PAPER TITLE

# How Sault Ste. Marie can make a difference in addressing the multimodal challenges of finding fast and reliable transportation alternatives that will ensure the smooth and efficient flow of goods between Canada and the U.S.

Author
John Febbraro
Director of Industrial Marketing Development SSM

Co-Author
Don Mitchell
member of Ontario Chamber of Commerce, Borders & Transportation Infrastructure Committee

Paper prepared for presentation at the

Geometric Design for Better Border Crossings Session

of the 2006 Annual Conference of the
Transportation Association of Canada
Charlottetown, Prince Edward Island


April 2006

## **Abstract**:

How Sault Ste. Marie can make a difference in addressing the multimodal challenges of finding fast and reliable transportation alternatives that will ensure the smooth and efficient flow of goods between Canada and the U.S.

The volume of freight transportation, particularly container freight, coming into North America and being transported throughout the continent by various means has dramatically increased in recent years. Freight traffic between Canada and the United States of America reflects the largest bi-national trade in the world. Continued growth of these economies and the rapid increase in volumes of goods originating from and destined for Asia will continue to have significant impact upon the ability of existing transportation systems, particularly at facilities such as ports, inter-modal terminals and border crossings, to effectively function.

The remarkably quick growth of trade from the Pacific Rim has strained all North American port facilities. Border delays are becoming more frequent for highway carriers and many rail systems; especially inter-modal transfer points are functioning at their limits. The cost of delays, in time and money, and lost productivity is already $2-3 billion, and will only increase over time. Container volume will double from its' approximate 50 million units by 2020 which in turn will increase traffic flow.

To further support our findings, Sault Ste. Marie's strategic geographic location (the juncture of three Great Lakes – Superior, Michigan and Huron) and proximity to North America's major transportation routes and industrial heartland offers a significant economic opportunity for the U.S. and Canada. The interest extends to a determination of the macro economic benefits to the region and to Ontario which may result from the creation of a new distribution route through Sault Ste. Marie; thereby reducing congestion and wait times for commercial traffic at Ontario-United States border crossing, or U.S. ports of entry/transfer terminals such as Chicago. Major improvements to border crossings and corridor facilities will be accomplished through direct and immediate access to the U.S. Interstate Highway System, Trans-Canada Highway, CN and CP rail systems, St. Lawrence Seaway System, and an International Airport. Sault Ste. Marie's potential to become a significant multi-modal freight-handling centre has been overlooked.

We could go on forever about how congested borders are these days, but let's take a shortcut to the solution that works…….

Full details can be viewed at www.multimodalssm.com.

# "How Sault Ste. Marie can Make a Difference in Addressing the Multimodal Challenges of Finding Fast and Reliable Transportation "

co-Authors: John Febbraro – Director of Industrial Marketing Development SSM
Don Mitchell - a member of the Ontario Chamber of Commerce, Borders & Transportation Infrastructure Committee

## 1.0 Introduction

Today, more and more of the products sold in the North American marketplace are manufactured off shore, especially in the Far East. But many major ports and international gateways are experiencing significant capacity problems that hinder the movement of these imported goods. In Canada, the port authorities in Vancouver and Prince Rupert are planning to take steps to alleviate some of these capacity problems in the near future. But the fact is, getting off shore goods unloaded and on the dock efficiently is only part of the problem.

To some extent, the remarkably rapid growth in trade with the Pacific Rim is straining port and other freight-related facilities all over North America. What is certain is that demand for additional freight shipment capacity is expected to continue growing strongly in the coming years – and the fact that the pressures for expansion will affect all modes involved in freight shipments, - truck, rail, marine and air. In Southern Ontario, both eastbound and westbound goods shipments currently face significant delays, primarily at key border crossings, such as Niagara and Windsor. The delays are partly because of increasing traffic volumes, and partly because of increased efforts by the U.S. to safeguard domestic security.

On their way to or from the U.S.-Canada border, however, freight shipments moving through Southern Ontario frequently face significant additional delays, owing to chronic congestion problems on the province's most important east-west economic corridor, Highway 401.

Canada and the U.S. are currently working to address their mutual border crossing and related infrastructure problems. The Government of Ontario is committed to "three-laning" Highway 401 from the Quebec to Michigan borders. Despite these efforts, however, if the volume of shipments and other commercial traffic increases as projected, the existing congestion problems will not only continue, but worsen over time. This detailed report will highlight the challenges North America faces due to the increased imports from overseas and how Sault Ste. Marie, Ontario as a border town can be one solution to a problem that is going to continue to grow in the upcoming decades.

## 2.0 Background and Context

North America's existing highway and rail systems were designed in a much different era, and to meet much different circumstances than those that exist today. Until recently, the existing transportation infrastructure has moved goods and people relatively smoothly, as planned growth and infrastructure improvements have developed hand in hand. Over the last two decades, however, the major highway, rail and border crossings between Canada and the U.S. have come under increasing pressure, as trade and traffic have grown.

By and large, the movement of goods has been controlled by what could be described as a "push-pull" system. Most freight in North America does not have to go through multi-modal hubs, or even inter-modal junctions (i.e., for rail/truck or air/truck), since the goods are moved directly from producer to consumer, whether that means an intermediate processor, or an end-user (i.e., retail).

According to the U.S. Bureau of Transportation Statistics, multi-modal freight's multi-modal[1] share of all commercial freight activity in the U.S. for 2002 amounted to:

[1] Comprises cargo moved including the traditional inter-modal combination of truck and rail plus truck and water; rail and water; parcel, postal and courier service, and other multiple modes for the same shipment.

Value – 10.6 per cent
Weight – 1.3 per cent
Ton-miles – 5.0 per cent

Total freight activity in the U.S., according to the U.S. Bureau of Transportation Statistics, indicates that between 1993 and 2002, the modal shares of commercial freight activity were as follows:

**Modal Shares of Commercial Freight**
**1993 - 2002**

| Mode of Transportation | 1993 | | | 2002 | | |
|---|---|---|---|---|---|---|
| | Value % | Tons % | Ton-miles % | Value % | Tons % | Ton-miles % |
| Truck | 65.1 | 54.5 | 25.6 | 63.7 | 58.2 | 32.1 |
| Rail | 3.9 | 1.8 | 26.5 | 3.7 | 12.0 | 27.8 |
| Water | 8.6 | 15.9 | 24.3 | 8.3 | 14.8 | 16.3 |
| Air (includes truck and air) | 5.5 | 0.1 | 0.2 | 7.4 | 0.1 | 0.3 |
| Pipeline | 4.3 | 11.9 | 16.3 | 2.7 | 10.5 | 16.7 |
| Multi-modal combinations | 9.2 | 1.7 | 4.6 | 10.6 | 1.3 | 5.0 |
| Other and unknown modes | 3.4 | 4.0 | 2.5 | 3.6 | 3.2 | 1.7 |

Table 1 B in www.bts.gov/publications/commodity_flow_survey/2002/united_states_final

But multi-modal activities, especially those involving container shipments, are important. In 2002, the value of multi-modal shipments was up by about 11 per cent over 1993 levels, with items that were moved by parcel, postal or courier services growing most rapidly. On a weight basis, however, truck and rail combinations moved 173 million tons in 2002, which represented an increase of 47 per cent over 1993's 118 million tons. As well, truck and rail ton-miles grew by 50 per cent over the same period, from 160 to 240 billion ton miles[2].

A 1999 report by Cambridge Systematics[3] that the number of inter-modal containers moving though ports worldwide had doubled over the previous decade, and that worldwide maritime containerized trade had been growing at a rate of 9.5 per cent annually, to the point where in 1999, 55 per cent of all general cargo in international liner trade was carried in containers. Domestically, containerized volume through U.S. ports grew at 6.05 percent annually over the 1990s.

This growth has had a trickle-down effect on downstream infrastructure. For example, the inter-modal traffic on U.S. railroads has tripled over the past two decades, while the volume of international containers, domestic containers, inter-modal truck trailers and road-railers handled by the railroads grew from three million to 8.7 million containers over last two decades. By 1997, revenues from inter-modal services accounted for about 18 per cent of total railroad revenues.

Inter-modal air freight traffic has also doubled over the last decade. The volume of cargo carried by all-cargo airlines grew by 10 per cent per year between 1991 and 1996, while the volume of freight carried as belly cargo in passenger planes increased at about nine per cent a year.

The domestic inter-modal fleet of containers, trailers and road-railers grew by nearly 30 per cent between 1992 and 1996. In the U.S., trucking captures 80 per cent of all revenue spent on domestic freight

---

[2] www.bts.gov/programs/freight_transportation/html/combination.html

[3] Cambridge Systematics, "Challenges and Opportunities for an ITS/Inter-modal Freight Program", 1999, prepared for U.S. Department of Transportation

transportation, and the industry expects to see 30 per cent growth in revenue over the coming decade, with a corresponding increase of 25 per cent in the total tonnage that is carried.

Inter-modal traffic and revenues are expected to increase by more than 50 per cent over this next decade. Finally, the total volume of marine trade is expected to triple over the next two decades, and much of this increase will come from moving more containers.

## 3.0 North American Freight Movements

**The dynamics behind growth in goods movement:**

The 20th century was a period of unprecedented urbanization. In 1900, there were only five cities with more then one million people (London, New York, Paris, Berlin and Chicago). By the beginning of the 21st century, there were at least 25 cities with populations of more then 10 million. In all, there are about three billion people living in urban areas throughout the world.
These people (some say: "consumers") all need food, clothing, shelter, and access to the vast array of products, goods, and services available today, which means these item have to be sourced, created, transported, and distributed to their final destinations. With commercial traffic and the general public competing for the same scarce transportation infrastructure, the ability of shippers and logistics specialists to meet delivery deadlines can be put at risk. Little wonder then, that goods movement in the cities is moving well up on the agenda.

At the same time, the desire to satisfy burgeoning consumer demand has led the world's leading manufacturing and retail companies to increase the speed and efficiency of their operations. As firms learn how to reduce the time needed to develop new products, they also compress the time required to turn raw materials into finished goods. This has spawned manufacturing methods such as JUST – IN- TIME (JIT) where productions lines are geared to receive parts only when they are needed. In addition to improving production efficiency, this minimizes the time that a manufacturer is liable for the cost of materials before they are turned into a finished product. Processes like JIT result in smaller orders and more frequent deliveries – and in part explain the high levels of congestion in urban areas as the operators of trucks, light vans, and other vehicles struggle to meet delivery targets.

At the retail end of the supply chain, consumers are demanding choice as well as low prices. The result is that retailer are now expected to provide an unprecedented range of goods in different sizes, styles, and price points. This is why big box stores and large supermarkets have become a major part of the urban landscape. Keeping retail stores stocked with such a wide range of goods is a logistical challenge unique to our times. The most obvious symptom of such trends has been a steady increase in the number of trucks on our roads and highways. Less obvious but as significant is the consumer's role in the freight transport. The World Business Council on Sustainable Development (WBCSD) has recently reported that shopping trips are a major form of freight transport and for example, that the energy required to take a packet of corn flakes from the supermarket to home can involve up to five times the energy in getting them to the supermarket.

Source: Moving Goods in the New Economy – Human Resources Development Canada/Transport Canada 2005

## Goods movement in Canada: So much distance, so little space.

It is ironic that in a country the size of Canada, one of the most challenging problems facing our cities is lack of room to handle the movement of goods effectively. But early in the 21st century, this is the reality, as people and goods compete for the same road space. Truck traffic on regional highways in Greater Toronto has increased by 50% over the past 15 years, for example. Road capacity has obviously not increased, nor should it.
At the same time, development in southern Ontario outside the developed cores has tended to be low density, sprawling single uses. A key factor promoting higher levels of auto ownership with declining average auto occupancies is employment sprawl. The result has been steadily increasing passenger car volumes on highways and the arterial road networks that support urban development. Manufacturers,

retailers and other businesses that depend on the being able to move goods to and through our cities pay heavily for congestion, as do city residents who must live with reduced air quality. In the long run, congestion has the potential to limit the efficient flow of exports as well as to severely constrain our ability to offer urban populations a high quality of life.

From the perspective of goods movement, the present and future competitiveness of our cities depends on our ability to achieve a better balance between the movement of goods and the movement of people. The range of options within cities is extensive, but to be effective it will require unprecedented levels of cooperation between government and other sectors of the urban economy. Cleaner fuels and improvements in engine technology will help improve air quality. The use of intelligent transportation systems (ITS) can improve routing capabilities and possibly lead to a range of benefits such as higher space utilization by for-hire and privately- owned truck fleets.

Joint distribution centres, logistics campuses and increased reliance on other forms of transport in the inner city can also make a contribution. Getting more people to use transit or share rides (particularly for commuter trips) is obviously a complementary objective. Yet none of these interventions will make a significant difference by themselves or in isolation. Overall, although individual modes of transport are becoming relatively more efficient, energy consumption continues to increase. Overcoming the reality of our geography is a genuine challenge.

