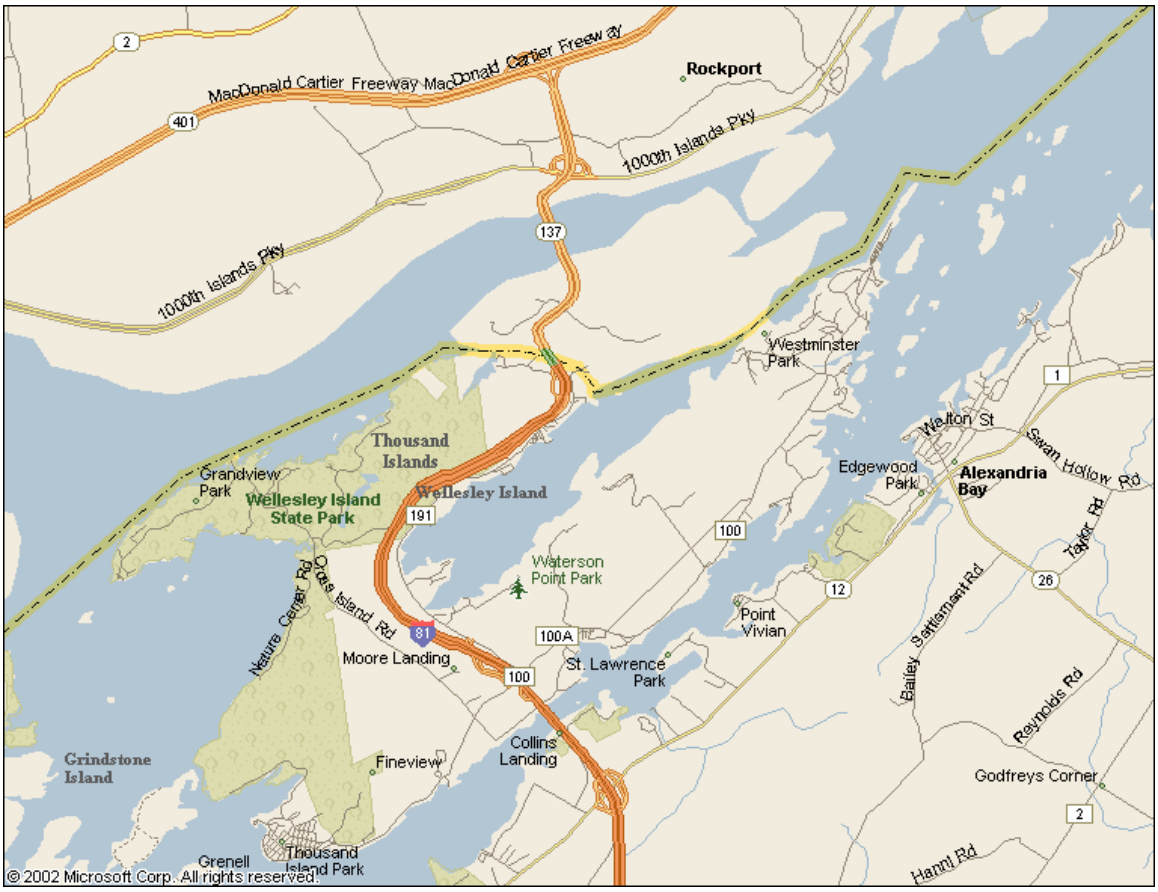
Final Report
U.S./CANADA International Bridge Feasibility Study
Thousand Islands Crossing



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I. Introduction

The Thousand Islands crossing was opened in 1938 and extends from Collins Landing near Alexandria Bay, New York, to Ivy Lea near Gananoque in the Province of Ontario. The crossing consists of a series of bridges, highways, toll collection facilities and the U.S. and Canadian Ports Of Entry. It extends over eight and one half miles, connecting Interstate Highway 81 in the U.S. with the Highway 401 expressway in Canada (Figure 1). It is a key part of the Capital Corridor (Figure 2) that connects the Canadian Capital in Ottawa to the U.S. Capital in Washington, D.C. The 565-mile highway route between these two Capitals, supported by the Thousand Islands Crossing, provides one of the least congested and fastest routes. Highway 401 also connects this crossing with the City of Toronto to the west and the City of Montreal to the east.

In 1998, the findings of the Northern New York Border Crossing Study (The 1998 Study) conducted by the New York State Department of Transportation (NYSDOT) identified that the major two-lane bridges serving this crossing might exceed their vehicle carrying capacity within 20 years and a substantial investment may be required to replace or twin span these bridges in the future. The 1998 Study also identified that the Thousand Islands Crossing is one of the most important and busiest international crossings between the U.S. and Canada carrying thousands of travelers and millions of dollars of trade daily between these two great countries.

Since the time of the 1998 Study, the tragic events of 9/11/2001 occurred, and as a result, altered the way inspection procedures are presently carried out for vehicles entering both the U.S. and Canada. These changes drastically altered the ability to process traffic through both the Canadian and U.S. Ports Of Entry at the Thousand Islands Crossing.

Recognizing these changes and the possible need for a major future investment to maintain the Thousand Islands Crossing in 2020, the Bi-National Team was formed to undertake "The U.S./Canada International Bridge Feasibility Study at the Thousand Islands" or Bi-National Study. The Bi-National Team consists of:

- New York State Department of Transportation (NYSDOT)
- Federal Bridge Corporation, Limited
- U.S. Federal Highway Administration
- Ontario Ministry of Transportation (MTO)
- Thousands Islands Bridge Authority

This report documents the results of this study.

