainly in the service sectors.

Preliminary conclusions from the TGV experience in France suggest that Paris has been further reinforced as the central metropolitan area.[10] On the evidence of a number of indicators (tourism, business exchanges, etc.), the capital has gained from the implementation of this new train service.

There has not been an exodus of organizations from the Paris metropolitan area to Lyon and its vicinity, but increased accessibility between the two cities has fostered greater exchanges in a number of merchandising and service sectors.

These increases have thus strengthened the relative position of both Paris and Lyon to the detriment of smaller communities in the same development axis (south-eastern France). These conclusions support the concentrating effect described earlier.

A final but important note is that the TGV is perceived as a first-rate (haut de gamme) transportation system. This perception tends to create two separate effects:

[10] *Detailed in Appendix B.*

- The train attracts a large number of professionals and business class passengers (the same way the plane did 50 years ago); and

- The TGV service and its associated station becomes a status symbol for which cities compete aggressively.

The status effect means that more remote areas of France perceive the Paris-Lyon corridor as relatively more central because they have the TGV.

### 2.3.2 Europe Is Developing A Cross-Border HSR Network

An important sign of things to come is the gradual creation of European networks of HSR systems which are designed to foster international linkages between European communities. A review of periodicals from Europe clearly indicates that the European economic integration has, as one of its key tenets, the connection of major cities by a high speed train network.

> *"The goal of European integration by 1992 has no more glittering symbol that Europe's great transportation projects."*
>
> *"Unlike the U.S., which hasn't built a major new railroad in decades, Europe has chosen rail as the way to go in the 21st Century. The new network will stand on three legs — all mega-projects: the tunnel linking Britain and France under the English Channel, a vast new high speed train network across continental Europe, and the bridge and tunnel that will cross the waterway known as the Great Belt between the two halves of Denmark."*[11]

While it is too early to draw any conclusions regarding the effects on urban settlements that this system will have, the fact that the network is being created demonstrates the extent to which there is a belief that a continental-scale system is worth building in an airplane era. This might suggest that the potential to link the Québec-Windsor Corridor with the Detroit-Chicago Corridor via an HSR has some merit.

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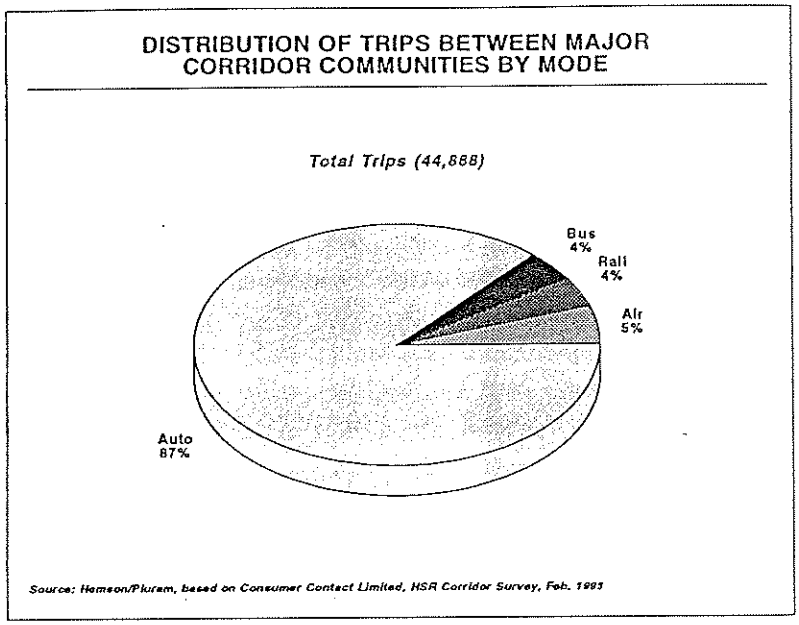
[11] *"Full Throttle Towards A New Era", Fortune Magazine, November 20, 1989.*

### 2.3.3 European Circumstances Are Substantially Different Than Those In The Corridor

Although the European trends confirm the concentrating and economic development effects of HSR, the experience from Europe needs to be treated with care since there are substantial differences between Europe and the Québec-Windsor Corridor.

- Europe has an extensive and well-patronized rail network and HSR is a natural improvement to the system. In North America, where the train is no longer a major mode of inter-city passenger travel, HSR would be a more important innovation. In Canada, rail has declined to the point that it now accommodates only four per cent of passenger trips between major corridor communities (Exhibit 7). HSR could provide a very significant improvement in service levels which would facilitate the change in consumer behaviour necessary to make HSR a success.

**EXHIBIT 7**




- Costs of non-rail modes are relatively high in Europe. For many years government-owned airlines and international policies kept the cost of airfares high, although more recently this has changed. By

the same token, road tolls and high gasoline prices (compared to North American levels) tend to discourage the use of automobiles.

- The fact that France and other European countries are rapidly moving towards a comprehensive rail-based high speed network between all countries is in itself evidence that circumstances are fundamentally different than in North America. Although in Canada inter-city rail service is not currently one of the major focuses of transportation planning, it would very likely become so if HSR service were to become a reality.

- Inter-community distances in Europe are also generally shorter than in North America. In Europe, travel time between most major urban centres is around three hours which is ideal for high speed rail systems. In North America there are fewer large urban areas which are this close to each other. In addition, population densities are lower, which also reduces potential demand.

- The European structure of urban areas is different than in Ontario or Québec. One of the factors which will affect the choice of whether or not to use rail is the distance between the station and the place of employment.

> *"And in practical terms, rail is well-suited to Europe's business geography: company head offices, government departments, and financial centres all tend to be concentrated downtown, a short drive or even a walk from the rail station, but a long way from the airport."*[12]

This geographic distribution of employment opportunities is significantly different to the pattern of development in North American and corridor communities which, because they are younger and have been shaped more by the automobile, tend to have relatively low densities. As communities have become larger, they have undergone strong pressures for deconcentration (a trend which is reviewed in the next chapter) with an implication that employment growth has occurred primarily in fringe locations rather than in downtown locations. This relatively dispersed pattern of employment means that the feasibility of public transit

[12] *"Trains Can Beat Planes In Europe", Globe & Mail, March 9, 1993.*

modes with limited access points is fundamentally undermined by the dispersed distribution of the potential system users.