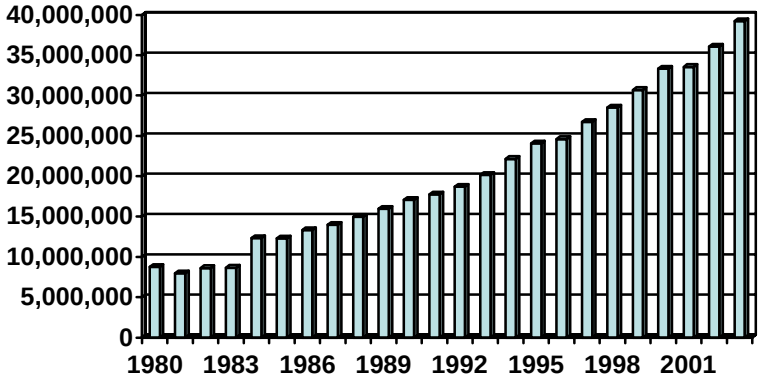
Source: Moving Goods in the New Economy – Human Resources Development Canada/Transport Canada 2005

## 3.1 CONTAINER ACTIVITY

While there are various ways to ship freight, containerized products most easily facilitate the use of a number of different transportation modes.[4] Indeed, the demand for, and the overall throughput of containerized cargo is expanding dramatically, as the following table demonstrates.

**Growth of North American Container Activity**

www.aapa-ports.org/pdf/CONTAINER_TRAFFIC_CANADA_U.S.




In major Asia-Pacific ports, container throughput volumes are expected to more than double over the next decade, to 215.6 million twenty-foot equivalent units (TEUs) by 2011, of which an estimated 63.4 million TEUs will be trans-shipment volume[5]. Trans-shipment is the shipment of goods to an intermediate destination, and then from there to yet another destination. One reason for this is so that the means of transport can be changed during the journey (eg. from Ship transport to Road transport). This is known as intermodal freight transport. Trans-shipment usually takes place in transportation hubs.

---

[4] It should be noted that this study does not deal, for example, with the movement of bulk goods in the context of developing a multi-modal transportation hub in Sault Ste. Marie.

[5] www.tdctrade.com/shippers/vol24_5/vol24_5_seafr05.htm

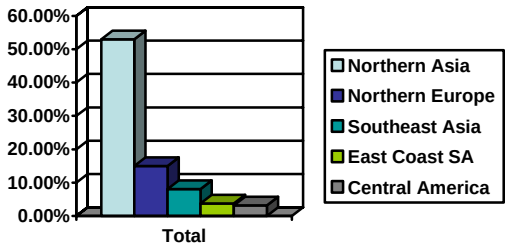
In these projections, China is forecast to handle 45.9 million TEUs, South Korea 21.6 million TEUs, Japan 17.8 million TEUs, Taiwan 17.5 million TEUs and Malaysia 16.8 million TEUs.
This growing volume will require 1,342 additional container ships in the Asia-Pacific region and 427 additional container berths. Some 29 per cent of these, or 125 berths, will be required in Southeast Asia, while 39 per cent, or 164 new berths will be required in China.

### 3.1.1 Container Origins

According to the U.S. Department of Transportation's Maritime Administration, China, Japan and Hong Kong, combined, accounted for 41 per cent of all containerized cargo movements in and out of the United States in 2003. Similarly, these countries accounted for 40 per cent of all containerized cargo movements in and out of the U.S. during 2002[6].

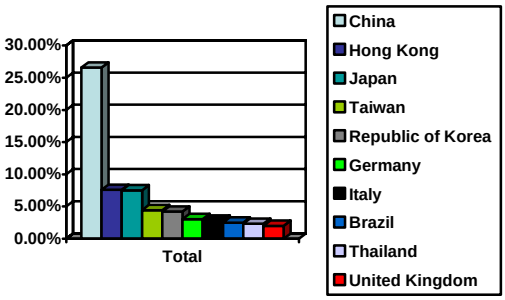
China in particular is the U.S.'s most important trading partner in terms of containerized freight, with movements representing 26.5 per cent of the total shipments in 2003. Imports to the United States from China in 2003 accounted for 20.8 per cent of the total movements. Exports from the United States to China are also an important consideration, as these accounted for 5.6 per cent of the total.

**Container Origins to U.S.**
**From Top Five Global Regions (2002)**




Source: "International Trade: Keeping America Competitive", presentation to SASHTO 2004 Conference, August 24, 2004

**Container Origins to U.S.**
**Top Ten Countries (2003)**




Source:www.marad.dot.gov/MARAD_statistics/PIERS

A recent article in *Logistics Management* magazine provides further informative context and points out the importance of the Asian market, and China in particular. The article, which appeared in the magazine's December 6, 2004 edition[7], says that China's ports handled some 48 million containers in 2003, or about 16 per cent of the world's total traffic. Officials have predicted that container throughput in China will rise to 57 million this year, and more than 100 million a year by 2010. They also say that development of container transport is an important barometer of China's trade growth and economic progress.
In November 2004, China's Vice-Minister of Railways announced that 18 new container distribution centres would be built in the country's major coastal and inland cities, and that these facilities will be linked by rail lines capable of handling double-decker container trains. Construction of the first centre began last July, is expected to cost U.S. $60million and begin operation by mid-2006.
Importantly, the total amount of containerized traffic in and out of the United States increased by 7.9 per cent between 2002 and 2003. Over the same period, total imports grew by 7.6 per cent and exports grew by 8.4 per cent.

### 3.1.2 Container Port Destinations

The tables below indicate recent container growth activity for the major coastal regions of North America[8]

---

6 http://www.marad.dot.gov/MARAD_statistics/Con-Cnty-02.htm

7 http://www.manufacturing.net/lm/

8 www.aapa-ports.org/pdf/container_traffic_canada_U.S..xls

**U.S./CANADA CONTAINER TRAFFIC IN TEUs**
**PACIFIC COAST, 1993 to 2003**

| CANADA | 1993 | 1995 | 1997 | 1999 | 2001 | 2003 |
|---|---|---|---|---|---|---|
| Fraser | 25,460 | 24,624 | 18,778 | 31,921 | 50,565 | 252,510 |
| Vancouver (BC) | 434,004 | 496,365 | 724,154 | 1,070,171 | 1,146,577 | 1,539,058 |
| TOTAL CANADA | 459,464 | 520,989 | 742,932 | 1,102,092 | 1,197,142 | 1,791,568 |
| | | | | | | |
| UNITED STATES | 1993 | 1995 | 1997 | 1999 | 2001 | 2003 |
| Los Angeles | 2,318,918 | 2,555,344 | 2,959,715 | 3,828,851 | 5,183,511 | 7,148,940 |
| Long Beach | 2,079,491 | 2,843,502 | 3,504,603 | 4,408,480 | 4,462,959 | 4,658,124 |
| Oakland | 1,305,134 | 1,549,886 | 1,531,188 | 1,663,756 | 1,643,577 | 1,923,136 |
| Tacoma | 1,074,558 | 1,092,087 | 1,158,151 | 1,271,011 | 1,320,274 | 1,738,068 |
| Seattle | 1,151,405 | 1,479,076 | 1,475,613 | 1,490,048 | 1,315,109 | 1,486,465 |
| Other | 1,324,090 | 1,902,142 | 1,457,400 | 1,422,874 | 2,026,485 | 2,409,137 |

**U.S./CANADA CONTAINER TRAFFIC IN TEUs**
**ATLANTIC COAST, 1993 to 2003**

| CANADA | 1993 | 1995 | 1997 | 1999 | 2001 | 2003 |
|---|---|---|---|---|---|---|
| Halifax | 300,933 | 382,575 | 459,176 | 462,766 | 541,640 | 541,650 |
| Montreal | 598,120 | 726,435 | 870,368 | 993,486 | 989,427 | 1,108,837 |
| Saint John | 28,366 | 30,867 | 42,898 | 48,417 | 47,558 | 45,638 |
| St. John's | 77,318 | 78,676 | 85,665 | 88,049 | 94,897 | 99,543 |
| Toronto | 648 | 900 | n/a | n/a | 19,724 | 31,279 |
| TOTAL CANADA | 1,005,385 | 1,219,453 | 1,458,107 | 1,592,718 | 1,693,246 | 1,826,947 |
| | | | | | | |
| UNITED STATES | 1993 | 1995 | 1997 | 1999 | 2001 | 2003 |
| New York/New Jersey | 1,972,692 | 2,262,792 | 2,456,886 | 2,828,878 | 3,316,275 | 4,067,812 |
| Charleston | 802,821 | 1,023,903 | 1,217,544 | 1,482,995 | 1,528,034 | 1,690,847 |
| San Juan | 1,559,421 | 1,539,000 | 1,833,018 | 2,084,711 | 2,057,733 | 1,665,765 |
| Hampton Roads | 786,023 | 1,077,846 | 1,232,725 | 1,306,537 | 1,303,797 | 1,646,279 |
| Savannah | 536,303 | 626,151 | 734,724 | 793,165 | 1,077,478 | 1,521,206 |
| Miami | 572,170 | 656,175 | 761,183 | 777,821 | 955,671 | 1,041,483 |
| Other | 2,024,599 | 2,542,996 | 2,709,472 | 3,029,611 | 2,770,224 | 2,768,121 |
| TOTAL U.S. | 8,254,029 | 9,728,863 | 10,945,552 | 12,303,718 | 13,009,212 | 14,401,513 |
| TOTAL ATLANTIC | 9,259,414 | 10,948,316 | 12,403,659 | 13,896,436 | 14,702,458 | 16,228,460 |

**U.S./CANADA CONTAINER TRAFFIC IN TEUs**
**Gulf Coast, 1993 to 2003**

| U.S. GULF COAST | 1993 | 1995 | 1997 | 1999 | 2001 | 2003 |
|---|---|---|---|---|---|---|
| Houston | 538,732 | 704,010 | 933,522 | 1,031,071 | 1,057,869 | 1,243,706 |
| New Orleans | 366,518 | 198,424 | 263,851 | 268,630 | 307,925 | 251,187 |
| Gulfport | 89,862 | 108,096 | 154,694 | 125,874 | 129,020 | 199,897 |
| Freeport | 30,525 | 30,516 | 45,135 | 63,396 | 74,294 | 67,784 |
| Other | 165,537 | 145,447 | 94,723 | 129,623 | 133,996 | 75,223 |
| TOTAL GULF | 1,356,711 | 1,331,940 | 1,586,648 | 1,748,217 | 1,837,100 | 1,913,020 |

## 3.2 Trucking

Trucking has become an extremely important mode of transportation for freight movement. Moreover, it is the only mode of travel available for containers moving out of inter-modal yards to the final customer. It is estimated that the trucking industry's share of the transport sector is 2.4 times larger (on a GDP basis) than the percentage enjoyed by the rail industry[9]. In terms of the relative importance for Canada and the U.S., trucks registered in Canada account for 70 per cent of cross-border trucking activity. Other key statistics include:

- In 2002, 26 trucks per minute crossed the Canada/U.S. border.
- Of the 671,000 trucks registered in Canada, 163,000 are tractor trailers for long-haul freight, and the balance are local.
- The value of exports and imports carried by truck has grown annually by 11 per cent and 9 per cent respectively, since 1992.
- Ontario accounts for 40 per cent of truck activity, 41 per cent of for-hire trucking revenue, 54 per cent of international for-hire truck tonnage, and 63 per cent of all truck trips across the border.
- LTL (less than truckload) services account for 9 per cent of tonnage, and 42 per cent of revenues. TL (truckload) services account for 91 per cent of tonnage and 58 per cent of revenues.

In a recent study for the Eastern Border Transportation Coalition, the Parsons Brinckerhoff Quade & Douglas group[10] found that almost half of truck trips begin or end in a trans-shipment point (a terminal, warehouse, or distribution centre) and that the large percentage of trips destined for terminals, distribution centres, warehousing, and manufacturing facilities carry goods that will wind up being distributed to other parts of the country. These data provide strong evidence that U.S.- Canada trade extends much further beyond the border states than previously thought. Other key findings of the study include:

- 44.3 per cent of the truck crossings in Canada were between Ontario and Michigan, and about half of the shipments entering the U.S. were bound for border states;
- Border states are the most important exporters of goods to Canada, and trucking of those goods is therefore vital;
- 50 per cent of all truck trips from Ontario are destined for the Upper Ohio Valley, while other important destinations include Illinois, Pennsylvania, Indiana and Wisconsin;

[9] Fred P. Nix, "Truck Activity in Canada – A Profile", prepared for Motor Carrier Policy Branch, Transport Canada, March 2003. From: http://www.tc.gc.ca/pol/EN/Report/TruckActivity/Main.htm

[10] Parsons Brinckerhoff Quade & Douglas "Truck Freight Crossing the Canada U.S. Border - An analysis of the cross-border component of the 1999 Roadside Survey", Sept 2002.