Figure 1
Thousand Islands Crossing

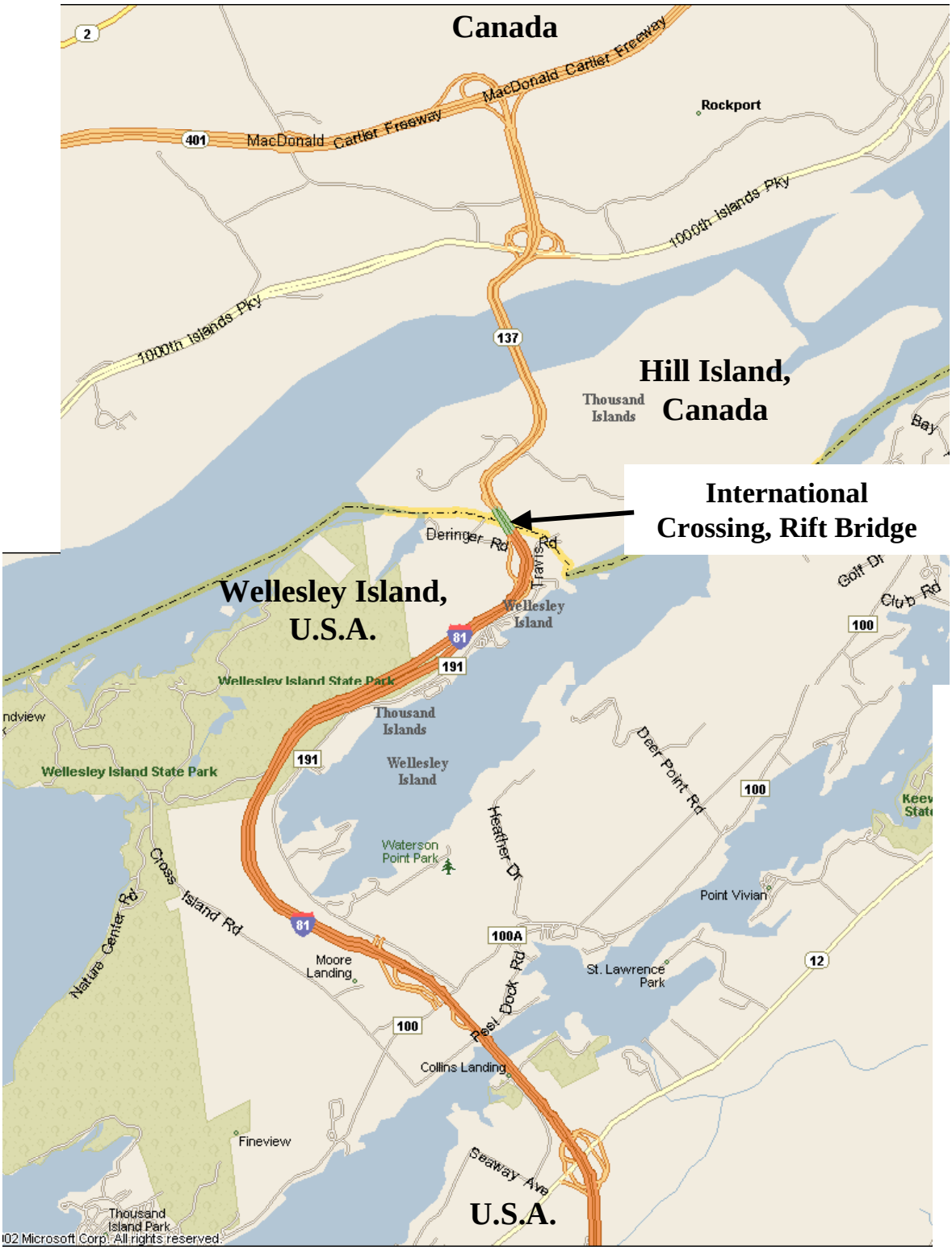


Figure 2
The Capital Corridor

II. Goals and Objectives

The primary goal of the U.S./Canada International Bridge Feasibility Study at the Thousand Islands was to determine the short and long term requirements at the Thousand Islands Crossing and to develop a long-term plan and implementation strategy that will guide investment decisions for the future.

By completing this study, the goal of all agencies that operate at the U.S./Canada border, which is "to protect the safety and well-being of the citizens of their respective country," could be planned for, implemented, and achieved.

The focus of the study was to:

- Provide a planning level analysis of the infrastructure and operational capacity at these two crossings;
- Identify general social, economic, environmental, and transportation issues that must be addressed in the development of future plans;
- Determine if and when the capacity of the existing facilities will be exceeded;
- Identify alternatives for resolving current issues and meeting future requirements including capital investments and/or changes in policies, processes, and procedures;
- Conduct a planning level analysis of alternatives from an engineering, social, economic, funding, and environmental perspective and identify possible local, regional, and national impacts;
- Identify the planning level estimated costs associated with each feasible alternative and identify possible means of financing;
- Identify and evaluate implementation issues, provincial and state requirements necessary for implementation and a timetable for accomplishment; and
- Inform all affected government departments and agencies on the recommended plan and implementation strategy.

III. The Study

The study began in the Spring of 2002 conducted by a bi-national consultant team selected to conduct the study. The study reviewed all aspects of the crossing, held meetings with all agencies that operate at the crossing, and conducted two (2) sets of public meetings (each one in the U.S., followed by a similar one in Canada). It began by review of the sections of the Northern New York Border Crossing Study (The 1998 Study) and recommendations concerning travel using the Thousand Islands Crossing. Updated data on travel and processing times (time to collect tolls and the time to process traffic through primary inspections at the Ports Of Entry). Previous travel forecasts where compared to actual travel that had occurred over the past 5 years and updated forecasts were prepared. The updated study also reviewed what improvements have been made at the crossing and what changes have occurred since 1998.

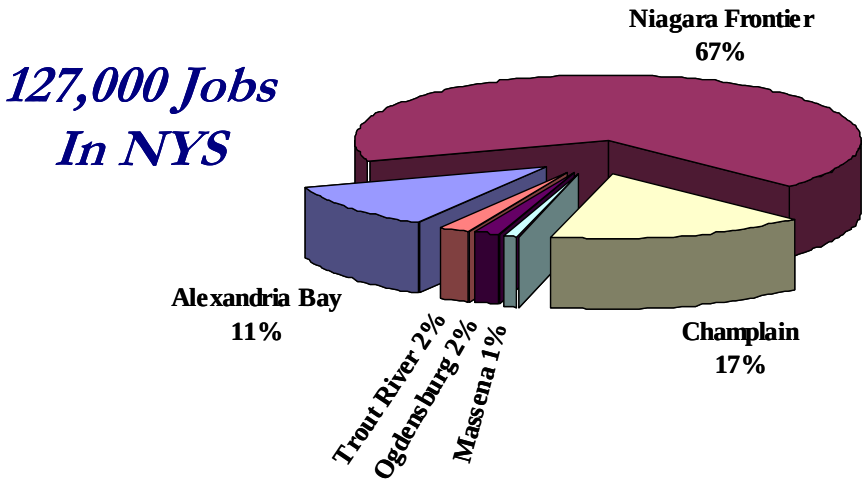
Based on information and analysis, the updated recommendations were developed and presented to involved agencies and the public at various presentations for their input and comments. Based on the updated information, analysis, and agency and public comments, the recommendations in this report are presents as guidance for future improvements at the Thousand Islands Crossing.