All of these factors indicate that, although the European experience provides insights, the physical and socio-economic characteristics of the Corridor are quite different. At the same time, the qualities of HSR are such that consumers are likely to "rediscover" the merits of rail travel very quickly, even though at present this mode captures only a small percentage of trips.

* * * * *

There are numerous factors, many of which are external to the Québec-Windsor Corridor, which need to be considered when analyzing likely settlement patterns. These factors suggest that the Corridor will become more urbanized and centralized within Canada, a trend which the HSR will modestly reinforce. The HSR is likely to make the Corridor more attractive as a destination for foreign tourists. However, the highly developed existing infrastructure and the fact that the HSR will not significantly increase the total amount of passenger travel suggests that the HSR will have relatively minor impacts on the Corridor urban system and settlement patterns.

European experience suggests that the HSR could have two Corridor-wide effects:

- The Corridor will be somewhat reinforced as Canada's primary urban centre; and
- The Corridor could benefit from improved links to some urban centres in the United States.

However, conditions in Europe are substantially different than in Ontario or in Québec, suggesting that these implications should be interpreted with some caution.

# 3.0 THE EFFECTS OF PROVIDING HSR SERVICE TO CORRIDOR COMMUNITIES

This chapter provides an analysis of the potential effect that the HSR could have on the main urban centres within the Québec-Windsor Corridor. This chapter consists of two parts: an overview of HSR effects on urban areas; and an assessment of the potential HSR impacts on specific communities within the Corridor.

## 3.1 HSR WILL HAVE A MODEST LAND USE IMPACT ON CORRIDOR COMMUNITIES

The HSR would cause a significant modal shift away from airplanes and automobiles, but it is unlikely to dramatically change the absolute amount of inter-city travel between Corridor communities. This suggests that the HSR will have a relatively minor effect on the Corridor's urban system and settlement patterns.

This being said, the HSR will tend to reinforce the outlook that large urban areas will become even larger, although the *magnitude* of this concentrating effect would vary significantly depending on a number of factors.

### 3.1.1 Rail Travel Will Become More Popular, But Total Inter-City Trips Will Not Change Significantly

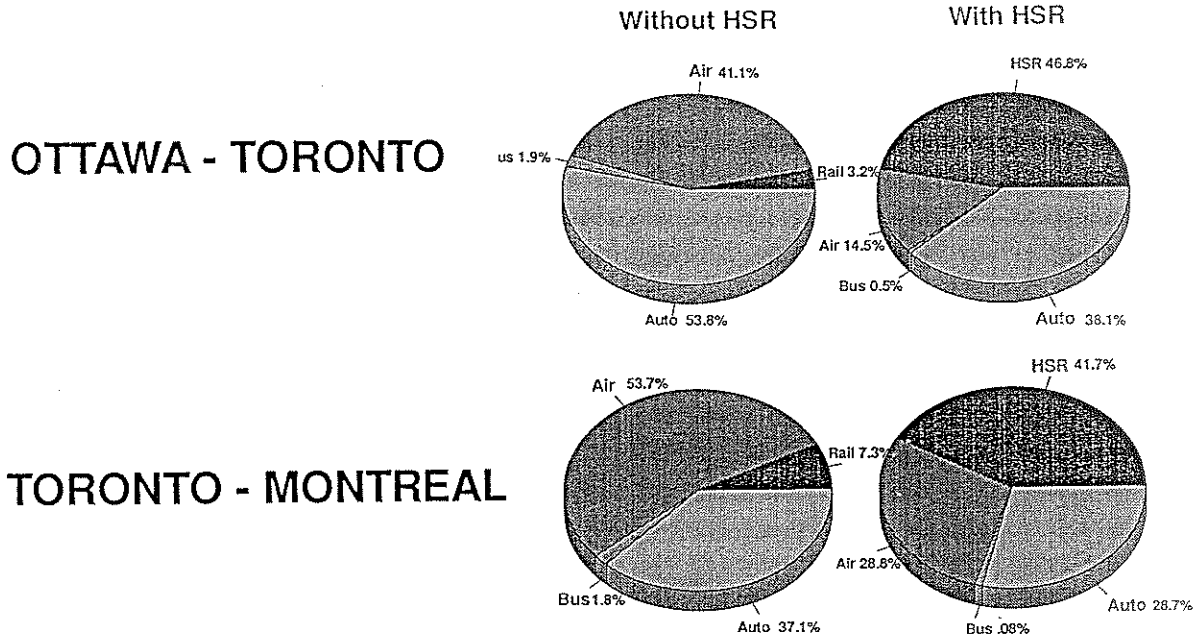
A review of the HSR *Composite Ridership And Revenue Forecasts* yields an important conclusion from the perspective of land use and urban settlement patterns. Although there is clearly a significant modal shift as travellers choose HSR instead of air or car, the absolute magnitude of travel between Corridor communities does not change significantly. This is demonstrated by comparing the level of induced demand (trips that would not have been taken without the HSR) to the total number of trips.

According to the ridership forecasts the HSR is anticipated to increase total trips from a base case (without HSR) demand of about 93 million trips in 2025, to a level of between 95.5 and 97.5 million trips — a percentage increase in demand of 2.7 per cent to 4.8 per cent.

This is not to discount the importance of HSR as an alternative travel mode — the train is projected to become a far more popular inter-city travel mode.[13] As Exhibit 8 shows, for trips between Toronto and Ottawa or Montréal, HSR would hold the largest share of ridership.