- The six highest-volume truck crossings at the border handled 90 per cent of the volume and three-quarters of the tonnage and trips; of these, 28.6 per cent and 12.9 per cent crossed at Ambassador and Bluewater Bridges respectively;
- About 70 per cent of trucks carried a single load between one point of origin and one destination;
- More than 40 per cent of truck trips involving a border crossing originated or ended at transport terminals;
- In dollar terms, about 95 per cent of imports bound for Michigan originate in Ontario;
- Importantly, about 30 per cent of the trucks leaving Ontario for the U.S. are empty. Empty trucks comprise a significant share of flows, amounting to 40 to 50 per cent of the trucks entering Canada. In general, the higher percentage of empty trucks occurred at lower-volume crossings, and those crossings where the commodity mix was dominated by wood and lumber products;
- More than 40 per cent of the truck trips crossing the border originated or ended at transportation terminals (for air, rail, inter-modal and marine). Almost as many trips were bound to and from manufacturing facilities. Only a small portion of the goods shipped were destined for retail or consumer use;

The Parsons Brinckerhoff Quade & Douglas study also included Sault Ste. Marie specific data. The study found:

- The International Bridge at Sault Ste. Marie accommodated approx. 150,000 trucks in 1999;
- More than half of the truck crossings involved wood products, while approx. 20% involved metal products;
- 34% of US bound crossings were trucks destined for Michigan, 20% to Wisconsin, 12% Ohio and 11% Minnesota.

## 3.3 Rail

While the issue of trucking and traffic congestion at key border points is a topical issue that has received considerable attention in the media, rail continues to be a very important element in the multi-modal movement of goods throughout North America. A senior editor of Logistics Management magazine confirms this in his article below.

### U.S intermodal railroad volume continues upward swing

**Jeff Berman, Senior Editor**
**Logistics Management May 5, 2006**

WASHINGTON—Intermodal railroad volume in the United States for the month of April was up 60,226 trailers and containers-or 6.8 percent-over April 2005, according to data released yesterday by the Association of American Railroads (AAR).

With 945,511 intermodal units (trailers and contrainers) being shipped last month, a trend of substantial year over year volume is continuing, said Tom White, AAR director of editorial services. Since the second half of 2003, intermodal railroad volume has grown from 9.9 million units in 2003 to 10.9 million units in 2004 to 11.6 million units in 2005.

Along with the significant upticks in monthly and year-over-year intermodal rail volume, the total volume for the week of April 29-248,515 trailers and containers-was up 9.9 percent from 2005 and was the fourth highest total ever recorded by the AAR.

“We normally we don’t start reaching those numbers until we are well into the third quarter and the early part of the fourth quarter,” White told Logistics Management. “It is early [in the year] to have a number that high.”

As for the shipping impact of such high intermodal volume figures, White said it is almost at the point where there is no longer a continuous peak season. And a major reason for that is the growth in international trade.

"As international trade continues to grow and become more important, so does intermodal, because intermodal so much more [shipping] is being done in boxes and intermodal is the most important way to move them from ports to inland destinations that are 1,000 miles or more away," said White. "What rail does best is move large volumes long distances."

Other factors for the continued railroad intermodal upswing, said White, are high fuel prices that have had a significant impact on rail shipments from trucking companies and the dearth of truck drivers, which has made intermodal a viable option for shippers.



By contrast, more is known about the variance in transit times for various destinations and origins. Canadian National Railways' web-site provides a transit time calculator. For this report, eight calculations were performed – including Prince Rupert to Detroit, Brampton, Chicago and Sault Ste. Marie. The same calculations were performed for Vancouver as the origin and all eight calculations are shown in the tables that follow. While the calculator does not indicate what route a train would follow, it was found that the Vancouver to Brampton Inter-Term, at 169 hours, required the fewest transit hours in two of its' four day cycle. The Vancouver to Chicago Inter-Term was only slighter longer, at 180 hours. The longest trip, by comparison, was found to be the Vancouver to Detroit Inter-Term, at 270 hours.

## CN Transit Times

(Source: **www.cn.ca**)

| **Prince Rupert to Chicago Inter-Term** | | | |
|---|---|---|---|
| Ship on | Monday | Wednesday | Friday |
| By | 19:00 | 19:00 | 19:00 |
| Arrive on | Tuesday | Thursday | Saturday |
| Day | 8 | 8 | 8 |
| Transit Hrs | 175 | 175 | 175 |

| **Prince Rupert to Detroit Inter-Term** | | | |
|---|---|---|---|
| Ship on | Monday | Wednesday | Friday |
| By | 23:00 | 23:00 | 23:00 |
| Arrive on | Wednesday | Friday | Monday |
| Day | 9 | 9 | 10 |
| Transit Hrs | 217 | 217 | 241 |

| **Prince Rupert to Sault Ste. Marie, Ontario** | | | |
|---|---|---|---|
| Ship on | Monday | Wednesday | Friday |
| By | 19:00 | 19:00 | 19:00 |
| Arrive on | Tuesday | Thursday | Saturday |
| Day | 8 | 8 | 8 |
| Transit Hrs | 187 | 187 | 187 |

| **Prince Rupert to Brampton, Ontario** | | | |
|---|---|---|---|
| Ship on | Monday | Wednesday | Friday |
| By | 19:00 | 19:00 | 19:00 |
| Arrive on | Wednesday | Friday | Monday |
| Day | 9 | 9 | 10 |
| Transit Hrs | 212 | 212 | 236 |

| **Vancouver to Detroit Inter-Term** | | | | |
|---|---|---|---|---|
| Ship on | Monday | Tuesday | Wednesday | Thursday |
| By | 14:00 | 14:00 | 14:00 | 14:00 |
| Arrive on | Wednesday | Thursday | Friday | Monday |
| Day | 9 | 9 | 9 | 11 |
| Transit Hours | 222 | 222 | 222 | 270 |

| Vancouver to Chicago Inter-Term | | | | |
|---|---|---|---|---|
| Ship on | Monday | Tuesday | Wednesday | Thursday |
| By | 14:00 | 14:00 | 14:00 | 14:00 |
| Arrive on | Tuesday | Wednesday | Thursday | Friday |
| Day | 8 | 8 | 8 | 8 |
| Transit Hours | 180 | 180 | 180 | 180 |

| Vancouver to Sault Ste. Marie, Ontario | | | | |
|---|---|---|---|---|
| Ship on | Monday | Tuesday | Wednesday | Thursday |
| By | 14:00 | 14:00 | 14:00 | 14:00 |
| Arrive on | Tuesday | Wednesday | Thursday | Friday |
| Day | 8 | 8 | 8 | 8 |
| Transit Hours | 192 | 192 | 192 | 192 |

| Vancouver to Brampton, Ontario | | | | |
|---|---|---|---|---|
| Ship on | Monday | Tuesday | Wednesday | Thursday |
| By | 14:00 | 14:00 | 14:00 | 14:00 |
| Arrive on | Monday | Wednesday | Wednesday | Friday |
| Day | 7 | 8 | 7 | 8 |
| Transit Hours | 169 | 193 | 169 | 193 |

(Source: **www.cn.ca**)

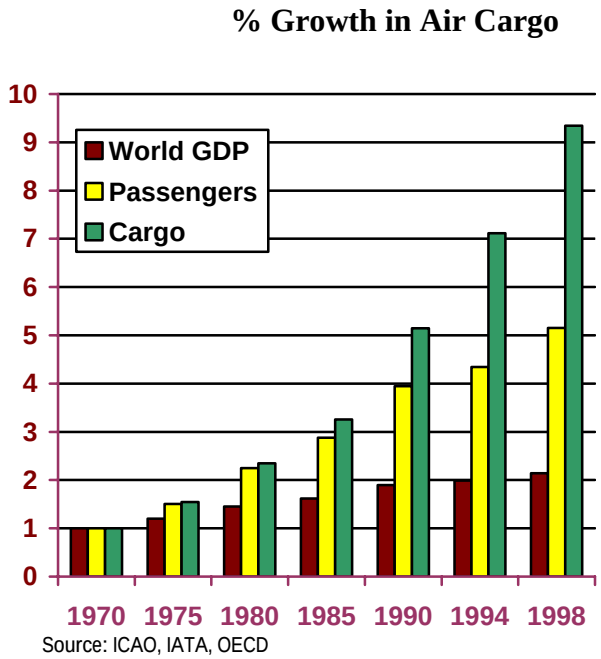
For purposes of comparison, a February 2004 study by H. Wilcox, entitled "Inter-modal Rail and Road Transportation Services and Costs Study" suggests transit times as follows:

- Vancouver to Brampton, 2,914 miles, 6 days, 130 hours, average speed 22.4 mph;
- Vancouver to Sault Ste. Marie, 2,626 miles, 4.9 days, 117 hours (through Oba to Sault Ste. Marie which is a routing not currently provided by CN but appears as a practical routing (CN currently changes train crews at Hornepayne just west of Oba);
- Sault Ste. Marie to Belleville Michigan, 350 miles travelled in 5.4 hours at the 65 mph limit: no boarder delays
- Highway distance Brampton to Belleville, Michigan = 272 miles travelled in 4.5 hours at 60 mph + an average two-hour delay at border = total 6.5 hours
- The cost of routing inter-modal traffic through Sault Ste. Marie is only slightly higher than routing it through Brampton.

The key finding of the Wilcox report is that transit times to Detroit/Chicago could be substantially improved by routing traffic through Sault Ste. Marie as one of many possible alternatives.

## 3.4 Air

Like most true transportation hubs, Sault Ste. Marie possesses an excellent airport. In March 2000, InterVISTAS completed the Sault Ste. Marie / North Bay Air Cargo Hub Feasibility Study. The study assessed the trade and cargo flows that could be served by North Bay and Sault Ste. Marie. Trade data were used to determine potential flows and key markets. The study concluded that the trade flows between Europe, Asia and North America represents a market in which Sault Ste. Marie could participate. According to the report, the pattern of growth in air cargo has been similar to that for container cargo, as shown in the figure below.

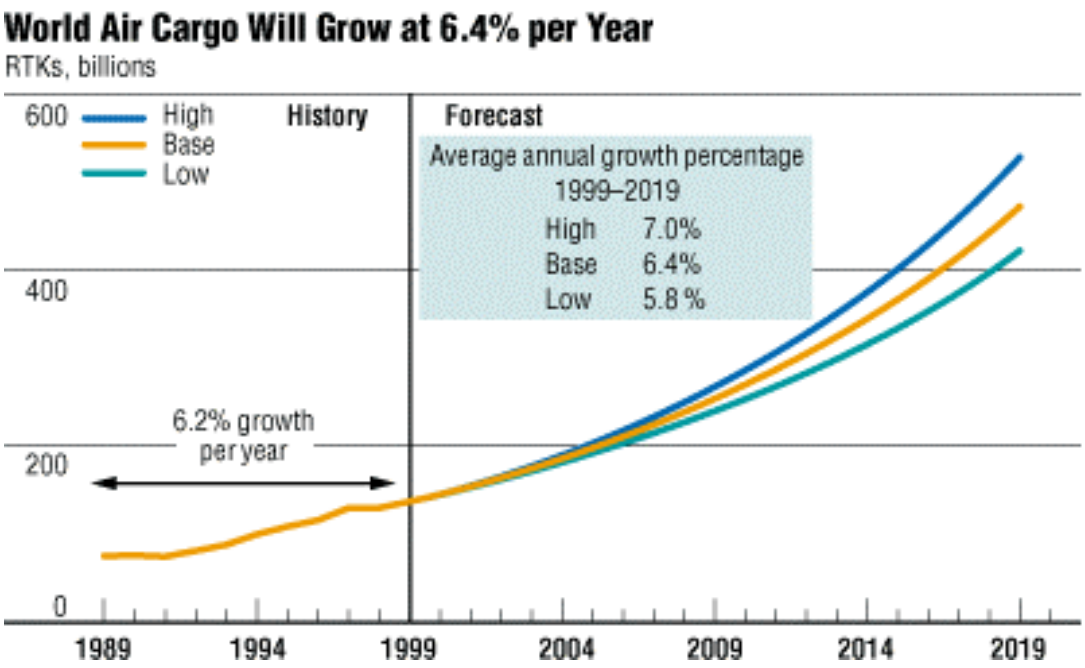



While air cargo has grown substantially over the last 30 years, the forecast growth is even greater. According to InterVISTAS, the base estimate is about 6.4 per cent annual growth to 2020. The figure below (sourced from that study), illustrates this steady growth forecast.

In North America, most air cargo activity takes place in the Chicago to New York City corridor. And given that IATA data indicate that Europe to North America was the largest air cargo flow in the world in 2000, it is logical to postulate that much of the Europe to North America flow is focussed on the Chicago to New York corridor.

Furthermore, as trade volumes from Asia continue to increase, there will be increased demand for trans-polar routes, and these new routings will open up cargo routes that do not exist at present.

The market report outlined above was supported by a comparative analysis completed in July 2002, which assessed how Sault Ste. Marie/North Bay measures up against competing airports, and examined issues related to infrastructure deficiencies and regulations. Compared to 16 other North American airports, the Sault Ste. Marie facility ranked among the most cost-effective airports that could serve the Chicago area. Given that Sault Ste. Marie offers an attractive combination of low costs and quick delivery times to Detroit/Chicago via I-75, Northern Europe may also offer a niche market opportunity for the City, and a cost competitive service for cargo bound between Asia and Chicago. However, lower landing fees and lengthened/reinforced runways need to be considered as a means of attracting more long distance carriers.