IV. The Importance of the Thousand Islands Crossing

The Thousand Islands Crossing is one of the busiest international crossings between the U.S. and Canada. It is ranked as the 7th busiest commercial vehicle and the 15th busiest passenger vehicle crossings of the approximately 125 highway Ports Of Entry between the U.S. and Canada. It is also, the 9th busiest of the 208 custom districts (by value of trade) associated with all North American Trade by land mode among Canada, the U.S., and Mexico in 2002. In 1997 a one-day travel survey taken on a summer weekday at this crossing found trips using this crossing begin or end in nearly every U.S. State or Canadian Province. This data supports the premise that this crossing is truly an international crossing serving local, regional, and national needs for both personal travel and movements of goods and services.

In 2003, over $10 billion of the $362 billion of goods traded between the U.S. and Canada used the Thousand Islands Crossing. The value of trade crossing the Thousand Islands Crossing has been increasing at 6.3% per year. In 2003, on average, there were 1,600 commercial vehicles carrying $29 million of goods per day over this crossing. It is estimated that 1.4 million jobs are created in Canada and the U.S. from trade crossing the New York Border Crossings. The amount of trade at the Thousand Islands Crossing is estimated to be responsible for the creation of over 165,000 jobs in the U.S. and Canada.

Figure 3
International Employment Link between Thousand Islands Bridge Trade and Areas within New York State



The Thousand Islands Bridge Crossing itself creates additional jobs regionally and locally. These jobs are generally associated with real estate, cultural and educational opportunities, financial and professional services, shopping, and tourism. Currently, 73% of the passenger vehicles use this crossing for tourism (recreation), nearly 2/3 entering in the country stay for two or more nights, with most carrying more then one passenger. This demonstrates the significance of tourism jobs supported by this crossing. On average, over 4,000 passenger vehicles carrying nearly 9,000 people on a daily basis use this crossing.

Local jobs are also created by activities required to operate a crossing. The Thousand Islands Bridge Authority employs approximately 59 full time positions associated with administration, maintenance (including bridge painting), and toll collection. Three of these positions are required to assist in managing traffic backups associated with border crossing delays. There are over 100 Customs and Border Protection personnel stationed on the U.S. side and a similar number (111) approved for the Canadian Customs and Border Services Agency at the Thousand Islands Crossing. The approximate 260 local jobs directly related to the Thousand Islands Bridge crossing do not include the additional jobs associated with the Custom Brokerages services, the operation of the Duty Free Stores or jobs associated with maintenance facilities at the U.S. Port Of Entry (maintenance services for the Canadian Port Of Entry are provided by the Thousand Islands Bridge Authority).

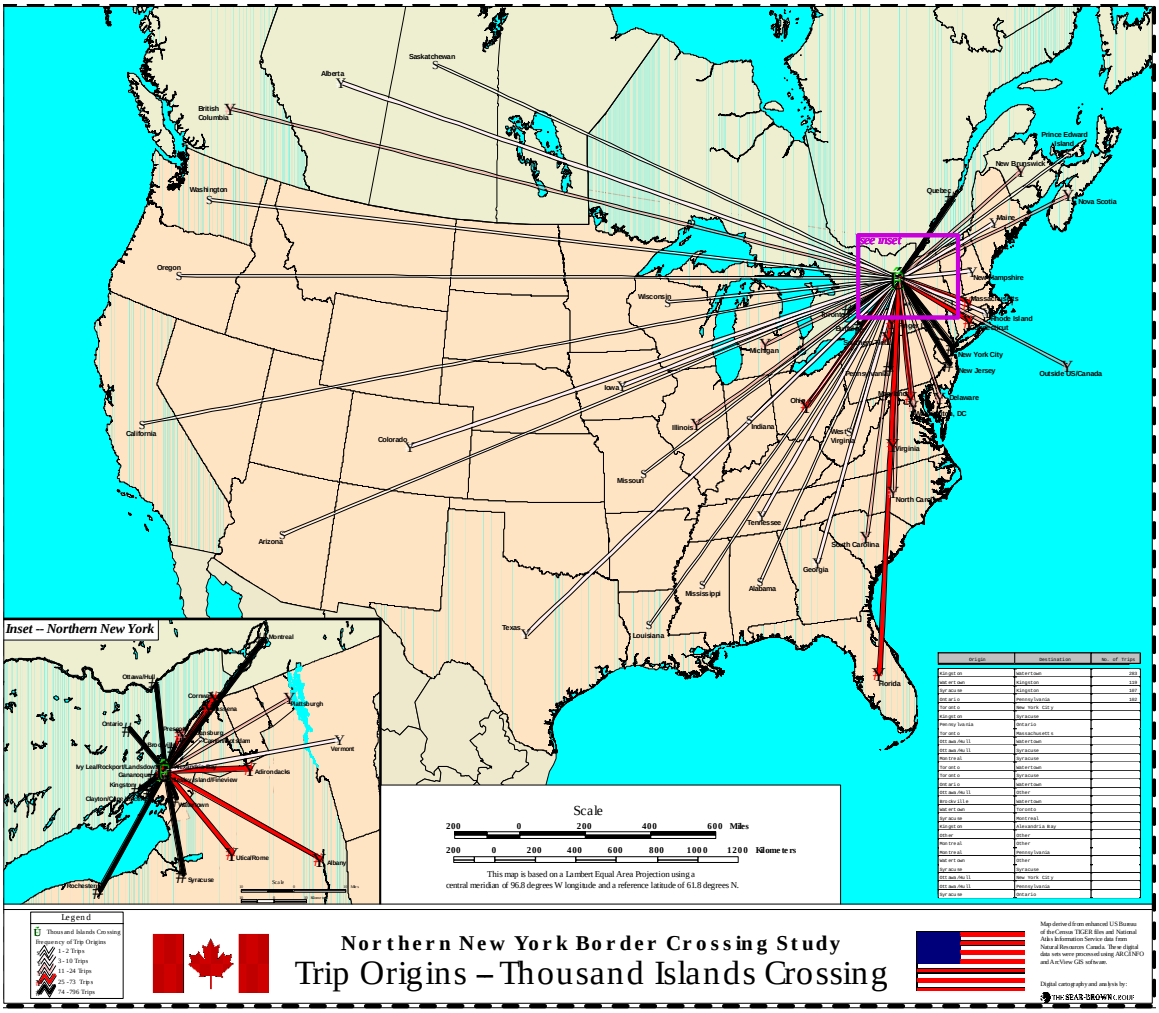
V. User Characteristics

Information on the characteristics of persons and vehicles using the Thousand Islands Crossing were obtain prior to 9/11/2001 and were developed from two main sources. They are the travel survey of both passenger vehicles and commercial vehicles conducted on August 7, 1997, as part of the Northern New York Border Crossing Study, and Transport Canada's 1999 National Roadside Study (NRS), "Truck Freight Crossing the Canada - U.S., an Analysis of the Cross-Border Component of the Border 1999 Canadian National Roadside Study 2002" - Parsons, Brickerhoff, Quade & Douglas. The information collected only reflects international travel (i.e., trip that crossed the border) and does not reflect the characteristics of travelers between the Wellesley Island and the U.S. Mainland or between Hill Island and the Canadian Mainland. The increased inspection time and longer wait time to cross the border, as a result of 9/11/2001, may have also changed some of the characteristics of travelers using the Thousand Islands Crossing, particularly for passenger trips traveling within the Thousand Islands Region. In spite of these shortcomings, this information provides an idea of travelers using the crossing and the local, regional, and international importance of the Thousand Islands Bridge Crossing.