**EXHIBIT 8**

## MODAL SPLIT IN 2025



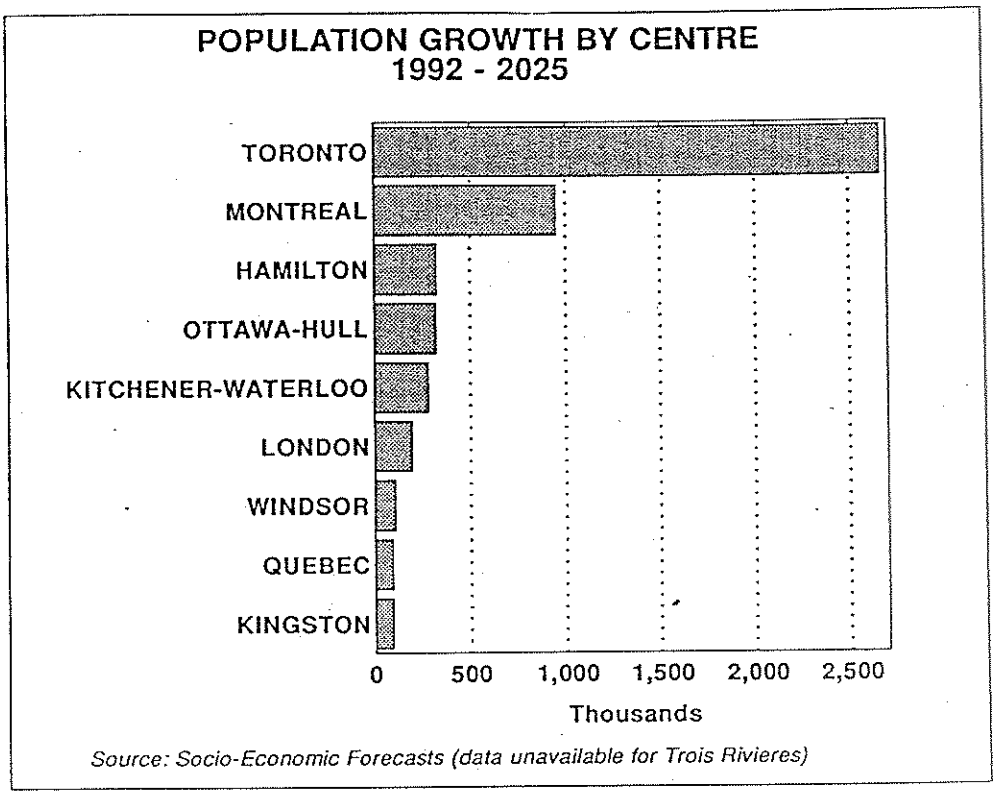

[13] *The ridership forecasts call for 15 to 20 million HSR trips annually in 2025, compared to VIA's current 1.8 million trips annually.*

Despite this important change in consumer preferences, the fact that HSR creates only a limited increase in *total* travel between corridor communities suggests that the broad impacts on land use and urban settlement patterns in the Corridor will be modest. HSR does not change the basic relationships between urban communities but rather it shifts the way in which passengers travel between communities.

### 3.1.2 HSR Will Tend To Accelerate Growth In Largest Cities, But Magnitude Of This Effect Will Vary

The socio-economic forecasts prepared as part of the HSR project clearly anticipate increased urban concentration. Approximately four million new residents (well over 80 per cent of all Corridor growth) are anticipated to be accommodated in the four communities of Toronto, Montréal, Ottawa-Hull and Hamilton by 2025. This trend towards increasing urbanization is anticipated with or without the HSR since it is a result of many factors in addition to the level of inter-city passenger accessibility.

**EXHIBIT 9**




*Source: Socio-Economic Forecasts (data unavailable for Trois Rivieres)*

In theory, the HSR is likely to reinforce this trend of increased urban concentration. The fact that the HSR will only have between 10 and 15 stations to service a population of between 10 and 15 million people suggests that urban growth, to some extent, will be directed to urban areas that have a station.

There is little doubt that limiting access points to the HSR system will, to a degree, attract growth to areas surrounding these access points. The converse is also true — communities not on the system (without a station) will become more peripheral. This effect has been confirmed by European experience, particularly in terms of perceived impact.

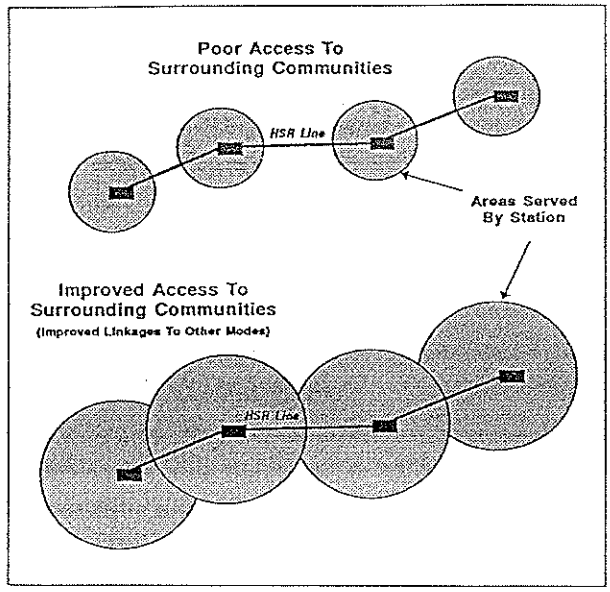
However, the *degree* to which an HSR will have a concentrating effect is a far more difficult question to address because of many factors.

- There are strong pressures for decentralization within and around larger urban areas which tend to offset the urban concentration described above.[14] The HSR could accelerate this trend. However, government planning policies designed to discourage sprawl, such as those that have been implemented in Ontario, could mitigate the effect.

- An HSR system that is well connected to other modes provides a *regional* service (less concentrating), rather than a community service (more concentrating).

[14] *Refer to Appendix A for additional discussion on this topic.*

**EXHIBIT 10**




- Effects on communities may depend on the likely reaction of specific sectors to HSR. Tourism could potentially receive significant advantages as HSR service could enhance communities with strong tourist appeal at the expense of those that lack amenities. For the business sector, HSR would tend to concentrate activities in the larger centres. Service sector organizations are much more likely to be influenced by HSR than are manufacturers because of a higher dependence on "face-to-face" contact. As with tourism, the frequency of trips is likely to rise, although the duration of travel time could shorten.

* * * * *

Investigations discussed to this point suggest that the potential effects of an HSR system on a community are not straightforward. Overall, the HSR effect on corridor urban systems and settlement patterns will be modest as indicated by the low level of induced demand. The HSR will primarily change the modal *distribution* rather than the aggregate level of inter-city passenger travel.