The Strategic Marketing Plan completed in August 2002 developed a comprehensive argument for building an air-cargo gateway at Sault Ste. Marie. The plan focused on call centres providing the potential to attract distribution centres in order to stimulate a market for air cargo through the Sault. The key activities of this effort would involve:

- Developing a business plan for a FTZ (Free Trade Zone), establishing the zone and marketing it;
- Approaching high priority target carriers with a business case;
- Approaching medium priority target carriers with a business case;
- Establishing infrastructure requirements and seeking funding; and
- Undertaking infrastructure expansion as required.

This is a strong growth market; however, in the short term, the challenge will be to target niche markets in Michigan, New York, and in the Chicago area, and to look for a niche that is geared to aircraft that can land and takeoff on a 6,000-foot runway. Finally, monitoring of developments at Chippewa International Airport and other potentially competing air facilities will also be important.

## 3.5 Marine

### 3.5.1 Great Lakes

In recent years, the U.S.-flag fleet has been moving about 120 million tons annually (primarily in the upper four Great Lakes), the Canadian-flag fleet 60 million tons (primarily via the Seaway and Great Lakes) and the ocean-going vessels 20 million tons (via the Seaway and Great Lakes).

Source: FHWA Freight Analysis Framework (trucking and rail); Bureau of Transportation Statistics, Air Carrier Statistics T-100 database (air); U.S. Army Corps of Engineers, *Waterborne Commerce of the United States* database (marine).

From Great Lakes/Seaway ports, a multi-modal transportation network fans out across the continent. More than 40 provincial and interstate highways and nearly 30 rail lines link the 15 major ports of the system and 50 regional ports with consumer, products and industries all over North America[11].

[11] Great Lakes Waterways Management Forum "The Great Lakes – A waterways management challenge", http://www.greatlakes-seaway.com/en/pdf/waterwaymanagement.pdf

**Per cent of World Ocean Fleet Able to Use the St. Lawrence Seaway[12]**
**Based on Length (L) Beam (B) and Draft (D)**

| | L-B-D | L-B |
|---|---|---|
| All Ships | 44.4 % | 69 % |
| Freighters | 61.2 % | 88.8 % |
| Bulkers | 9.2 % | 39.0 % |
| Tankers | 38.9 % | 49.7 % |

Most of the material carried by Great Lakes shippers is bulk cargo, but according to the table shown above, a large percentage of ocean going ships can navigate the Seaway. Data suggest that of the 192 million tons of cargo moving via the 16 U.S. ports, ore, coal, grain, cement, stone, aggregates, salt and iron and steel products account for 88 per cent of the tonnage[13]. The report summarized the results of interviews conducted in 2000 with more than 200 terminal operators, shippers and consignees in terms of the estimated average cost savings provided by the Great Lakes St. Lawrence Seaway System for bulk cargo shipments. The study concluded that, if the Seaway were not used for these bulk shipments, the price per unit of various goods would increase as follows:

- Iron ore: +$12 per ton
- Coal: +$8.50 per ton
- Stone and Aggregates: +$10.50 per ton.
- Grain: +$0.15 to $0.30/bu
- Cement: +$21 per ton
- Salt: +$20 per ton
- Iron and Steel: not cost sensitive, but delays in delivery would be costly.

*What a barge lacks in terms of speed it makes up for in moving large volumes, said Blair McKeil, president of the Hillyard Street company, who took over from his father about 13 years ago. Plus, there is never a traffic jam on the lakes. It's estimated border delays cost the North American economy $13.6 billion each year. And tonne for tonne, a single litre of fuel in a barge can move one tonne of cargo 230 kilometres. That drops to less than 100 kilometres by rail and less than 30 kilometres by truck.*

*(source: Hamilton Spectator February 6th, 2006)*

## 3.5.2 Ocean

### 3.5.2.1 The Size of the Fleet

The worldwide fleet of container vessels is growing very rapidly[14]:

- In February 2004, 6.54 million TEUs were shipped, an increase of 8.4 per cent over 2003.
- Based on current orders (those placed before March 31, 2004) for ship construction, container shipments will increase by 9 per cent in 2004 and by 10.5 per cent in 2005.
- The projected fleet size is 7.86 million TEU in 2006 – a figure that does not include ship orders placed after 31 March 2004.
- In November 2004, Bloomberg News reported that Hyundai Heavy Industries, Korea had received orders for 99 new container ships in 2004, with a value of over $8 billion U.S. These orders were in excess of the backlog of orders for 240 ships all due for delivery before 2008[15].

---

12 http://www.greatlakes-seaway.com/en/pdf/sailing_distances.pdf

13 Martin Associates, "Economic Impact Study of the Great Lakes St. Lawrence Seaway System, Transportation Cost Savings", prepared for The U.S. St. Lawrence Seaway Development Corporation, AugU.S.t 1, 2001.

14 "Intermodal Terminal Opportunity", Letter Report, March 31, 2004, IBI Group

15 Bloomberg News Nov 6, 2004 Article: "Hyundai Heavy Wins $568 Mln Order for Eight Vessels".

### 3.5.2.2 Ship Size

Container ships may be reaching their practical limits, as vessel designs are topping out at 12,000 TEUs.[16] Moreover, container ships have operational and commercial limitations that reduce their effectiveness (such as requiring a second engine that makes them very costly to build and operate).
In 2003, shipping lines began to introduce 8,000-TEU vessels into the Asia-Europe trade route, and by the end of this year, four services with 8,000-TEU ships will be plying ports on the West Coast. Worldwide, marine cargo carriers have ordered more than 140 vessels with 8,000-10,000-TEU capacities to be delivered through to 2007.

Technically, there is no limit to how large a container ship can be, although ships of more than 12,000 TEUs do have operational and commercial limitations. However, as the vessels grow larger, carriers have a more difficult time filling them, and this tends to negate the economies of scale that mega-ships are designed to produce. Harbor depths, infrastructure and other restrictions also limit the number of ports at which these jumbo ships can call.
Another important point here is that mega-ships also strain the capacity of inland infrastructure, terminal operators and rail and truck carriers to service these huge vessels. As terminals run out of space, ports may have to investigate more creative ways of expanding their operations, such as establishing inland depots that are served by rail shuttles, or other alternatives.

As ports prepare for a doubling of cargo volumes over the next 10 to 15 years, vessels of 5,000 to 8,000 TEUs will be the workhorses of the industry, while vessels of 8,000 to 10,000 TEUs will be common, on the east-west trade lanes. Vessels of 12,000 TEUs will be limited to traveling between the few selected ports that are capable of handling them.

## *3.6 Port and Terminal container Capacity*

*With more and more manufacturing taking place off shore, and particularly in the Far East, all major ports are experiencing capacity problems, at least to some degree. That being said, it is not a simple task to calculate the capacities of major ports and shipping terminals and their related infrastructure. A recent report indicated that the Panama Canal will expand its' waterway to double its capacity through a $5.25 billion project.*

*Based on the comprehensive analysis and studies by the Panama Canal Authority (ACP), its Board of Directors has recommended the building of a new lane along the existing Canal. The project is targeted for completion in 2014. Expansion would involve construction of a new set of locks along the new lane. Of extreme importance to the ACP is sustainable development and environmental best practices. By building water-saving basins next to the new locks – which will reuse 60% of the water in each transit – there will be no need for dam construction, flooding and displacing communities along the Canal.*
*(source: Logistic Today article – May 9, 2006)*

In the literature and data explored, no comprehensive compendium of data was found that measures or indicates the capacity of the many North American ports that would provide a basis for predicting their ability to handle container traffic in the coming years. However, considerable port-specific information was found.

The Port of Vancouver, which is the largest container facility on Canada's west coast, is backlogged with container traffic[17]. According to a *Today's Trucking* article published in April 2004, the Canadian Association of Manufacturers and Exporters noted that the then current container backlog along the coast represented the equivalent of 72 kilometres of traffic. The article cited surging volumes of cargo from China and a shortage of rail cars as factors that contribute to the problem. The Port of Vancouver is

---

16 CIFFA, Newsletter "The Forwarder" Vol 59 No 1 May 2004 "Container ships may be reaching size limit"

17 "Vancouver Port backlog reaches 'unprecedented levels'" April 12, 2004
http://www.todaystrucking.com/displayarticle.cfm?ID=3072

expanding in stages, and is currently completing the first phase of a $35 million container handling facility to increase its overall capacity.

### 3.6.1 The Port of Vancouver

The Vancouver Port Authority controls 6,000 hectares of water and 460 hectares of land, most of which is occupied by cargo terminals. Private industry, the province and local municipalities own additional land in the area.[18] During 2003, Vancouver's port facilities were very busy, as the following statistics indicate:

## Cargo Traffic:

- Total traffic: 66.7 million tonnes
- Foreign exports = 56.9 million tonnes
- Foreign imports = 6.7 million tonnes
- Domestic traffic = 3.1 million tonnes
-

## Cargo Types:

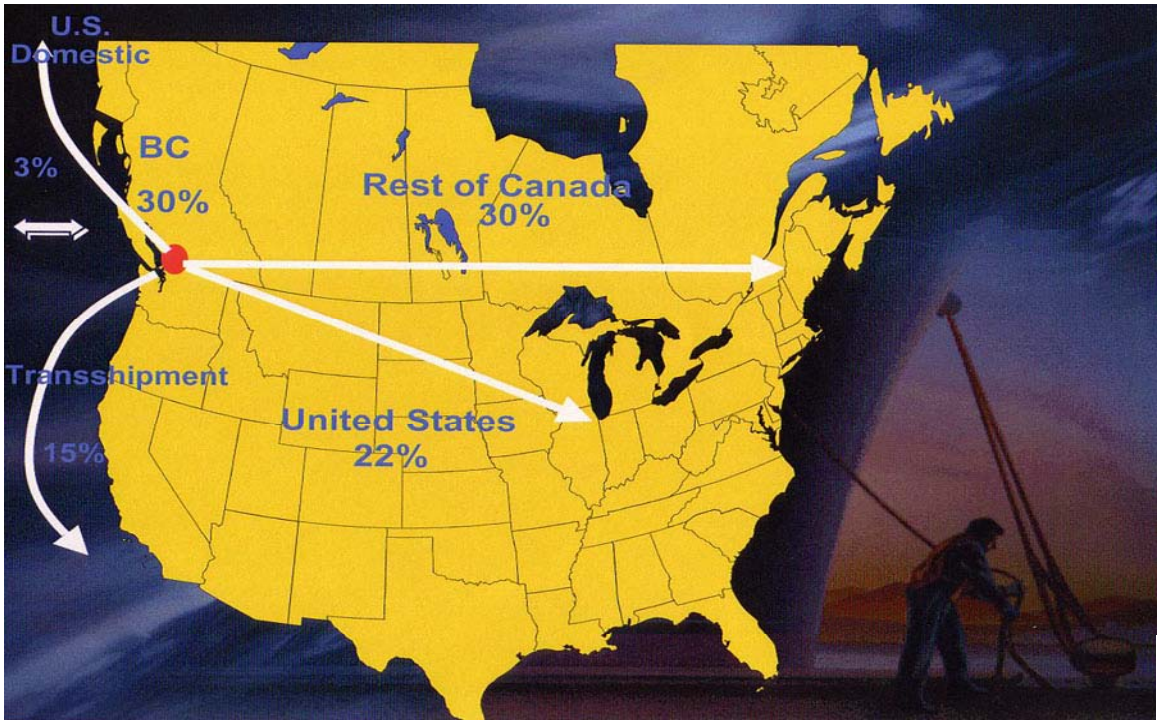
- Bulk = 76 per cent
    - Coal = 24.2 million tonnes
    - Grain = 6.7 million tonnes
    - Sulphur = 5.4 million tonnes
    - Potash = 4.6 million tonnes
    - Chemicals = 2.4 million tonnes
- Break Bulk (mostly forest products = 7.6 million tonnes) = 5 per cent
- Containers = 19 per cent or 1,539,058 TEUs

The Port of Vancouver is one of North America's gateways for Asia-Pacific trade, and by world standards, is a large facility. In Canada, Vancouver ranks first in both total cargo handled and total container throughput.

The Vancouver Port Authority currently projects that the port's volumes will triple or quadruple by 2020, from the current level of 1.7 million TEUs to about 5 million TEUs per year approaching the current volumes in Los Angeles. The expected destination breakdown for that volume is indicated in the figure below.

The Port of Vancouver was used as an example to demonstrate the high volume of activity being experienced and portray the effect it will have for all other modes of transportation once product arrives at the port. Other Ports (ie Port of Halifax, Port of New York and New Jersey, Port of Montreal) are also experiencing increased activities as the demand for bringing product to the North American marketplace continues to move in a rapid upward swing.

[18] http://www.portvancouver.com/media/port_facts.html




As the figure shows, the Midwest U.S. (Illinois, Indiana, Michigan, Minnesota, Missouri, Ohio, Kentucky and Tennessee, as defined in the Prince Rupert/Norbridge report), may not be the largest destination or origin for cargo, but it is nonetheless an important generator of traffic. Earlier in this study, data suggested that the Midwest was the final destination for more than 9 per cent of all container traffic in 1999, not counting other cargo that passes through the region.