A. International Travel

Figure 4 shows that on a daily basis, trips over the Thousand Islands International Bridge Crossing begin or ends in nearly every state or province based on the 1997 travel survey. This survey interviewed nearly 3,000 international travelers, or nearly 80% of all trips that crossed during the time period that the survey was conducted.

Figure 4
Origin of Trips On One Day Using The Thousand Islands Crossing In 1997



B. Passenger Vehicle Travel

The survey results indicate that approximately 30% of the passenger vehicles using the international crossing begin or end their trip in the Thousand Islands area (which include the Brockville, Kingston, and Watertown areas). The actual percentage of inter-regional passenger travel (trips that both began and ended in this region) was not determined, but would be lower than 30%. For international travel using the crossing, nearly all were either U.S. (50%) or Canadian (47%) citizens. Approximately 19% were traveling for the purpose of business or work, with the remaining trips for the purpose of recreation (73%) and shopping (7%). The large percentage of recreational (tourism) trips is also reflected on the fact that only 21% of the vehicles carried only the driver, while 37% carried three or more passengers.

The survey also indicates that most international passenger travelers would not be familiar with this crossing. Only 16% indicated that they use this crossing several times a month or more, with over 55% indicating that they cross once a year or less. This fact highlights the need for appropriate signing and driver information at the

crossing and its approaches, including information on backups of traffic that are resulting from border operations far removed from the border. Most of these travelers would not be aware of the frequent backups of vehicles onto Highway 401, and at times the queuing of vehicles on I-81. It also suggests that most of these drivers and all their passengers will not have taken advantage of being identified as low risk travelers enrolled in the NEXUS program. As such, this program most likely will not have any notable impact on traffic operations at the Thousand Islands Crossing.

C. Commercial Vehicle Travel

The picture for commercial vehicle travel is quite different than for passenger vehicles. Nearly 77% were Canadian citizens (22% U.S. citizens). Over 70% of the drivers indicate that they use this crossing several times a month or more, and, as such, most are familiar with the crossing. Therefore, low-risk drivers and goods movement programs, such as FAST, can have a major impact on enforcement operation and improved travel flow at this crossing. The survey data suggests that most of the commercial vehicles, in either direction, are fully loaded, as only 13% indicated that they were not carrying any goods in 1997. Information for commercial vehicles entering the U.S. in 2003 support this, with only 4.2% entering the U.S. not carrying a load. Since Canadian drivers can only pick up a load in the U.S. that is destined for Canada, this would indicate a significant number of these trips are for long distances within the U.S. Figure 5 further supports this and shows the major volume and route used for this travel in Canada and the Northeastern U.S. Figure 6 shows commercial travel between counties in Ontario, Quebec, and New York.

Figure 5
Weekly Commercial Vehicle Travel Route Using The Thousand Islands Crossing

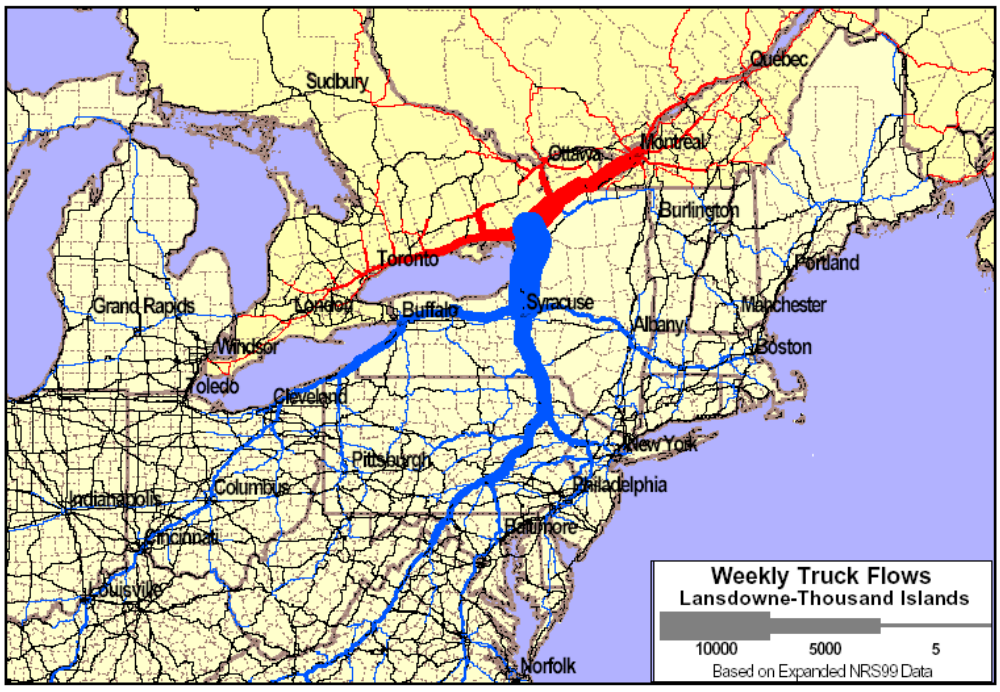
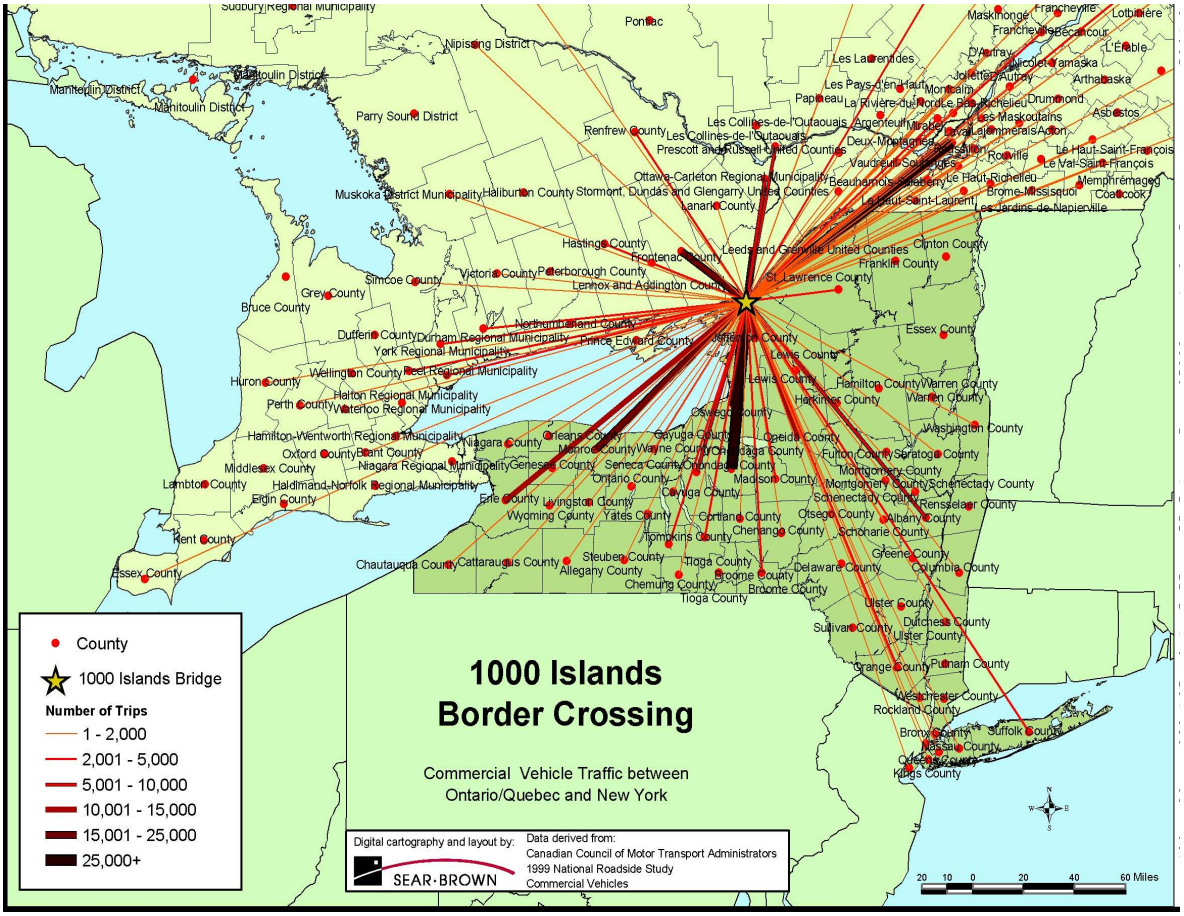