Despite this modest overall effect, the HSR is clearly a major infrastructure initiative that could have significant impacts in certain circumstances. Generally, the effects will vary greatly depending on many factors, some of which are not necessarily related to inter-city passenger travel. These factors include:

- The degree to which community growth prospects are linked to inter-city passenger accessibility;

  *HSR effect: May be minor if community's growth outlook is linked to factors which have little to do with inter-city passenger accessibility (e.g. immigration, global economic trends, etc.)*

- Proximity of community to other centres within the Corridor;

  *HSR effect: Communities which are close to one another may already have a high dependence on automobile travel that may not be altered even if an HSR is provided.*

- Relative size of the community and role within urban hierarchy;

  *HSR effect: Larger communities are often higher within the hierarchy of urban communities. These communities tend to benefit more from improved inter-city accessibility, such as the HSR, than do smaller communities.*

- Degree to which the HSR station is linked to other travel modes;

  *HSR effect: HSR stations that are well connected to other modes will ensure that the benefits of the HSR are spread over a wider geographic area — offsetting, to some extent, the generally concentrating effect of HSR systems.*

- Existing inter-city accessibility and passenger volumes;

  *HSR effect: The HSR will have a more significant effect on communities which rely heavily on inter-city passenger linkages.*

- Relative improvement of door-to-door travel time created by the HSR;

  *HSR effect:* *HSR linkages between Corridor communities which result in an relative improvement in door-to-door (rather than station-to-station) travel times will have a greater positive effect.*

- Extent to which communities are established tourism destinations;

  *HSR effect:* *The general benefits of tourism will accrue to communities that are already established tourism destinations. Also, the HSR, to the extent that it encourages travellers to substitute day trips for overnight trips, could have a negative impact on the overnight accommodation sector.*

- Role of the service sector within a community;

  *HSR effect:* *The location pattern of manufacturing activities is not likely to be significantly altered as a result of the HSR. However, people-oriented business activities (particularly services) will benefit from the increased ease of inter-community accessibility.*

## 3.2 POTENTIAL EFFECTS OF PROVIDING HSR SERVICE TO CORRIDOR COMMUNITIES

This section reviews the potential effects of providing HSR service to communities within the Québec-Windsor Corridor. The following is a summary of the detailed analyses contained in the Appendix to this report.

### 3.2.1 Windsor[15]

Windsor, with a CMA population of just over 260,000, is located at the western end of the Corridor across from Detroit on the Detroit River.

[15] *Refer to Appendix C, Section 1 for a detailed analysis of Windsor.*

Windsor is a manufacturing-oriented urban area which has experienced substantial restructuring as a response to the rationalization of North American automobile production. Due to slow employment growth over the past decade, Windsor has lost many of its younger population to other urban areas. This trend has resulted in a relatively stable, slow growing population growth pattern.

Despite this historic trend, the socio-economic forecasts prepared for the HSR project show that this scenario will change.

The HSR effect on Windsor is expected to be modestly positive, but by no means enough to overshadow the importance of Windsor's automobile industry.

- **Tourism Initiatives Could Be Enhanced**

  One of the clearer HSR impacts in Windsor will be the reinforcement of tourism-related initiatives. Windsor would become a more attractive Canadian entry point for American visitors since it would have an 'exciting' and rapid form of access to other major tourist points in South Central Ontario and Québec. In addition, HSR service would attract visitors from Central Ontario destined to Windsor's casino. Other studies completed as part of the HSR project indicate that HSR tourism potential would likely be exploited by professional tour operators providing casino tour packages. Because of Windsor's unique 'gateway' role and careful planning, the HSR interface with Detroit and thus the U.S. market would be very important.

- **However, Inter-City Passenger Accessibility Will Not Significantly Affect Windsor's Growth Prospects**

  As suggested by the earlier findings of this report, it is unlikely that the HSR will result in a significant change to the location patterns of manufacturing activities in Windsor. This is due to the limited importance of inter-city passenger travel to the location decisions of manufacturing activities.

Although there is no doubt that HSR would improve accessibility and support the City's tourism initiatives, Windsor's overall growth outlook is much more likely to be affected by economic and demographic factors that are unrelated to inter-city passenger accessibility.

### 3.2.2 London[16]

The London CMA is about 200 km west of Toronto along Highway 401. With a CMA population of over 380,000, London is a large community in south-western Ontario that serves as the regional centre of a large hinterland. London's economy is healthy and a positive growth outlook is forecast for the area.

A review of inter-city travel patterns indicates that London's primary links are to Toronto with secondary links to Windsor and Kitchener. Much of this travel is by car. Business trips account for approximately 25 per cent of total trips.

Although the HSR will improve accessibility between London and other centres in southern Ontario, the net benefit of this improvement is likely to be modest. This is for two reasons:

- **HSR Provides A Modest, Rather Than A Dramatic Improvement In Inter-City Passenger Accessibility**

  A review of accessibility between London and other Corridor centres indicates that it is relatively easy to travel from London to other centres. London's primary inter-city links are with Kitchener, Windsor and Toronto, all of which are located less than 200 km away. These distances are significantly below the 300 to 500 km range at which the HSR would offer the most significant improvement over automobile travel time. For this reason, the HSR would provide a modest rather than a dramatic improvement in accessibility and this would have a correspondingly modest effect on London's overall growth outlook. Since other components of London's transportation system are primarily road-oriented and thus reasonably flexible, there are no overriding issues that dictate how HSR should be inter-connected to other modes.

- **HSR Could Create Two-Way Tourism Flows**

  While there are some opportunities for visitors to consider London as a tourist destination, this potential could be offset by London residents taking advantage of the increased accessibility to the recreation and shopping opportunities offered in larger urban

[16] *Refer to Appendix C, Part 2 for details.*

centres, especially Toronto. The net effect on London could therefore be somewhat negative.

London's prospect for growth depends primarily on its location with respect to regional highway access and its strong manufacturing economy. Improvements to inter-city passenger travel against this background will not have a major impact on growth and settlement patterns in London.

### 3.2.3 Kitchener-Waterloo[17]

Kitchener-Waterloo is located on Highway 401, approximately 60 km west of Pearson International Airport. The Kitchener-Waterloo CMA is home for approximately 360,000 people, and is located within a highly urbanized region of south-central Ontario.