Marketing materials from the Port of Vancouver's Container Expansion Program dated June 2004 indicate that the combined capacities of existing and new port facilities will be more than 5 million TEUs. Sault Ste. Marie via its strategic location to the U.S and its uncongested border can assist in the expedited delivery of goods to the U.S. via the I-75.

- Thirty per cent of Vancouver container traffic is projected for Eastern Canada. Consequently, approximately 1.5 million containers will pass above Sault Ste Marie.
- Additional traffic could be generated based on volume of goods landed in Halifax or Montreal and transported to Mid-west destinations north of Green Bay Wisconsin.

## 4.0 Demand and Capacity at Southern Ontario Border Crossings

### 4.1 Border Crossing Growth for Truck Volumes

Border crossings, especially those in Southwestern Ontario, have become very important for the safe, efficient movement of goods. This is evident from information on the Canadian Border Services Agency's web-site[19], which is updated every 10 minutes and indicates the length of border wait times. The U.S. Customs and Border Authority has also set up a similar site[20].

The fluidity of the main Canada/U.S. gateways is critically important to companies and communities on both sides of the border. According to the Canadian International Freight Forwarders Association, between 60 and 65 per cent per cent of international consignments arriving in a Canadian Gateway port are destined

[19] http://www.cbsa-asfc.gc.ca/general/times/menu-e.html

[20] http://apps.cbp.gov/bwt/

for the United States. The Table below indicates that truck volumes are projected to grow from 11.8 million in 1999 to 19.2 million by 2020, which would represent an increase of about 61 per cent. Even in the absence of any infrastructure improvements or multi-modal capabilities, the Sault Ste. Marie border crossing is expected to grow by 7.3 per cent per cent, just behind the Ambassador and Blue Water Bridges. Confirming this growth forecast, the Parsons Brinckerhoff Quade & Douglas study indicates that border crossings in Ontario, New York and Michigan will increase approximately 60 per cent over current flows and will strain the capacity of the largest-volume crossings on the border.

**Forecasted Growth in Annual Truck Volumes by Crossing**

| Crossing | Growth Rate [a] | 2000 volume | 2020 forecast [b] |
|---|---|---|---|
| Rock Island-Derby Line | 10.20 % | 266,966 | 395,000 |
| Douglas-Blaine | 8.50 % | 951,995 | 2,258,000 |
| Huntingdon-Sumas | 8.40 % | 186,513 | 378,000 |
| Saint-Armand-Highgate Springs | 8.30 % | 307,356 | 408,000 |
| Ambassador Bridge | 8.30 % | 3,486,110 | 5,051,000 |
| Blue Water Bridge | 8.20 % | 1,576,839 | 2,944,000 |
| Sault Ste Marie | 7.30 % | 137,804 | 240,000 |
| Aldergrove-Lynden | 6.80 % | 120,646 | 232,000 |
| Woodstock-Houlton | 6.60 % | 207,000 | 356,000 |
| Thousand Islands Bridge | 6.00 % | 542,703 | 861,000 |
| Thunder Bay-Grand Portage | 5.90 % | 64,193 | 123,000 |
| Osoyoos-Oroville | 5.60 % | 64,812 | 124,000 |
| St Stephen-Calais | 5.50 % | 239,508 | 482,000 |
| Lacolle-Champlain | 5.10 % | 769,232 | 967,000 |
| Peace Bridge | 5.00 % | 1,439,824 | 2,227,000 |
| Queenston-Lewiston Bridge | 4.70 % | 1,019,492 | 1,417,000 |
| Saint-Theophile-Jackman | 4.30 % | 121,108 | 169,000 |
| Cornwall-Seaway | 4.30 % | 131,203 | 191,000 |
| Detroit-Windsor Tunnel | 4.10 % | 170,054 | 187,000b |
| Fort Frances-Int'l Falls | 3.60 % | 92,263 | 147,000 |
| Prescott-Odgensburg | 3.00 % | 57,757 | 81,000 |
| Total | 60.71 % | 11,953,378 | 19,210,000 |

a Annual average growth rate for the last 10 years in the data.
b Operator forecast used in lieu of forecasting model

In response to growing congestion fears brought on by increased traffic and increased border security concerns, one important study completed to address this growing problem was the Environmental Assessment Detroit River International Crossing. Part of the supporting documentation for this EA is the URS report, "Transportation Problems and Opportunities Report". That report identified three main problems:

- The lack of reasonable options for maintaining the movement of people and goods in cases of major incidents, maintenance operations, congestion or other disruptions at any of the existing border crossings.
- Lack of sufficient roadway capacity to meet the future travel demand at the Windsor-Detroit border crossings; and,
- Lack of border processing capacity to meet the existing and future travel demand at the Windsor-Detroit border crossings.

Problems that were highlighted included delays in border processing and the lack of roadway capacity along Huron Church Road, which results in congestion and delays at the Ambassador Bridge crossing and similar delays at border processing points, as well as the lack of capacity at the connections to the plazas at the Detroit-Windsor tunnel.

The report analyzes roadway-based travel demand as well as rail-based demand. These demand analyses are discussed below.

## 4.2 Roadway-Based Travel Demand

The study indicates that a large portion of truck movements are longer distance trips, but a substantial number of shorter distance trips between Windsor/Essex and Detroit/Wayne County contribute to the total, because of the concentration of auto manufacturing in these areas. The majority of the truck movements in the Detroit-Windsor area are focused on the I-94 and I-75 corridors, with auto manufacturing as the primary contributor. The table below indicates the volume forecasts, by vehicle type, over the 30-year planning period.

**Base Case Annual Volume Forecasts (000's)[21]**

| Crossing | Vehicle | 2000 | 2010 | 2020 | 2030 | Total Growth | Annual Growth |
|---|---|---|---|---|---|---|---|
| **Ambassador Bridge** | Commercial Vehicles | 3,486 | 4,300 | 5,592 | 7,593 | 117.8 % | 2.63 % |
| **Detroit Windsor Tunnel** | Commercial Vehicles | 182 | 227 | 295 | 394 | 116.5 % | 2.61 % |
| **Ambassador Bridge and Detroit Windsor Tunnel** | Commercial Vehicles | 3,668 | 4,526 | 5,887 | 7987 | 117.7 % | 1.04 % |
| **Bluewater Bridge** | Commercial Vehicles | 1,577 | 1,841 | 2,546 | 3496 | 121.7 % | 1.12 % |

The Ambassador Bridge corridor is currently congested at peak times along Huron Church Road, and it is expected that the road will exceed its design capacity within five years. By contrast, Highway 401 east of Windsor is expected to have adequate capacity over the 30-year study period. The study also found that the major causes of delay on the U.S. side are related to toll collection and inspections, and that these problems are being addressed through improvements.

The Detroit-Windsor Tunnel faces constraints at the border processing components on both sides. The Canadian plaza, however, is also constrained by the adjacent development and road network. Notwithstanding these constraints, the tunnel is expected to reach its physical capacity in 10 to 15 years. Importantly, the study indicates that the road network components of the Blue Water Bridge crossing operate well below capacity and are projected to continue to operate below capacity over the 30-year analysis period. The main deficiencies at this junction are related to staffing and facilities. Presumably, the utilization of this crossing will be enhanced by the planned improvements to the plaza by the MDOT and Blue Water Bridge Authority.

**Existing and Future Base Case Volume/Capacity (Peak Direction)**

| Component | Ambassador Bridge | Detroit-Windsor Tunnel | Blue Water Bridge |
|---|---|---|---|
| **Existing (2000)** | | | |
| **Access Road** | | | |

[21] URS, "Canada-United State-Ontario-Michigan Border Transportation Partnership Planning/Need and Feasibility Study, Transportation Problems an Opportunities Report", January, 2004.

**Existing and Future Base Case Volume/Capacity (Peak Direction)**

| Component | Ambassador Bridge | Detroit-Windsor Tunnel | Blue Water Bridge |
|---|---|---|---|
| U.S. | Near Capacity | Near Capacity | Adequate |
| Canada | Near Capacity | Near Capacity | Adequate |
| **Toll Collection** | | | |
| Autos | 69 % | 54 % | 26 % |
| Commercial Vehicles | 101 % | 39 % | 100 % |
| **Roadbed** | | | |
| Truck Lane | 71 % | - | - |
| Cars and Trucks (PCE) | 73 % | 84 % | 22 % |
| **Border Processing** | | | |
| Passenger Cars | 112 % | 95 % | 64 % |
| Commercial Vehicles | 132 % | 46 % | 86 % |
| **Projected (2030)** | | | |
| **Access Road** | | | |
| U.S. | Adequate | Over Capacity | Adequate |
| Canada | Over Capacity | Over Capacity | Adequate |
| **Toll Collection** | | | |
| Autos | Adequate | Adequate | Adequate |
| Commercial Vehicles | Adequate | Adequate | Adequate |
| **Roadbed** | | | |
| Truck Lane | 153 % | - | - |
| Cars and Trucks (PCE) | 135 % | 115 % | 41 % |
| **Border Processing** | | | |
| Passenger Cars | 193 % | 146 % | 89 % |
| Commercial Vehicles | 148 % | 79 % | 159 % |

The table shown above indicates the current and future (2030), peak volume and capacity figures for each of the border crossing elements. The tables that follow provide details on the demand timeframes for the three travel corridors.

**Blue Water Bridge Corridor**

| U.S. Interstate I69 | U.S. Border Processing | Blue Water Bridge | Canadian Border Processing | Highway 402 |
|---|---|---|---|---|
| At or near capacity beyond 30 years | At or near capacity within 5-10 years | At or near capacity beyond 30 years | At or near capacity within 15-20 years | At or near capacity beyond 30 years |

**Detroit-Windsor Tunnel Corridor**

| Downtown Detroit Road Connections to Tunnel Plaza | U.S. Border Processing | Detroit-Windsor Tunnel | Canadian Border Processing | Downtown Windsor Road Connections to Tunnel Plaza |
|---|---|---|---|---|
| At or near capacity within 5 years | At or near capacity within 5 years | At or near capacity within 10-15 years | At or near capacity within 15-20 years | At or near capacity within 5 years |

**Ambassador Bridge Corridor**

| U.S. Interstate Connections (with | U.S. Border Processing | Ambassador Bridge | Canadian Border Processing | Highway Connections |
|---|---|---|---|---|

| gateway) | | | | |
|---|---|---|---|---|
| At or near capacity beyond 30 years | At or near capacity within 5 years | At or near capacity within 10-15 years | At or near capacity within 5 years | Huron Church Road at or near capacity within 5 years, Hwy 401 At or near capacity beyond 30 years |

The study referenced above was commissioned for the Detroit River Tunnel Partnership, which is proposing to expand an existing rail tunnel under the Detroit River to handle both trucks and trains. At the same time, a second group is proposing to alleviate border congestion by twinning the Ambassador Bridge and building a second span about five kilometres downstream[22]. *Today's Trucking* goes on to say in the article that contradicting the data presented by the DRTP, the bridge's operator, the Detroit International Bridge Co., says the bridge operates at less than 60 per cent of its full potential. The company adds that rigorous U.S. inspections -- and too few inspectors -- are the reasons for the huge delays that truckers face in trying to cross from Windsor, Ont. into Michigan.

A study undertaken in 2003 suggested the bridge was actually operating at 72 per cent capacity, but the new report -- titled "The Economic Impact of Adequate Border-Crossing Infrastructure" -- says the figure is much higher. The report's chief author, Dr. Michael H. Belzer, says the bridge system -- including the bridge it, access roads, toll plazas and government checkpoints -- is now at 92 per cent capacity, and "…significantly exceeds capacity during many hours of the average work day." At its busiest, the bridge handles some 6,000 trucks a day in each direction, and averages a combined 10,000 trucks a day.

## 4.3 Rail-Based Travel Demand

According to the URS document, the current demand being made on the rail network at border crossings means that it operates at about one-third of its capacity. The report concludes that the capacity of the rail network is determined to be sufficient to meet long-term needs.

The Ontario Ministry of Transportation has examined the capacities of Ontario border crossings for rail capacity. The tables below are split between CN- and CPR-owned tracks, and they confirm the URS report's conclusion that there is sufficient rail capacity at this gateway for the long-term.