Figure 6
Weekly Commercial Vehicle Travel Between New York, Ontario, and Quebec



Regionally, the survey showed that approximately 27% of the international commercial vehicles using the crossing begin or end their trip in the general Thousand Islands area (which included Leeds and Grenville United Counties, ON, Lanark County, ON, Frontenac County, ON, and Jefferson County, NY). Again, the actual percentage of interregional commercial travel (trips that both began and ended in this region) was not determined, but would be lower than 27%.

D. Conclusions

While the data used is dated and most likely has been affected by events that have occurred since it was collected, a number of conclusions can still be drawn with respect to operations at this international crossing.

Travel over the Thousand Islands International crossing occurs frequently (daily), between nearly every U.S. State and Canadian Province, both for passenger vehicles and commercial vehicles; and as such, it is truly an international crossing serving the travel needs of local, regional, and international travel for both passenger and commercial vehicle travel. Specific observations for passenger and commercial vehicle crossing include:

Passenger Crossings

- The low risk registered traveler program for passenger vehicles (NEXUS) will most likely have a limited impact on operations, since it would be expected that multi-passenger vehicles, which the majority using the international crossing once a year or less, will not apply for and pay the cost of this program;
- With almost all travelers being either U.S. or Canadian Citizens, the U.S. VISIT program will not have a significant impact on border operations at this crossing.
- While tourism (recreational travel) is the major reason for using this crossing, travel for business or work is also of significant importance.

Commercial Crossings

- The low risk registered drivers and goods program for commercial vehicles (FAST) can have a significant impact on operations at the this border crossing, since most drivers use this crossing once a month or more and most likely can and will enroll in the FAST program.

Local and Regional Travel

The survey found a significant number of both passenger and commercial vehicles beginning or ending both locally and with within the Thousand Islands Region (Kingston to Brockville and the Watertown area). This indicates that regional economy in both the U.S. and Canada are tied to this international crossing, for trade, business, tourism and shopping.

These characteristics all show that this international crossing is very important, not only the local and regional economies surrounded by this crossing, but to the entire U.S. and Canada's National economy.

VI. Crossing Description

The crossing is eight and one half mile long and consists of two suspension bridges, a steel arch span, two reinforced concrete rigid frame bridges, a continuous truss bridge, and connecting viaduct spans over various St. Lawrence River channels. The shortest of these bridges is the international bridge(s) between the U.S. and Canada, the Rift Bridge(s). These bridges were constructed and opened to traffic in 1936 and are now 67 years old (2005). The crossing includes toll collection facilities (for southbound traffic in Canada and northbound traffic in the U.S.) and custom and immigration facilities at the U.S. and Canada Ports Of Entry. Generally, the entire highway system serving this crossing consists of four (4) divided highways, with full grade separated interchanges, except for the following sections which provide only a single travel lane in each direction, with limited or no shoulders:

a. The one mile long suspension bridge over the St. Lawrence River and the St. Lawrence Seaway main shipping channel, commonly referred to as the South Channel Bridge
b. Highway 137 on Hill Island, Canada, with at-grade intersections providing access to commercial and residential development on Hill Island
c. The three connecting bridges over the St. Lawrence River, north or middle channel, which combined total 3,330 feet long. These bridges consist of a suspension bridge, a steel arch span, and a continuous truss bridge, commonly referred to as the North Channel Bridge(s)

The Crossing is owned by many different agencies requiring consultation, cooperation, and funding between many of these agencies for any required improvements. This section identifies the responsible agency(s) for implementing improvements along with a description of the various components of the Crossing, and discusses the following:

- General responsibilities
- Major substandard highway features
- Recent accident history to determine if certain components have a higher than expected number of vehicle accidents
- Current ITS and Traveler Information Systems provided at this crossing and the need for expanding this system

The entire crossing and various components are shown in Figure 7 and Figure 8.