Kitchener's strong economy, skilled labour force, competitive land prices and proximity to Toronto have enabled this community to benefit significantly from Ontario's recent growth. Future prospects will continue to be positive as the Toronto region's developing fringe moves closer to the Kitchener-Waterloo area and as the area's diverse manufacturing sector attracts new investment and population growth.

Kitchener-Waterloo has a very high rate of inter-city travel. This greater propensity to travel to other corridor centres (mostly Toronto) suggests that improvements in accessibility, such as the HSR, will have a positive impact on the Kitchener-Waterloo community. The HSR would provide improved service along a well-established and busy corridor.

It should be noted, however, that automobile travel will remain, by far, the dominant mode of travel to Toronto. Also, Kitchener's superior location and diversified manufacturing base suggests that the community will grow rapidly whether or not an HSR link is provided.

Guelph which lies 20 km west of Kitchener-Waterloo would also benefit from HSR. The city has a population of 86,000 and shares most of the characteristics of its larger neighbour — a manufacturing orientation, a university, and an expanding high-tech sector.

[17] *Refer to Appendix C, Part 3 for details.*

### 3.2.4 Toronto[18]

The Toronto CMA is a large and growing urban area with over four million residents and two million jobs. The Toronto area is currently growing at about 100,000 new residents annually — the equivalent of adding the population of Kingston or Trois Rivières every one and a half years. Socio-economic forecasts prepared as part of the High Speed Rail project suggest that Toronto's population will increase by a further 2.5 million by the year 2025.

Toronto is one of the focal points for inter-city passenger travel within the Québec-Windsor Corridor. A total of 26 million trips are undertaken between Toronto and other major urban areas within the Corridor[19], a level which exceeds other communities by a wide margin.

The HSR, to the degree that it brings other Corridor communities "closer" to Toronto, will tend to reinforce Toronto as a centre of social and economic activity.

One of the most significant effects of HSR would be to reinforce Toronto as a tourist destination. In effect, the HSR will expand the trade area of Toronto's tourist attractions. The HSR is particularly well suited to package tours visiting Toronto's shopping and recreational amenities. With improved access to major convention centres and business locations, Toronto will also be reinforced as a business centre. This is particularly true in terms of service and institutional sectors concentrated within the Toronto CMA because these sectors tend to generate more inter-city travel than other sectors.

Despite these positive effects on business and tourism, the overall effect of the HSR will be modest when compared to other factors shaping the growth outlook for Toronto over the next 30 to 40 years (the most important being immigration and global economic trends). The reason is that the HSR, while improving travel times somewhat, would not fundamentally alter travel habits. The overall amount of *induced* travel is relatively small. This in turn suggests that the HSR would cause a major

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[18] *Refer to Appendix C, Part 4 for details.*

[19] *This estimate is low because the travel survey under-counts Toronto-Hamilton travel linkages. No surveys were undertaken of linkages between Hamilton and Toronto along the QEW. Were this link to be included, total volumes in Toronto could potentially be ten million higher than the 26 million trips.*

realignment in the respective roles of the HSR station and Pearson airport but not a major increase in travellers.

The complexity of Toronto's transportation network and its settlement patterns are of great significance to HSR. Toronto has an extensive expressway system, a regional train network and a highly developed subway and bus system. Its settlement pattern is also very complex with a large central core and a series of important sub-centres. Because of this level of complexity, the placement of stations will require particularly careful consideration, although one at the heart of the region in downtown Toronto is a clear necessity.

### 3.2.5 Kingston[20]

The Kingston agglomeration is about 250 km east of Toronto along Highway 401. With a population of about 135,000, Kingston is not a large community compared to other potential HSR centres. Nevertheless, it plays an important role both as a regional centre for eastern Ontario and as an institutional centre.

Kingston's overall growth has kept pace with growth in southern Ontario as a result of its strong institutional and service sectors. As these two sectors will continue to play an important role, the future prospects will be positive. HSR will improve this already positive situation as Kingston would gain in accessibility and image.

The increase in accessibility for Kingston is very significant as the City has poor air links to other centres. Presently, Kingston's accessibility to other major centres such as Montréal and Toronto is constrained as travel modes are limited to the automobile or train with travel times exceeding, on average, two and a half hours. The HSR would offer frequent and comfortable service to other HSR centres with very advantageous door-to-door travel times.

With HSR, Kingston would also become part of the select group of centres. While large centres such as Toronto, Montréal and Ottawa would obtain the most benefit from HSR, Kingston is also in a good position to benefit for three reasons:

[20] *Refer to Appendix C, Part 5 for details.*

- It is an attractive tourist destination;
- It has a well-established institutional sector; and
- It already has an important nucleus of research activities.

For Kingston it is difficult to determine the magnitude of the positive effects as a number of contrary trends will come into play. First, it is not clear what would happen to Kingston's business services sector. Firms that have a market beyond the larger region will benefit from the improved accessibility. However, other firms may lose out through increased competition from well-established business services sectors in Montréal, Ottawa-Hull and Toronto. Secondly, while the influx of tourists will have positive consequences, the Kingston area residents are likely to spend more time and money outside of the region as a result of the improved accessibility to the major centres.

### 3.2.6 Ottawa-Hull[21]

Ottawa-Hull, with a CMA population of about 920,000, is located at the centre of the Corridor. Ottawa-Hull has a positive socio-economic outlook since it is a bi-provincial region and the National Capital; thus, it has important relations with all other centres in the Corridor. It is not surprising that of all the Corridor centres, it is the one that has the most balanced distribution of trips to/from other centres.

The HSR effect in Ottawa-Hull is likely to be very positive, and would further enhance Ottawa-Hull's already positive outlook. Due to the area's central position in the Québec-Windsor Corridor, HSR will offer door-to-door travel time comparable to those offered by the plane. With HSR it would be possible to reach most other communities in less than three hours with a frequent and comfortable service.

The HSR will be beneficial to the business service and research development sectors as it will strengthen the key links with both Toronto and Montréal. Ottawa-Hull is also a significant tourist destination and with HSR accessibility to the region's attractions would be improved. Not only would Ottawa be more attractive to visitors from other centres, it will also permit outside tourists to more easily combine a visit to Montréal or

[21] *Refer to Appendix C, Part 6 for details.*

Toronto with one to Ottawa-Hull. Although Ottawa-Hull does not have regional commuter train service or a subway system, in other regards its transportation network is highly developed. For this reason, integration considerations will be crucial in locating the HSR station.