Canadian National Railway Border Crossings

| Crossing | Ownership | # of Tracks | # of Trains a day | Additional Capacity |
|---|---|---|---|---|
| **Fort Erie Rail Bridge**<br><br>Between Fort Erie, Ontario and Buffalo, New York | CN | one | CN:<br>11 southbound.<br>8 northbound.<br><br>CPR:<br>7 or 8 trains | plenty |

[22] Today's Trucking, "Ambassador Bridge on Capacity Brink: Study", Nov. 28, 2003, http://www.todaystrucking.com/displayarticle.cfm?ID=2780

Canadian National Railway Border Crossings

| Crossing | Ownership | # of Tracks | # of Trains a day | Additional Capacity |
|---|---|---|---|---|
| **St. Clair River Tunnel**<br><br>Between Sarnia, Ontario and Port Huron, Michigan | CN | Two<br>(1 inactive) | CN: 23 trains southbound.<br>12 trains northbound.<br><br>CP: 10 trains | plenty |
| **Sault Ste. Marie Bridge**<br><br>Between Sault Ste. Marie, Ontario and Sault Ste. Marie, Michigan | CN | one | 2 trains southbound<br>2 trains northbound | plenty |
| **International Falls Bridge**<br>Between Fort Frances, Ontario and Rainer, Minnesota | CN | One | 7 trains southbound.<br>8 trains northbound. | plenty |

| **Canadian Pacific Railway Border Crossings** | | | | |
|---|---|---|---|---|
| Crossing | Ownership | # of Tracks | # of Trains a day | **Additional Capacity** |
| *Niagara River Bridge* | ***Niagara River Bridge Company, jointly owned by CN&CP*** | ***Single track*** | ***Not being used*** | ***Not being used*** |
| *Windsor / Detroit Tunnel* | Owned jointly<br>***Detroit Windsor Rail Tunnel Partnership CN and OMERS-Borealis Capital*** | 2 tracks<br>North Tube<br>***South Tube*** | 25 per day both directions for C.P., some days has high as 30 trains.<br><br>CN – 2 or 3 per week<br><br>CSX – 2 per week<br><br>NS- 7 per week<br><br>North Tube – Double Stack – used primarily<br>***South Tube – not used much, no double stacking capabilities*** | Only limited additional capacity is available. |

## 4.4 Inter-modal Demand

Between 1995 and 2003, Canada's inter-modal traffic nearly doubled to 712,377 carloads. As well, CP Rail's inter-modal traffic has now surpassed grain and coal shipping as its top revenue generator, as inter-modal accounted for 27 per cent of the company's sales in 2003[23].
Rail and truck transport are the most important methods of transporting containers from coastal and inland ports to the customer. However, inter-modal facilities are needed to transfer those containers from rail to truck transport. In the Midwestern United States, and particularly around the Chicago area, inter-modal capacities are nearing depletion, even though the demand for capacity is still growing rapidly.
The 2002 work by Call ("Overview of Midwest Freight Issues"), and referenced earlier in this study, forecasts:

- Inter-modal traffic in the Chicago area will grow by 160 per cent by 2020.
- 4,200 additional acres of terminal space will be required by 2020.
- 3,000 more "rubber tire" interchanges per day will be required by 2020 to meet demand.

New terminal constructions are located in suburban Chicago locations. The reasons for this site selection are as follows:

- Availability of Land
- Cost of Land
- Rail Network Congestion
- Highway Congestion

Although this expansion program may help resolve the current congestion issues, it is not known if the additional facilities are sufficient to accommodate the projected growth and resolve existing capacity issues.

# 5.0 Border Crossing Issues

## 5.1 Impact of Border Delays

In the preceding section, we looked at the capacities of several important border rail crossings across Ontario, and at the capacities of road and rail crossings in the Detroit-Windsor area. The bridges and roads in the Detroit-Windsor area are quickly reaching their maximum capacity, while the rail crossings have adequate capacity for future growth. However, it is also important to note that the roads and bridges in the Southern Ontario/Michigan trade corridor contribute to shipping delays long before they actually reach capacity. A recent study done for the Canada-U.S.-Ontario-Michigan Border Transportation Partnership, for example, indicates that the impact of border delays is already both extensive and expensive[24]. The study found that about $1Billion in trade crosses the border every day, and that, since the adoption of the North American Free Trade Agreement (NAFTA) in 1989, the volume of trade between Canada and the U.S. has grown by some 10 per cent annually. On an import/export basis key findings include:

- Canada exports 86 per cent of its merchandise to the U.S.
- Canada imports 73 per cent of its merchandise from the U.S.
- 19 per cent of the goods imported into the U.S. come from Canada
- 23 per cent of all exports from U.S. go to Canada
- The U.S. trades U.S. $227 billion in goods with the province of Ontario, which is only $5 billion less than its total trade with Mexico.
- Within the U.S. automotive industry, two-thirds of independent supplier plants, 84 per cent of assembler-owned supplier plants and 58 per cent of assembly plants are located within a day's drive of Detroit.

---

[23] Theobold, 2004

[24] HLB Decision Economics, Inc., "Regional and National Economic Impact of Increasing Delay and Delay Related Costs at the Windsor-Detroit Crossings", January 2004 for Canada-U.S.-Ontario-Michigan Border Transportation Partnership.

Of the total trade between the United States and Canada, 70 per cent is moved by truck. This required 14 million trucks crossing a border in 2002 – a volume that is the equivalent of one truck moving across the border every 2.5 seconds. It is evident that in the context of this kind of volume (not including automobile volumes), delays can cause extensive problems. The key findings of the HLB study, in the context of estimating the dollar value of delays and associated job losses include:

- It is estimated that by 2020, congestion and delays will cost the U.S. $2.2 billion and it will cost Canada $0.3 billion in forgone output and production.
- From 2020 to 2030, losses will reach U.S. $11.4 billion and CAN$2.1 billion.
- Cumulative losses from now to 2020 will total U.S. $40 billion and another U.S.$60 billion will be added in the 2020 to 2030 period.
- Production losses will be equivalent to 17,000 jobs in the U.S. and 6,000 in Canada by 2020, and as many as 120,000 by 2030 in both countries.
- Personal trips will be impacted by congestion and for context, in 2000, 12 million visitors from Michigan crossed into Ontario. The assumptions for the model used in the study create a loss of 35,000 Canadian jobs by the end of 2030 and a gain of 12,000 American jobs.

The Ontario Chamber of Commerce, (Borders and Trade Development Committee) also have examined the impact of border delays[25]. The findings of this study were similar to the HLB study outlined above, and include:

- **Canada/U.S. Trade**

  Importantly the OCC study found that the U.S. comprises 93 per cent of Ontario's total trade, and that Ontario's export industry supports one out of every four jobs in the province. The OCC study also found that 90 per cent of all consumer products and food used in Ontario are shipped by truck. Forty-two per cent of all of Canada's trade with the U.S. flows through the Windsor-Detroit corridor – which is more than the total trade between France and Germany.

- **Cost of Border Delays**

  Border delays are currently estimated to represent a cost to the Canadian and U.S. economies of more than CAN $13.6 billion a year. This works out to a cost of about $1,100 a year for every Ontario taxpayer. Moreover, the uncertainty of delays at the border is requiring automotive manufacturers to increase their inventory, at a cost of upwards of CAN $1 million per hour. A four-hour delay at the Ambassador Bridge costs the Ontario economy about $7 million in lost production. On average, studies show that the bridge is operating at 78 per cent capacity for commercial trucks and 95 per cent capacity for passenger cars. It currently accommodates some 330 commercial truck crossings per hour.
  Carrier companies generally allow anywhere from one and a half to two hours of time for border crossings. However, some assume upwards of four to six hours when they are transporting time-sensitive materials. It has been estimated that these "planned" delays cost trucking companies $1.58 to $3.18 billion a year, based on an hourly cost of $198. Moreover, unplanned delay costs are estimated to be upwards of $490/hour.

- **The Future**

  Delays and the costs that are associated with them are expected to grow in the future, since the study predicts that trade between Canada and the U.S. will grow by 180 per cent by 2015, and this will lead to a corresponding increase in truck traffic. The impact of these delays is illustrated by forecasted average speeds. The current average speed in the Detroit-Windsor corridor is 25 kph, and that speed is expected to drop to approximately 8.5 kph by 2040.

[25] Ontario Chamber of Commerce, " Cost of Border Delays to Ontario" May 2004.

## 5.2 Border Improvements

There is no doubt that future growth in traffic volumes will lead to additional congestion and delays at truck crossings and along associated trade corridors. In fact, the Parsons Brinckerhoff Quade & Douglas report concludes that few, if any, crossings in Southern Ontario can accommodate the forecast increases in volume without substantial investments in infrastructure, technology and staffing. Over time, technological innovations and process changes will undoubtedly make border crossings more efficient, but this alone will not likely be able to offset the increased flows of cargo. The study concludes that the U.S. and Canada should work together to develop a streamlined bi-national process for planning, environmental review, approval, and construction of new border crossings, and for the expansion of existing ones where they are needed[26].

According to EBTC, some 224 projects have been proposed to improve infrastructure and inspection operations at the Canada/U.S. border, at an estimated total cost of U.S. $13.4 billion. A number of these improvements are currently either in the planning or development stage27:

- Sault Ste. Marie, Ontario and the Government of Canada are investing $15 million to develop a new international truck route that links Trans Canada Highway 17 and the International Bridge. The truck route project is under way, with property acquisition complete and the alignment set. Construction is expected to be complete by October 2006.
- Maine-New Brunswick – Maine and New Brunswick are coordinating and cooperating in the planning and engineering of an entirely new international border crossing between Calais, Maine and St. Stephen, New Brunswick. The Province of New Brunswick is also planning to improve the access highway to the Woodstock-Houlton crossing to four lanes. This crossing connects U.S. I-95 to the TransCanada Highway.
- Quebec-Vermont – Reconfiguration of the highway approaches to new customs facilities is under way at the two major crossings between these jurisdictions.
- Quebec-New York – A project is currently under way to rebuild the existing facilities at the Lacolle/Champlain crossing, and to incorporate technology that will make the Quebec City to New York City route a “smart corridor”.
- New York/Ontario – The two jurisdictions are undertaking $42 million in improvements to the Peace Bridge, to enhance plaza capacity, security, technology and commercial vehicle processing. A Bi-National Transportation Strategy is also being developed to meet future needs at border crossings. Ontario is investing $166 million in infrastructure improvements in the area of the Queenston-Lewiston Bridge. As well, Ontario, New York, the Thousand Island Bridge Authority, the Seaway International Bridge Corporation, FHWA, Transport Canada, and Federal Bridge Corporation are studying the short- and long-term requirements at these two crossings. A long-term plan and implementation strategy will be developed when the study is completed.
- Michigan-Ontario – Michigan is undertaking U.S.$186 million in improvements related to improving access and reducing travel times at the existing border crossings at Detroit. Ontario has signed a Memorandum of Understanding with the Government of Canada that commits them to spending $300 million over five years as part of a joint investment to upgrade existing infrastructure on the Ontario approaches to the Windsor-Detroit border crossings. At the same time, the State of Michigan is completing the environmental clearance process for a new U.S.$225-million border station plaza at the Blue Water Bridge, while Ontario is spending $115 million in the Blue Water Bridge area on infrastructure improvements.

## 6.0 Sault Ste. Marie Infrastructure As An Alternative

A review of the foregoing market data leads one to the conclusion that from a freight shipping point of view, the current era is one of paradigm shifts. This new way of looking at freight demand, shipping

[26] Parsons Brinckerhoff Quade & Douglas, Sept 2002

[27] Eastern Border Transportation Coalition “The Importance of Efficient Canada/U.S. Border Crossings” 2004

constraints and border crossing issues highlights the fact that the potential at Sault Ste. Marie has not been realized.

Sault Ste. Marie has the potential for a confluence of the four shipping modes (air, marine truck and rail) and has the good fortune of a border crossing which has demonstrated excess capacity and easy access to the U.S. Mid-west market along the I-75.

A *Globe and Mail* report noted that[28]:

- Surging imports have strained logistics, and the Port Authority of Vancouver is said to be "Struggling to keep up."
- The rail system is unable to handle the expected number of containers. Although CN and CP have denied that there are system-wide problems, experience indicates there are some concerns and the Importers and Exporters Association of Canada says inter-modal trade is in jeopardy unless bottlenecks are addressed.
- Importers of goods from China face increasing delays and increased costs due to backlog in shipping from China to North American ports and on inland transportation systems.
- Existing problems are expected to grow once restrictions on imported clothing are lifted in January 2005.[29]
- The Vice President of the Canadian Association of Importers and Exporters has said that members are worried about the future and the impact of delays, as the current system will be unable to handle growing volumes in the future:
- High-volume purchasers have experienced fewest delays;
- The problem is more significant for smaller firms;
- Neither Canadian Tire nor Sears is experiencing problems at present;
- One shipment recently took 21 days to go from Vancouver to Montreal, rather than the normal five to seven days.

According to Marshall Macklin Monaghan along with Doug Clute and Associates, it has been reported in conversation that at least one large U.S. importer has concerns about the reliability and consistency of service via the U.S. West Coast ports. The company's concern is sufficient that it is considering re-routing all its goods through the Port of Vancouver. Other companies apparently have similar concerns. These companies and the associated third-party logistics firms they work with could be critical allies in a strategy to transform Sault Ste. Marie into a major inter-modal centre in the future.

CN's Brampton inter-modal terminal has a design capacity of 2250 TEU per day. Recent demand (Mar 2004) was reportedly as high as 3000 containers per day. No new capacity is available at Brampton, according to the findings indicated in the IBI report dated March 2004.[30]
Capacity issues and congestion at the Brampton yard have forced CN to introduce new procedures for pick-up and delivery of containers. Carriers must now access the yard on a seven day basis to enable the rail company to alleviate back-ups and move containers efficiently. Carriers did not previously pick-up or deliver on week-ends.