Figure 7
Overview of Crossings, Highways, and Bridges

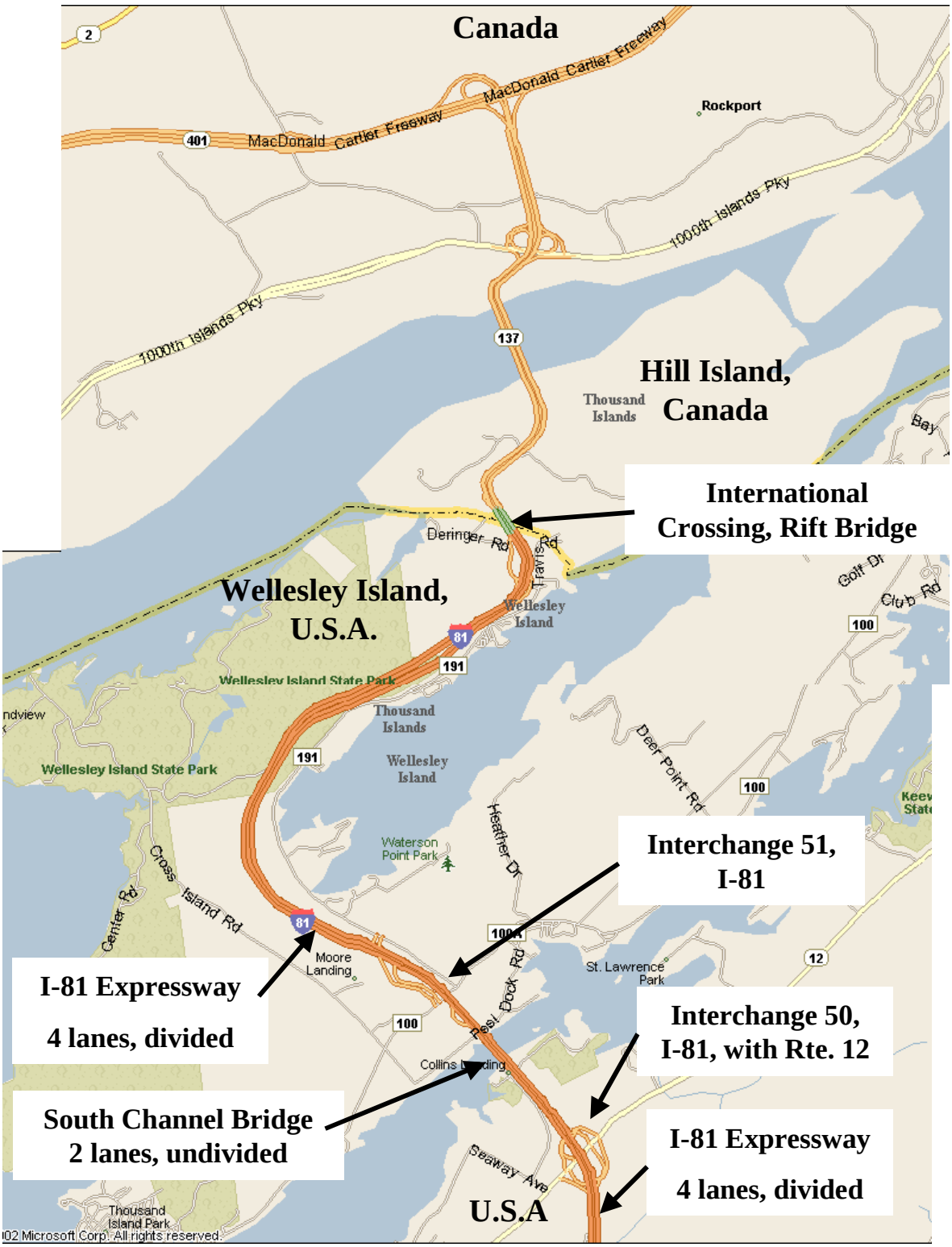
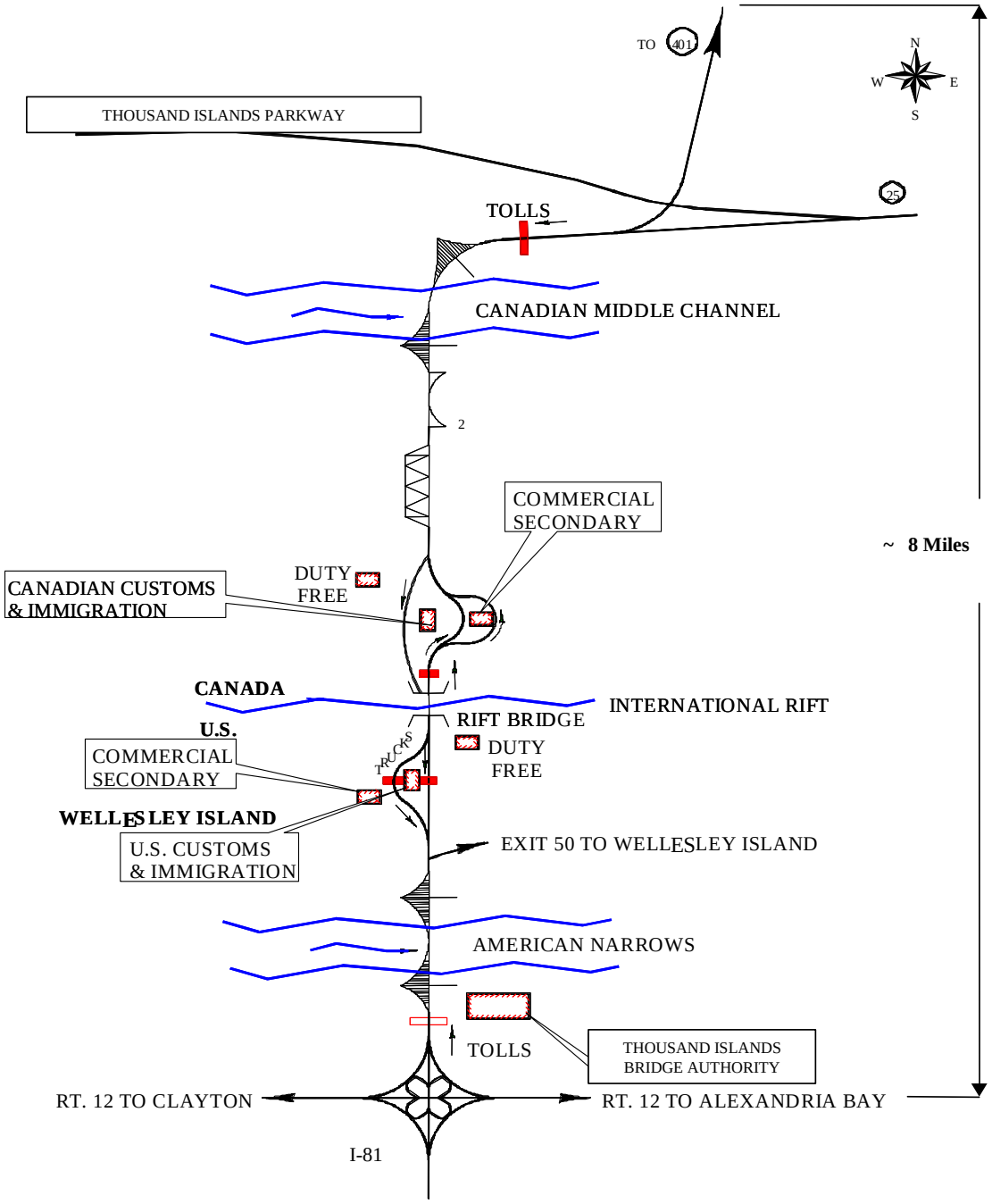