### 3.2.7 Montréal[22]

Montréal is Canada's second largest city in terms of population. It accounts for about 45 per cent (3.4 million residents) of Québec's population and half of the province's economic production. The region is located at the intersection of numerous east-west and north-south highways.

Montréal has extensive links with other communities, particularly Québec City and Ottawa-Hull. Travel between Montréal and Toronto is also very important and mostly of a business nature. HSR would benefit both the business service and tourist sectors of Montréal's economy as it would facilitate the expansion of those sectors' markets. HSR would also provide direct access to Montréal's downtown core where these activities are located. Because Montréal shares with Toronto the distinction of having a complex multi-modal transportation network, station locations will have to be selected with considerable care in order to provide the connections which are most appropriate given the centre's settlement and transportation pattern.

Although HSR will not radically alter the outlook for the Montréal economy, it will support the development of downtown activities. The development of the business services sector activities downtown could become a key strategic element for the diversification of the Montréal economy. The restaurant, accommodation and shopping establishments located downtown would benefit from the increased concentration of inter-city travel. They would also benefit from the overall growth of the business services sector and from the increased tourism brought about by the HSR.

The HSR would also stimulate research activities located in Québec City, Montréal and Ottawa as a result of the increased ease of travel between these centres. Since these activities are mostly located in the downtown

[22] *Refer to Appendix C, Part 7 for details.*

and in the nearby West Island/St. Laurent area, HSR would benefit Montréal in particular.

### 3.2.8 Trois-Rivières[23]

Trois-Rivières, with a CMA population of just over 136,000, is located halfway between Montréal and Québec. Trois-Rivières is a manufacturing and natural resources-oriented region which has experienced a relative decline in economic importance.

HSR will have a limited impact on Trois-Rivières for two important reasons. First, HSR would only provide a modest improvement in the accessibility of the region — automobile will continue to be the primary mode of transportation. Secondly, Trois-Rivières does not have an economic structure that would benefit from HSR since business service, tourism activities and institutional functions are not a primary component of the regional economy.

On the other hand, HSR could offer new opportunities to the region. Benefits could be realized for the industrial research centres, the University and tourism.

### 3.2.9 Québec City[24]

Québec City, with a CMA population of 650,000, is located at the eastern end of the Corridor. It is the second largest centre in Québec and is both an important regional service centre and the provincial capital. Manufacturing activities are mostly concentrated in traditional and resource-based sectors. Research activities associated with Laval University and various government funded centres are gaining in importance.

The population growth outlook is moderate, relying mostly on migration from other centres within the province. Québec City will continue to play an important role as a service centre for a large area including Beauce, Saguenay/Lac-Saint-Jean, Côte-Nord and Gaspésie. Nevertheless, some

[23] *Appendix C, Part 8 provides details.*

[24] *Appendix C, Part 9 provides details.*

of the more specialized functions in the area of business services and finance could move to Montréal in the future. Whereas historically Francophone business leaders were largely concentrated in Québec City, many now have their headquarters in Montréal. Some government functions could also move to Montréal to be closer to "clients". On the other hand, the outlook is good for research activities and tourism, which should continue to gain in importance.

Fundamentally, the HSR impact on Québec City is likely to be positive because the relationship between Québec and Montréal will be modified by the increased accessibility. Québec may lose in the area of specialized services, however, depending on the policies of the provincial government, it could retain some government functions that might otherwise be moved to Montréal. That is, HSR could permit the Montréal service firms to expand their influence in Québec, while the government activities based in Québec could increase their influence in Montréal.

HSR is likely to have a very positive effect on tourism in Québec City. The city is an attractive tourist and convention destination that is known all over the world, yet surprisingly, it is not a major destination for Ontario visitors. HSR would improve the attractiveness of Québec City for tourists from Ontario, particularly if combined with a stop in Montréal.

HSR could also encourage the further growth of research activities since their linkages with other research centres would be improved. However, this is an area that is far more dependent upon government actions than on HSR.

Overall, the effects of HSR would be moderately positive and are somewhat influenced by station location issues.

### 3.2.10 Hamilton And Drummondville[25]

Although Hamilton and Drummondville would not have HSR service, both communities will continue to grow and change. This is because their population and economic growth prospects are directly tied to Corridor trends as a whole and are not dependent, to any significant extent, on inter-city passenger travel.

[25] *Refer to Appendix C, parts 10 and 11 for details.*

- **Hamilton Would Be Closely Connected To The HSR System**

  HSR would provide a modest improvement to Hamilton's socio-economic outlook even without an HSR station. This is because Hamilton already has frequent and reliable rail service to Union Station in Toronto by way of the regional GO Transit rail service. It would be relatively easy for a passenger to board the GO Train at Burlington or Aldershot (Hamilton's GO Transit stations) and then transfer to the HSR at Union Station. While direct access to HSR would provide a faster link, the time saving over this short distance would not be significant enough to fundamentally alter Hamilton's social or economic growth outlook.

- **Drummondville Is Only A Short Distance From Montréal**

  Drummondville is located some 120 km east of Montréal and it would be relatively easy for potential HSR passengers to reach a station in Montréal for travel to Ottawa and Toronto. This ease of access, combined with the fact that Drummondville has only a small service sector, means that the HSR will have little effect on this community.

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Clearly there are benefits of having HSR service, but it is less obvious how these benefits will be distributed among the urban centres in the Corridor. There is no doubt that Toronto and Montréal will be reinforced as major urban centres. At the same time, for communities such as Québec, Ottawa-Hull and Kingston, the HSR could create or enhance important tourism, service sector and institutional growth opportunities.

It must be remembered, however, that the main HSR effect is to alter *how*, rather than *how much* passengers travel between Corridor communities. As a result, no broad changes to the Corridor urban system and settlement patterns should be anticipated.