Rail officials have been reported in national media demanding government action to reduce or eliminate taxation from railway lands to enable the companies to put much needed capital improvements in place.

These constraint issues would affect both the CN's rail to truck and rail to rail transfers in the Brampton facility. Although CN is attempting to address capacity issues through the creation of a new facility in Milton, this project has generated public opposition as it would be developed on provincially protected "green belt" land.

---

[28] "IE Canada calls for National Coalition on Transportation", The Globe and Mail, 20 September 2004

[29] Globe and Mail, Business Section Jan 5, 2005

[30] IBI Group, "Inter-modal Terminal Opportunity Assessment", March 31, 2004

As mentioned earlier, Sault Ste. Marie is constructing a similar facility in the proximity to an uncongested border crossing, on lands designated for industrial development, thus preserving "green belt" lands in southern Ontario and helping reduce truck traffic in the congested highway 401 corridor.

Numerous news articles have appeared during 2004 and 2005 indicating that rail companies across North America are establishing track sharing agreements that will shorten distances and reduce costs. This is interpreted as an indication that railways may be open to exploration of new cost / time saving opportunities such as that offered by a Sault Ste. Marie facility as their systems approach capacity.

The following section highlights these potential success factors in some detail.

## 6.1 Sault Ste. Marie Success Factors

### 6.1.1 Location

The City of Sault Ste. Marie is located at the northern terminus of U.S. Interstate 75. This highway connects with Highway 17 at the International Bridge between Sault Ste. Marie, Ontario and Sault Ste. Marie, Michigan. On this highway network, Greater Detroit's five million people live just a five-hours down the road, and the metropolis of Chicago is only a day's drive away, as illustrated in the Figure below:


Sault Ste. Marie is currently an under-utilized and under-valued destination in the freight and international cargo-shipping industry. Effective marketing and increased promotion of the city could raise awareness and open doors to new opportunities.

Quality of life issues are a concern for many people, and while the environment of Sault Ste. Marie is unlikely to be a decision point for investment, it could well be a factor in the decision-making process.

### 6.1.2 Sault Ste. Marie Transportation Network/Opportunities

#### 6.1.2.1 Airport

The Sault Ste. Marie Airport is owned and maintained by the Sault Ste. Marie Airport Development Corporation. The airport occupies 733 hectares of land, and is located 17 kilometres west of the city. Access to the airport from the city is by Hwy 565 (Airport Road).

While there is no direct rail link to the Sault Ste. Marie Airport, there is good access via Hwy 565 and Hwy 550 to the proposed new truck route that will be constructed starting in the spring of 2005. Via this new route, the International Bridge will be approximately 18 kilometres from the airport.

The airport currently serves a number of air carriers and government agencies, as well as itinerant and permanently based general aviation traffic. The airport serves as a base for Fixed Base Operators (FBO), providing aircraft refuelling, painting, maintenance, repair, and air worthiness inspections, as well as flight and maintenance training schools, the Ministry of Natural Resources fire management centre and NavCanada flight services. The airport's runways were resurfaced in 2001, and are long enough to accommodate most short- to medium-haul aircraft.

The Airport's major facilities include two asphalt runways 6,000 feet (1,828 metres) long. Rehabilitation work was completed in 2001 on both the primary runway 12-30 and a secondary runway 04-22. Other remedial work was completed at the same time on the airport's taxiways, as well as the concrete aircraft apron. Modifications to the passenger terminal building to accommodate new security measures were completed in 2004. Other facilities include the airport administration and operations building, as well as the control tower, fire hall, maintenance garage, hangars, public parking areas, and access roads. The airport is relatively self-sufficient, and provides many of its own services.

The largest and heaviest aircraft that have used the airport are Boeing B-727's and B-737's.

The airport has available hangar space which can be used for warehousing and there is a sufficient landbase to add new facilities as demand dictates.

The airport's business plan and municipal planning regulations prepared in 2000 / 2001 anticipate a number of industrial and manufacturing uses will associate with the Airport in future.

The airports location provides easy access to the US border and the interstate network along I-75.

A relationship has been developed between the Mayor's office in Sault Ste. Marie and senior politicians in municipal and state governments in other countries that share an interest in promoting a new routes for air cargo.

Recent work done by InterVISTAS Consulting Inc concluded that there is enough cargo moving in the air lanes above Sault Ste. Marie and North Bay to constitute a significant opportunity.[31] The consultants concluded that North Bay and Sault Ste. Marie could potentially serve as a cost-effective gateway to and from the North American market.

Potential allegiances and links have been established between the city and several large carriers and shipping companies in the Far East. One company may be interested in exploring a service network that would use MD-11 aircraft between Anchorage and Sault Ste. Marie.

There may also be an opportunity to expand services with regional integrators for the shipment of small goods and packages.

### 6.1.2.2 Marine

Sault Ste. Marie straddles one of the most active canal and lock systems in the world. Inter-lake vessels and ocean carrier traffic through the Sault Ste. Marie locks totals about 5,000 craft a year, which carry more than 72,000,000 tons of cargo.

The active locks at this time are the Poe and MacArthur Locks. The MacArthur locks were built in 1943, and will handle vessels up to 800 feet long, 80 feet wide and 31 feet deep.

---

[31] InterVISTAS Consulting Inc. " Sault Ste. Marie /North Bay Air Cargo Feasibility Study: Market Analysis" March 2002 p88

The Poe Lock was built in 1968, and is 1200' long, 110' wide and 32 feet deep. Two other locks, the Davis and Sabin locks, are currently closed. As resources become available, these two locks will be replaced by a larger lock that is capable of handling ships more than 1,000 feet long. The project was originally expected to begin in 2002, but has been delayed by inadequate funding allocations.

All commercial vessel traffic between Lake Huron and Lake Superior traverses the Soo Locks, which are located on the U.S. side of the river. Recreational marine traffic uses the refurbished Canadian Sault Locks.

Transport Canada officially designates Sault Ste. Marie as a "Port". The city currently does not maintain that designation in the world of international trade as it is a very small player in the global marketplace. There are two wharves where vessels off-load their goods. A petroleum dock is located downstream from the locks on the Canadian side of the St Mary's River. Algoma Steel Inc. has an export dock for its products, and although this dock is dedicated for the company's use, others can use it whenever either Algoma Steel or Algoma Central Marine Division does not need it. Access to the export dock is maintained at seaway depth. The channel lead to the dock facility is maintained at "seaway depth" of 27 feet.

This dock is located within 2-3 km of the U.S. border and I-75 system.

A local marine operation, Purvis Marine, has the potential to expand its tug and barge service and for inter-lake container-on-barge service.

### 6.1.2.3 Truck

Several successful truck companies operate into the U.S. from Sault Ste. Marie today. These companies know and understand the market and may bring customers to the railways.

As noted earlier, Parsons, Brinckerhoff Quade and Douglas Inc. completed an analysis of the 1999 National Roadside Survey data in September 2002. The study provided extensive evaluation of the roadside data and resulted in a much better appreciation of the nature of goods movement across the Canada / U.S. border. Data collection took place for each border crossing. At Sault Ste. Marie it was observed that the International Bridge carried almost 150,000 trucks in 1999. More than half of these truck movements involved wood products, and about 20 per cent involved metal products.
Thirty-four per cent of the trips were destined for Michigan, 20 per cent to Wisconsin, 12 per cent to Ohio and 11 per cent to Minnesota.

The International Bridge at Sault Ste. Marie is the only vehicular crossing between Ontario and Michigan within a span of 600 miles. An interview with the General Manager of the International Bridge Authority in November 2004 revealed that:

- "The International Bridge is grossly underutilized."[32];
- Traffic in 2004 is about half of what it was in 1994 and will total about 135,000 trucks;
- Commercial traffic has increased 8 per cent in 2004;
- Revenue of $4 million; and
- Total traffic for 2004 is down about 3 per cent from 2003.

A new Customs and Immigration service centre is currently under construction on the U.S. side of the bridge plaza. The project is due to be completed in the summer of 2006. At that time, it will be one of the most modern bridge crossings along the border. The new pre-clearance process for commercial vehicles (FAST) is to be implemented end August 2006. This is important, as many of the other crossings do not have the capability to expand the bridge plazas sufficiently to efficiently handle the new and expanding customs and security inspection requirements.

[32] Mr. Phil Becker, General Manager International Bridge Authority, Interview Dec 2, 2004

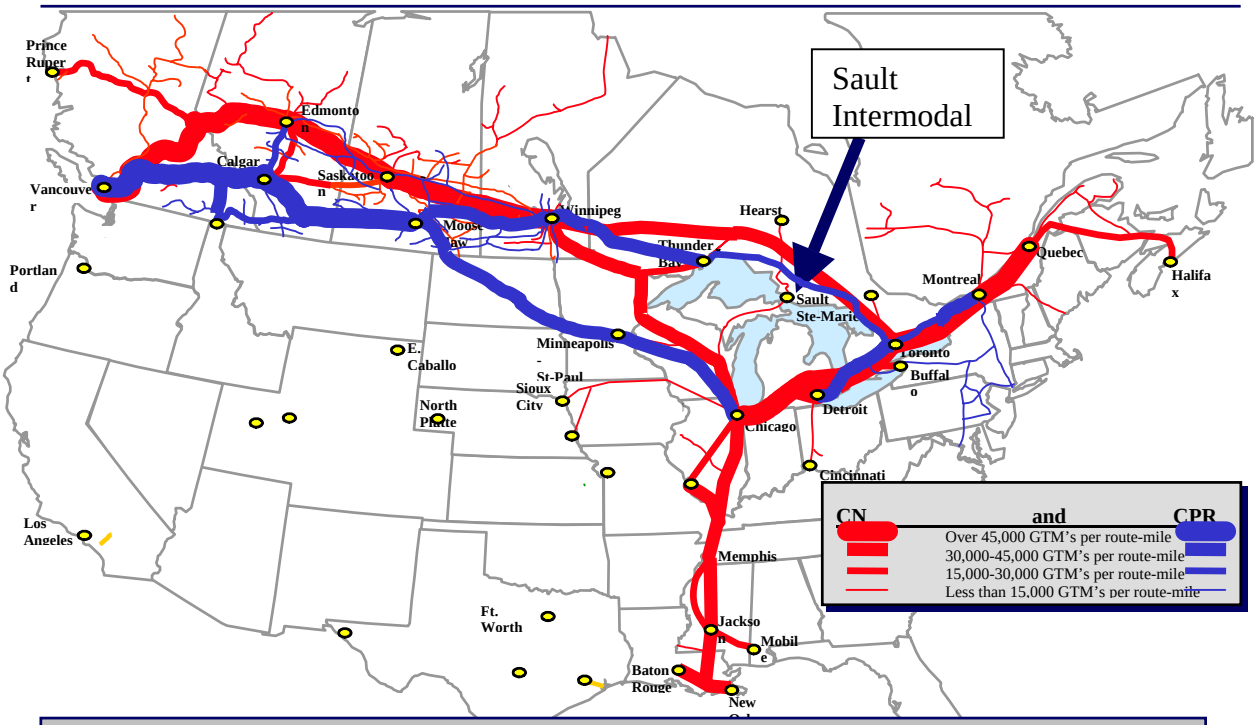
A number of trucking companies currently operate out of Sault Ste. Marie. These companies have established lines of service and a strong customer base. In the future, there may be opportunities to work with these firms to promote more back-haul opportunities.

A truck driver training facility currently operates in Sault Ste. Marie. Expansion and support of this facility and co-marketing its services would provide a supply of locally based drivers, and this has the potential to keep young people from the area living within their own community.

A new warehousing rail/truck distribution warehousing facility is currently being constructed in Sault Ste. Marie at the junctions of CN and CPR and is expected to be operational in 3rd quarter 2006.

### 6.1.2.4 Rail

In 1998 CN acquired the Wisconsin Central Railway and the former Algoma Central line (ACR) connecting Sault Ste. Marie to Hearst. This link completes a CN system enabling traffic to flow from the CN main line at Oba through Sault Ste. Marie into the U.S. Mid-west and south.
The Huron Central Railway links the border with CP main lines at Sudbury and through the Ottawa Valley Railway to Smith Falls and then Montreal. The Ottawa Valley / Huron Central link has been used in the past by CP as a routing for shipments to the Upper Mid-west area. The figure below illustrates CN and CP system routes. The rail facilities are located adjacent to the International bridge, facilitating development of an intermodal rail-truck facility with easy U.S. access to the I-75.




**CN Systems**

Rail companies will respond to a strong business case in which it is apparent that change and a new route would benefit their bottom line.

## 6.2 Summary of Sault Ste. Marie's Existing Infrastructure and Attributes:

- Direct link to CN and CP main lines via Franz and Oba.
- Underutilized International Bridge - no congestion.