Figure 8
Thousand Islands International Crossing Concept Plan



Crossing Ownership and Responsibilities

The Thousand Islands Bridge Crossing is owned by a number of different agencies with the following general responsibilities:

- New York State Department of Transportation – Owns and is responsible for maintaining I-81 both on the U.S. Mainland approach and on Wellesley Island between the South Channel Bridge to the Rift Bridge
- Ministry of Transportation, Ontario – Owns and is responsible for maintaining Highway 137 both on the Canadian Mainland approach to the North Channel Bridge(s) and on Hill Island between the North Channel Bridge and the Canadian Enforcement Plaza
- Federal Bridge Corporation – Owns and is responsible for the North Channel Bridge(s), the Canadian part of the Rift Bridge, the Canadian Port Of Entry on Hill Island (including maintenance and improvements), and the Canadian toll collection facility
- General Services Administration (U.S.) – Owns and is responsible for maintaining and making improvements to the U.S. Port Of Entry on Wellesley Island
- The Thousand Islands Bridge Authority – Owns and is responsible for maintaining and making improvements to the South Channel Bridge, the U.S. portion of the Rift Bridge, and U.S. toll collection, maintenance and administration buildings. The South Channel Bridge is also considered part of the U.S. Interstate Highway System

Description of Existing Conditions

The following provides details on the existing facilities serving the Thousand Islands Crossing.

A. Highway System

I-81 is the primary route to and from the border crossing on the U.S. approach. It is a four-lane limited access interstate highway, with a posted speed limit of 65 mph south of the New York State (NYS) Route 12 interchange. There is a fully directional cloverleaf interchange with Route 12 immediately south of the crossing. Route 12 is a two-lane roadway that serves the communities of Clayton to the west and Alexandria Bay to the east. The northbound toll plaza for the Thousand Islands Bridge and the administrative offices for the TIBA are located immediately north of the interchange in advance of the South Channel Bridge.

Immediately north of the toll plaza, the roadway narrows to two lanes for the first bridge crossing (South Channel Bridge). The bridge cross-section includes two 12-foot lanes, with a vertical grade of 5.5% for 0.5 miles. While the South Channel Bridge is owned, maintained and operated by the Thousand Islands Bridge Authority, it is also considered part of the U.S. Interstate Highway System. The posted speed limit on the North Channel Bridge is 40 mph.

The roadway widens to four lanes after the bridge on Wellesley Island, with a posted speed limit of 65 mph, except for the northbound portion as it approaches

International Boundary and Interchange 52, where the speed limit is reduced to 40 mph. The roadway is a minimum of four lanes (two in each direction, divided by a medium) with two (2) grade-separated interchanges connecting to island roads on Wellesley Island. I-81 widens out to provide four lanes on the approach to the northbound Rift Bridge, with a fifth lane being added on the bridge in 2004. The Rift Bridge in the southbound direction provides two lanes. I-81 ends at the international boundary, which is located at the Rift Bridges.

North of the Canada Customs and Immigration facility, the roadway is designated as Highway 137 on Hill Island, Ontario, Canada, providing one travel lane in each direction, a left turn bypass lane for through traffic at the at-grade intersection with the Hill Island Road, and a recently paved shoulder southbound. This two-lane section continues over the North Channel Bridges onto the Canadian Mainland, where it again is widened to provide two (2) travel lanes in each direction as a limited access highway, which is separated by a medium. The posted speed limit on Highway 137 on Hill Island and on the North Channel Bridge(s) is 50 kilometres per hour. Highway 137 on the Canadian Mainland provides one full interchange with the Thousand Islands Parkway immediately north of the North Channel Crossing and then terminates approximately two kilometres in an interchange with the Highway 401 expressway (posted speed limit of 100 kilometres per hour) provided by single lane ramps to this four-lane divided highway. The shoulder on Highway 137 and on the ramp approaches has also been recently paved to provide additional storage for vehicles waiting to use the crossing when traffic is backed up waiting to cross onto Hill Island and into the United States.

1. Major Substandard Roadway Features Identified

The review of the Highway System identified the following four major deficient roadway features:

- I-81 Interchange with Route 12 – The westbound to northbound Route 12 on-ramp to I-81 on the cloverleaf interchange provides no acceleration lane and is “Stop” sign controlled at the entrance to I-81.
- South Channel Bridge – As part of the U.S. Interstate Highway System, the South Channel Bridge contains a number of substandard features, including providing only one travel lane in each direction, with no shoulders.
- North Channel Bridge(s) – This portion of the crossing is considered substandard as a result of the north end of the bridge containing a posted 25 kilometres per hour, curve, and no shoulders.
- Highway 137 – The substandard curve, posted at 25 kilometres per hour that begins on the North Channel Bridge continues along Highway 137 on the Canadian Mainland, which also reflects substandard roadway feature.

Improvements to correct these substandard features need to be considered as part of any major future investments being made at this crossing.

2. Traffic Accidents Investigation

The traffic accident history was obtained from the NYSDOT and the MTO. The examination found no accident patterns that would not be expected due to traffic volumes, weather conditions, or deer crossings. None were identified to be attributed to any substandard highway features associated with this crossing, with the exception of those related to substandard curve on the north end of the North Channel Bridge(s). At the North Channel Bridge location, there has been a number of occasions reported when a commercial vehicle has turned on its side, blocking traffic until the vehicle can be put upright and removed. The reason identified for most of these accidents was from excessive speed (beyond 25 km/hr) traveling through this curve.

It should be noted that most of the accident information available for review was for accidents that had occurred prior to the events of 9/11/2001. Accident information after 2001 may reflect a considerable increase in accidents on Highway 137 and Highway 401 that have resulted from the significant backup of traffic, waiting (stopped) to enter the U.S. on the highway. Backups of stop traffic on Highway 137 have occurred on a frequent basis since 9/11/2001.