# 4.0 THE EFFECT OF HSR STATION LOCATION

This chapter discusses some of the HSR station location issues identified in a review of the TGV experience in France and the station location analyses undertaken for each community within the Québec-Windsor Corridor. It is concluded that as a general rule, downtown stations are best positioned to exploit HSR's competitive advantage over air travel (i.e. fast downtown-to-downtown service). However, there are also circumstances where an additional fringe location could be beneficial. It was also concluded that HSR stations are unlikely to trigger major property development or significantly increase surrounding market values unless pressure already exists for development and appropriate planning initiatives are taken.

## 4.1 EFFECTS OF HSR STATIONS ON CORRIDOR COMMUNITIES

This section reviews the general findings concerning the effect of HSR station locations within the Québec-Windsor Corridor. The findings are based on a station location analysis completed for each community as well as an interpretation of the French experience with TGV stations.

### 4.1.1 Downtown HSR Stations Are Appropriate In Larger Communities

Commercial interest (passenger ridership) and urban redevelopment potential generally suggests a preference for downtown HSR stations.

This conclusion was confirmed in a number of communities within the Corridor, especially the largest metropolitan centres. The station location analyses in Montréal, Ottawa-Hull and Toronto all indicate a preference for downtown station locations. Reasons for this preference are as follows:

- **Downtown-To-Downtown Service Is The HSR's Competitive Advantage**

  HSR has the potential to offer direct downtown-to-downtown passenger service which is its most significant competitive advantages over other modes. However, it is only with a downtown station location that this competitive advantage can be fully realized.

- **Core Areas Offer A Dense Concentration Of Potential HSR Riders**

  The core areas of larger centres contain major office developments which represent a significant geographic concentration of HSR passenger origins and destinations. In each of the three largest Corridor communities, it was found that currently close to 50 per cent of all inter-city travellers were destined to a highly localized core area within the larger region.

- **Economic Activity In The Core Is More Likely To Involve Inter-City Passenger Travel**

  The downtown cores of larger urban areas appear to have a greater propensity to generate inter-city trips than other areas of the urban region.[26] Since a significant proportion of HSR users will come from economic sectors which depend on face-to-face contacts (business services, research facilities, government, institutions, etc.), downtowns are a logical choice for station locations. As is outlined in the appendix of this report, most of these activities are concentrated in the central core of urban areas.

- **Downtowns Are A Focus Of Major Tourist Attractions**

  Core areas of the largest urban areas also contain a large number of tourist attractions. These would be positively affected by the provision of an HSR station in the immediate vicinity. By increasing actual and perceived ease of travel to core areas, the

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[26] *In Toronto, for example, while about 30% of the employment in the CMA is located in the core area, it is the destination for almost 50% of inter-city business travellers. This indicates that economic activity in the core area tends to trigger more inter-city business trips per employee than other areas within the CMA.*

HSR station effectively increases the market trade area of these attractions by making them more accessible to a larger number of potential visitors.

- **Development Pressure In The Core Area Can Be Focused By The HSR Station**

  There are significant development pressures in the core areas of most larger urban centres. This provides more opportunities to utilize the HSR station as a catalyst to accelerate and/or focus redevelopment initiatives.

All of these factors suggest that downtown HSR station locations are highly desirable in the largest urban areas.

### 4.1.2 HSR Stations Located In The Fringe Of Large Urban Areas Must Be Assessed On Individual Merits

From a *land use planning* perspective, there is no obvious answer as to whether or not large urban centres should have a second HSR station (in addition to a downtown station) located in a fringe location. The provision of a second HSR station can represent a trade-off between many factors.

In most urban centres in the Corridor, fringe stations will tend to be "origin-oriented" rather than "destination-oriented". This is because suburban areas tend to be less densely developed and dominated by residential use. In such an environment, the HSR station will mainly attract passengers going to another destination rather than the location being a destination in its own right. The fringe HSR station thus becomes a distribution point for HSR passengers.

This means that the decision to locate a second HSR station within larger urban centres such as Toronto, Montréal and Ottawa would involve a trade-off between passenger boarding points and system efficiency. This is a well-established problem in the field of transportation planning which involves the determination of whether or not the benefits of an additional station (increased opportunity for potential customers to access the system) outweigh the costs (usually the reduced train speed and higher capital cost). These questions are beyond the scope of this analysis.

### 4.1.3 In Smaller Communities, HSR Station Location Is Not As Important

The discussion of HSR station location is not as pertinent in smaller communities because most potential HSR stations can be reached with relative ease. Proximity between fringe and core areas, and reduced traffic congestion, renders station location issues less critical in smaller communities.

The station location analysis completed as part of this assignment confirmed this conclusion. It was found that in Windsor, London, Kingston and Trois Rivières, station location would not matter nearly as much as whether or not HSR service is provided to these communities. The point is that with HSR service (irrespective of where the station may be) these communities are "on the line," and are thus distinguished from communities that are not.

### 4.1.4 HSR Stations Are Not Growth Catalysts Unless Accompanied By Careful Planning And Market Pressure

HSR stations are sometimes considered to be a development catalyst. This report concludes that this is only true in certain circumstances. For a number of reasons HSR stations are likely to focus or accelerate *existing* market activity, but are not a sufficient catalyst to create new demand. This conclusion was confirmed in both large and small communities, as well as for downtown and fringe station locations.

- **Fringe Stations Are A Collection And Distribution Point For Passengers, Although Associated Business Parks Can Be Successful**

  From the TGV experience in France, fringe locations do not generate development by themselves because they cannot make up for the absence of demand. An HSR station in the middle of a vacant suburban area will not generate growth. Growth will be possible only where development pressure already exists and where supported by concerted planning strategies. Only a few suburban sites offer these possibilities.

  The clearest example of a business park opportunity is provided by Kitchener-Waterloo where the proposed HSR station location near Highway 401 would complement the existing "business park"

character of the area. As such, a station could accelerate development.

- **Downtown Station Locations Can Focus And Accelerate Redevelopment**

  The TGV experience in France has shown that with the proper conditions, an HSR station can act as a catalyst to urban renewal. The train station can regain its ancient status as a primary transportation facility and can draw new economic activity to the vicinity.