- Experienced trucking firms familiar with Just In Time requirements.
- State-of-the-art U.S. Customs facility.
- FAST system to be implemented Aug 2005 or earlier.
- Experienced customs brokerage offices.
- International rail crossing.
- Seaway access.
- Existing facilities for limited marine cargo.
- Locally based trucking companies familiar with routes to markets in U.S.A.
- Experienced drivers.
- Readily available labour force.
- Truck driver training centre.
- Potential for 400,000-sq.-ft. warehousing adjacent to rail yard.
- Capacity to develop limited air cargo facilities.
- CP links eastward to ports of Montreal and Halifax via Huron Central.
- New Truck Route linking Trans Canada Highway to the International Bridge
- New warehousing/distribution facility at the junction of CN and CPR.

## 6.3 Other Opportunities with Sault Ste. Marie

### 6.3.1 Prince Rupert

The development of a new container port at Prince Rupert presents an opportunity for Sault Ste. Marie. Assuming that there is interest at Prince Rupert for a cooperative plan, the timing of development for the new facility would allow time to put the essential infrastructure in place in Sault Ste. Marie and co-market both facilities to customers.
The Prince Rupert proposal is based on optimizing CN's capacity with long balanced trains on multiple days per week. Marketing materials produced by the Prince Rupert Port Authority indicate that the Authority has established preliminary agreements with a number of container shipping companies as customers – multiple vessel calls per week are important. Plans for the port are also premised upon westbound backhaul cargoes. However, Asian markets are unbalanced – less going west than is coming east and backhauls are important to rail lines to optimize overall economics. The port has a close working relationship with CN whose route and infrastructure are competitive with competitive gateways and comparable costs. The long-term success of the Prince Rupert facility will be linked to the continuing congestion and capacity issues of other west coast ports.

### 6.3.2 The Potential of Container-on-Barge

Osprey Lines is working to increase awareness about using inland waterways as a component of the trucking and rail inter-modal network. Currently, its east-west movements are primarily petrochemical containerized shipments. In many cases, the company operates its terminals within chemical plants. It also moves steel, lumber, cotton and food products by containers on barges.

Cleveland-based Garrick Corporation is optimistic about the potential for container-on-barge service for its business. The company is a distributor and processor of sustainable natural resource products such as lightweight aggregates, wood chips, compost, topsoil, and salt used in de-icing applications. Its products are used in landscaping and other industries. Garrick also distributes to large retailers such as Wal-Mart, Home Depot, and Lowe's. It currently uses several barge carriers to move its bulk shipments. [33]

### 6.3.3 Changes within the Industry

Freight forwarders are looking for alternative ways to serve their clients. Several third-party logistics providers have expressed interest in working with Sault Ste. Marie to develop an alternative "Central

[33] INBOUND LOGISTICS, July 2004 "Congestion in the inter-modal network puts unprecedented stress on shippers and receivers"

Canadian Gateway" into the U.S.[34] Aligning with one or more freight forwarding companies represents an opportunity to co-market a new facility and routing to customers in the target market.

### 6.3.4 Time/Cost Advantage of a Sault Ste. Marie Inter-modal Facility

In order to estimate the time advantage of accessing the Detroit market via a multi-modal facility at Sault Ste. Marie, we have estimated transit times from Vancouver for both this option and the current system of shipping goods via Southern Ontario and Windsor.
In general, the current method of delivery to the auto companies in Detroit is by train from Vancouver to a yard in Southern Ontario and from there by rail to the plant or to a materials handling center in the U.S. Smaller shipments are, however, shipped by truck. Given available rail capacity this method incurs minimal delays at the border for the larger shippers, although delays in the rail yards are certainly possible and are reported to be problematic if they occur. As detailed in the following table, depending on delays in the rail yards, the total transit time ranges from 142.5 to 160.5 hours.
Shipping to Detroit via Sault Ste. Marie would involve a rail to rail transfer at either Oba from (CN) or Franz (CP) to the former Algoma Central (now CN) line to Sault Ste. Marie. Minimal transfer times have been assumed. Similarly, an efficient rail to truck transfer is expected in the Sault Ste. Marie inter-modal facility as these yards are not congested. Total transit times from Vancouver for this option of about 134.5 hours are expected.[35]

**Relative Transit Times Vancouver Detroit**

| | **Via Sault Ste. Marie (hrs)** | **Via Windsor (hrs)** |
|---|---|---|
| Rail to terminal[36] | 117 | 130 |
| Rail to Rail Transfer | | |
| Oba | 6 | |
| Brampton | | 6-24 |
| Rail to Truck Transfer | 6 | N/A |
| Rail to Destination | N/A | 6.5 |
| Truck to Destination | 5.5 | N/A |
| Total Time | 134.5 hrs | 142.5 – 160.5 hrs average 151.5 hrs |

On average, the total time saving resulting from shipping via Sault Ste. Marie is, therefore, in the order of 17 hours and is illustrated in the Figure below.

The time advantage for this routing over goods shipped by truck from Brampton is significantly greater. More importantly, goods shipped by truck across the border at a Southern Ontario crossing are subject to possibly significant unplanned delays due to border congestion, greatly increasing costs.
Although a 17-hour time saving results in a theoretical additional market reach by truck (assuming a return trip from Detroit) of 8.5 hours or about 500 miles, there are practical limitations. Hours of service limitations dictate that drivers can only spend 11 hours on the road in a 14-hour duty period (to be followed by a mandated 10-hour rest period). This 11-hour practical limit reduces the market reach from Detroit to between 300-350 miles, but still allowing access to such centres as Chicago, Cincinnati, Milwaukee and Pittsburgh.

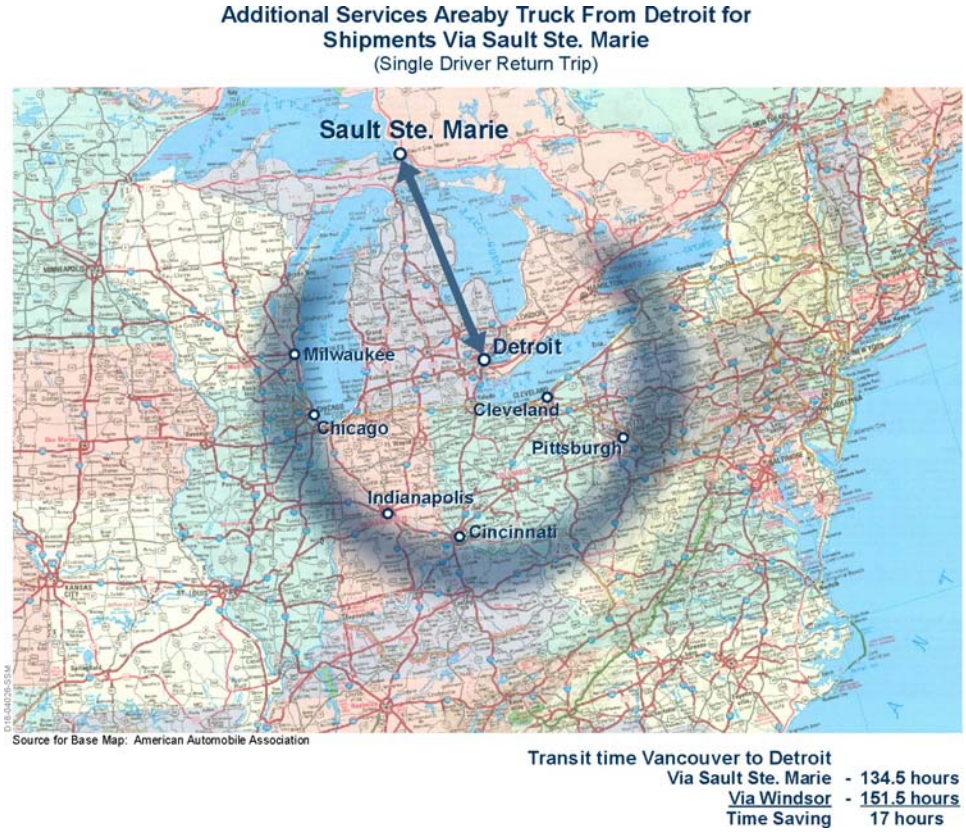
In other words, based on the foregoing assumptions, the time savings associated with shipping to Detroit Via Sault Ste. Marie are sufficient to extend the market area by at least one 11-hour return-driving shift in all directions from Detroit. It should be noted that this area can also be easily reached within an 11-hour one-way driving shift directly from Sault Ste. Marie.

---

[34] InterVISTAS Consulting Inc "Sault Ste. Marie Call Centre/Distribution Air Service Development Project Report" December 2004

[35] Developed from information provided by H. Wilcox – Transportation Specialist

[36] Sault Ste. Marie or Brampton




## 7.0 Summary of "THE OPPORTUNITY"

- Import volumes from China to North America are growing rapidly. Most of this traffic enters North America via the west coast as containerized cargo. Eight of the top 30 container ports in the world are in China.
- Approximately 500,000 containers are shipped to Michigan from Asia annually.
- The rapid growth has serious impact on transportation infrastructure in North America. The existing coastal infrastructure and associated human resources are unable to cope with the surge in volumes. U.S. port capacity is expected to be scarce within 5-6 years.
- New ultra-large container ships will become more prominent to minimize shipping costs but will aggravate the port and inland congestion already existing.
- Ports will have to upgrade efficiency and capacity, find more hinterland connections and market their products and services.
- Inland services are in various states of congestion and may not have the flexibility to expand to meet the need.
- Chicago is the major rail hub to U.S. west coast. Connections between Chicago and Detroit are predominantly truck. Canada's closest equivalent hub is Toronto, truck connections to Detroit:
- 2 million containers estimated to move between Chicago and west coast annually.
- 350,000 to 400,000 containers estimated to move between Toronto and Port of Vancouver.
- Ontario / Michigan border crossing points are under severe stress and require major capital improvements at enormous cost.
- Government and regulatory agencies are concerned.
- Combined capacities of existing and new port facilities on Canada's west coast will exceed 5.4 million TEU (expanded Vancouver plus Prince Rupert). Approximately 1.9 million of that traffic will pass above Sault Ste. Marie. Redirecting 5 - 10 per cent of that traffic through Sault Ste. Marie would create a very busy inter-modal facility. with ananual through put of 100,000 to 200,000 TEUs.

- It is also expected that a certain amount of Mid-west U.S. destined goods currently shipped through Eastern Canadian ports could be re-directed through Sault Ste. Marie.
- Service through Sault Ste. Marie could cut wharf-to-door transit to Detroit by 8 to 26 hours depending on delays experienced through the system.

Sault Ste. Marie is one of the few border crossings where there is a confluence of the four major transportation modes and where a multi-modal facility could be developed building on existing infrastructure, adjacent to an uncongested border crossing and with easy I75 truck access to the major U.S. Mid-west markets.

The City of Sault Ste. Marie – strategically located at the nexus of three Great Lakes (Superior, Michigan and Huron) – has the potential to offer long-term freight solutions for at least part of this increasing demand. This report presents background data on the key shipping modes, and discusses the circumstances in which a new North-South corridor through the heartland of North America could evolve, as part of the solution to the significant existing and future congestion at the Ambassador and Bluewater border crossings.

The report suggests that greater utilization of the International Bridge at Sault Ste. Marie and the I-75 corridor could represent an effective relief valve for congested systems in Southern Michigan and Southern Ontario – and that it could also evolve into an important alternative route to the Central and Upper Midwest areas of the U.S., through Michigan's upper peninsula.

## 8.0 Conclusion

As mentioned throughout this detail paper there is a major concern in the movement of goods not only from a global perspective but also in our own backyard. There is congestion everywhere. Ports, highways and major border crossing congestion are impeding not only the efficiencies in modes of delivery but also impacting the efficiencies in production at major facilities in North America due to the delay in receiving product in a timely fashion. As other parts of the world continue to grow and product continues to arrive at our ports in record fashion, it is very important that we look at other areas of Canada to alleviate this major problem and Sault Ste. Marie through its uncongested border is only one solution out there but we feel a very important one not only to the Canadian economy but also to the economy of Northern Ontario.
The Sault Ste. Marie Multimodal Task Force is currently conducting through KPMG a four-phased approach to determine the best mode(s) of transportation to go after due to the congestion crisis in the global marketplace today particularly the Ontario/Michigan marketplace. Phase 1 of the study is a market assessment which will assess all four modes of transportation in Sault Ste. Marie and the best mode or modes to commence with. Phase 2 will be a detailed Feasibility/Infrastructure Assessment in Sault Ste. Marie and surrounding area of the logistic routes currently being utilized. Phase 3 will be to develop a strong business case to present to all parties both governmental and industrial followed by phase 4 which will be an implementation strategy.
As mentioned in this detailed paper other developments from a private sector perspective through the movement of goods are moving forward in Sault Ste. Marie and through this study that the task force is conducting, we are confident that the results will reinforce the information provided in this detailed paper and further encourage development from a multimodal perspective not only in Sault Ste. Marie but other potential areas as well.

## 9.0 References

All key references are identified in footnotes throughout this report.

Note:

Majority of information, other media and journal articles, reports, studies and presentations were taken with permission out of the study that was developed for the Sault Ste. Marie Multimodal Committee by Marshall, Macklin, Monaghan in association with Doug Clute and Associates entitled "Multimodal Opportunities Study – Situation Analysis Report dated January 2005