  Within the larger Corridor centres there is a clear opportunity for this to occur. In Montréal, Toronto and Ottawa, the provision of a downtown station would have the effect of refocusing existing development pressure around the HSR station. This will occur because property owners near the HSR station will have a unique locational attribute which will enable them to capture a larger share of market development pressure. This in turn would likely have a positive effect on land values in the broader vicinity. The location analysis also confirmed that there is adequate lands to accommodate new development pressure in the vicinity of downtown HSR stations.

  Downtown HSR station locations could also be expected to have a similar effect in smaller communities such as London and Québec City, although the more limited market pressure in these communities would tend to decrease the overall impact of an HSR station.

In all cases, development potential adjacent to HSR stations would have to be supported by strong marketing efforts and by the development of key public land holdings.

### 4.1.5 Station Locations In Toronto, Montréal And Ottawa-Hull

Detailed investigation were undertaken of potential station location issues in the Corridor's three largest urban centres. The main conclusions of this analysis are presented in the following sections, with the full details included in Appendix C of this report.

- **Toronto HSR Stations Would Be Appropriate In Terms Of Ease Of Access And Proximity To Major Destinations**

  Three HSR stations are proposed in the Toronto CMA (Union Station, Pearson International and Pickering). This wide geographic distribution of stations would facilitate passenger access to the HSR system throughout the greater metropolitan areas.

  Union Station would provide direct HSR service to a major concentration of passenger destinations in the core area (tourist attractions, conferences, major offices, etc.). Union Station is also well connected to other passenger travel modes, thus tending to expand the area benefitting from HSR service. An HSR station in the core area would also enhance the marketability of nearby developments and, as a result, would likely increase real estate values in the immediate vicinity of the station.

  A Pearson International Airport station would provide HSR service to another major source of inter-city passengers. In terms of station options, the "direct through route" and the "wye connection" would both deliver HSR passengers directly into the airport terminal. However, as many passengers may then have to switch to another of the three terminals, this advantage is reduced. The third option, an "automated people mover" link located near the airport, would have the added benefit of providing an easily accessible passenger collection point for HSR trips originating in the west-Toronto region.

  The Pickering HSR station location would be an effective focal point for HSR passengers to and from locations in the eastern half of the Toronto CMA, and the entire Oshawa CMA. As a result of relatively low densities in this area, however, the station is not likely to function as a major passenger destination, and it is not anticipated that the HSR station would be a major development catalyst.

- **Ottawa-Hull Would Be Well Served With A Downtown Station**

  Ottawa-Hull would be best served by a station located in downtown Ottawa or in downtown Hull. The existing VIA station is not as accessible as would be a potential new downtown station, especially for Québec residents.

Both potential downtown stations (Hull and Le Breton Flat) would help foster the redevelopment of their surroundings and would have a positive effect on both downtown Ottawa and Hull. The development of the public transportation system should, as an objective, provide easy access to the potential HSR station from both sides of the Ottawa River.

A suburban station in addition to a downtown station would not provide any clear benefit, whereas it would increase travel time for all trips going by Ottawa-Hull.

- **Montréal Needs A Downtown Station, Although A Dorval Station Would Serve Saint-Laurent/West-Island**

  Montréal's downtown is the key location for an HSR station with the best possibility not only to serve tourism and business clienteles, but also as an opportunity to accelerate development.

  Dorval as a "suburban" station location would allow both the Saint-Laurent/West-Island clientele and the air connection clientele to benefit from the HSR service. On the other hand, boulevard Saint-Martin in Laval is not a good location for an HSR station since it does not offer redevelopment potential and would serve a limited clientele compared to a suburban station in the Saint-Laurent/Dorval area.

  As for an airport station, the ridership forecast indicates that the benefit of an HSR station in terms of air connection clientele would be more important for a Dorval station than a Mirabel station.

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This chapter has reviewed the effects of HSR station locations. It was found that:

- Downtown HSR stations are well suited for larger urban areas;
- Fringe stations have merits which need to be reviewed on a case-by-case basis;

- In smaller communities, HSR station location is not a significant issue; and

- HSR stations are not growth catalysts unless accompanied by existing market pressure and careful planning.

Additional details of the station location analyses are contained in Appendix C.

## 5.0 CONCLUSION

This report has reviewed the proposed HSR in terms of its effect on urban systems and settlement patterns within the Québec-Windsor Corridor. The scope of the analysis considered both the effect of providing HSR service to, as well as the impact of HSR station locations within, these communities. The following are the key findings:

- The Corridor's image will be improved with the HSR, especially for tourists from Europe and the Far East;
- The relatively low level of new inter-city travel induced by the HSR suggests that effects on urban systems and settlement patterns will be modest;
- Rail travel will become a much more significant mode of travel within the Québec-Windsor Corridor;
- In general, the HSR will benefit the largest Corridor communities, however, there are many factors that would emphasize or moderate its effect, including:
    - The degree to which community growth prospects are linked to inter-city passenger accessibility;
    - Proximity of the community to other centres within the Corridor;
    - Relative size of the community and role within urban hierarchy;
    - Station location and the degree to which the HSR station is linked to other travel modes;
    - Existing inter-city accessibility and passenger volumes;
    - Relative improvement of door-to-door travel time;

- The extent to which communities are already established tourism destinations;
- The role of the service sector within a community;

- Downtown station locations are preferred in larger communities because:
  - Downtown-to-downtown service is HSR's competitive advantage over other modes of travel;
  - Core areas are a dense concentration of potential HSR riders;
  - Economic activity in the core is more likely to involve inter-city passenger travel;
  - Downtowns are a focus of major tourist attractions;
  - Development pressure will be more focused in the core area with the presence of an HSR station;

- The merits of providing additional stations in the fringe area(s) of large urban areas must be assessed on a case-by-case basis;

- In smaller communities, the choice HSR station location is not as important; and

- HSR stations will not act as growth catalysts unless market pressure for development exists and supportive planning initiatives are taken.

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It is clear that the effects of the HSR on Corridor communities cannot be predicted with any degree of certainty. There are numerous factors that would need to be examined in much greater detail, particularly with respect to the placement of HSR stations in each community. However, what is absolutely certain is that with the introduction of an HSR system, the current domination of inter-city passenger travel by road and air will change. Over time, and in ways that range from the most obvious to those which will be almost imperceptible, the shape of communities will respond to this change.