B. The Bridges

The crossing includes three bridge water crossing structures, identified as the South Channel Bridge in the U.S., the Rift Bridge or international bridge between the U.S. and Canada (actually two bridges: one for northbound traffic, the other for southbound traffic), and North Channel Bridge(s) (actually three bridges) in Canada, that cross over various St. Lawrence River channels. A description of each of these main bridge structures follows:

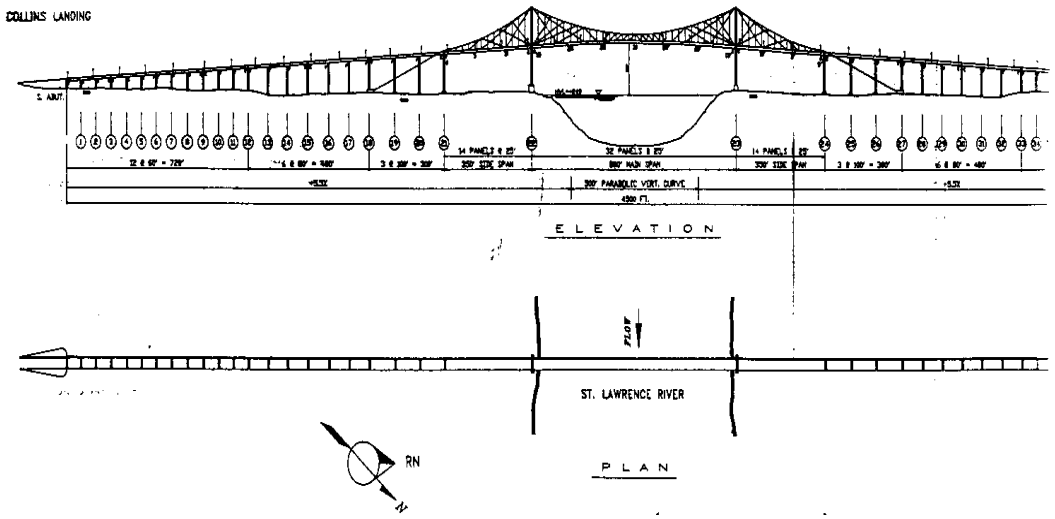
1. American Crossing (South Channel Bridge)

The American crossing, or South Channel Bridge, was opened to traffic in 1938. It provides a 24-foot clear roadway width, 150-foot under-clearance over the
St. Lawrence Seaway shipping channel and is comprised of 42 viaduct spans and a three-span suspension bridge with an 800-foot main span and 350-foot side spans. The total length of the structure is 4,500 feet. A concept drawing of the South Channel Bridge elevation and plan is presented in Figure 9.

The floor system for the suspension span is 4¼" concrete-filled I-beam lock steel grate deck on longitudinal stringers, with span transverse floor beams. The viaduct span decks are 5¼" concrete-filled steel grate with a 2" concrete overflow, which were installed in 1984-1985 to replace the original decks. The span deck system to the suspension bridge was replaced in 2000.

Although the American crossing, or South Channel Bridge, is 67 years old in 2005, recent bridge inspection reports indicate that it is generally in good overall condition and well maintained.

Figure 9
South Channel Bridge (American Crossing)



2. International Rift Bridge(s), Wellesley Island to Hill Island

The boundary at the International Rift Bridges, between Wellesley Island, U.S. and Hill Island, Canada, is bridged by two parallel 90-foot concrete rigid frame arch spans with masonry facing. The West Rift Bridge was constructed in 1937-38 along with the North and South Channel Bridges. Due to the increased traffic volumes, the east structure was constructed in 1959. The northbound Rift Bridge was widened in 2004 to provide one additional travel lane on the approach to the Canada Primary Inspection area.

The Rift Bridges were also found to be in good overall condition and well maintained according to recent bridge inspection reports.

3. Canadian Crossing, North Channel Bridge(s)

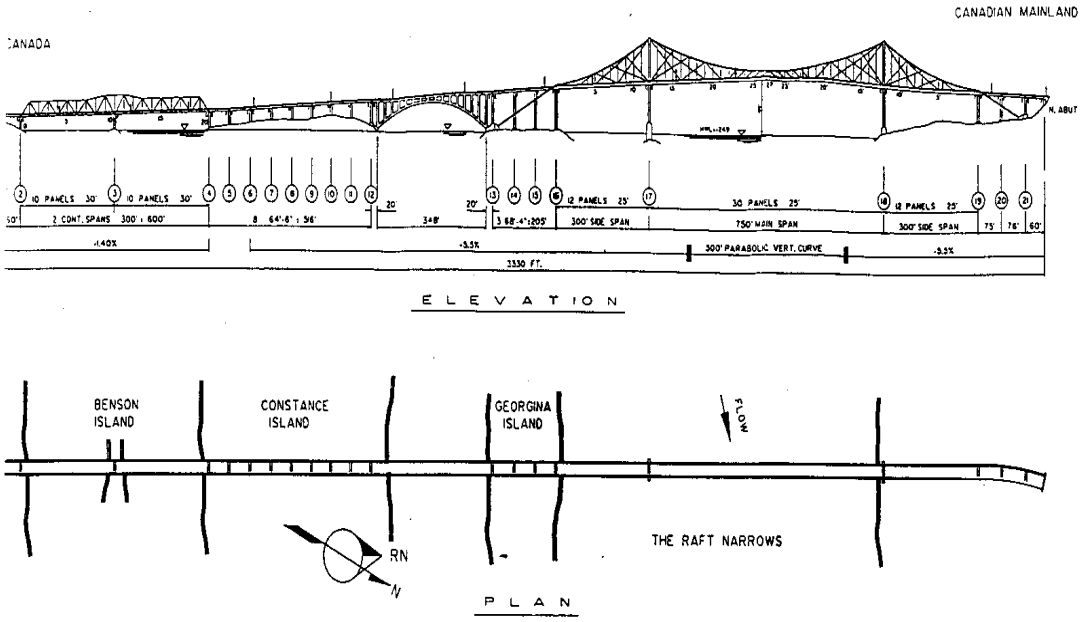
The Canadian crossing or North Channel Bridge(s), were opened to traffic in 1938. They provides a 22-foot clear roadway width, a 120-foot under-clearance, and is comprised of a 600-foot continuous Warren truss span, a 348-foot long steel arch span, 15 viaduct spans, and a three-span suspension bridge, with a 750-foot main span and 300-foot side spans. The total length of the structure is 3,300 feet and is shown in Figure 10.

The floor system for the suspension and truss spans is a 4¼" concrete-filled I-beam lock steel grate deck on longitudinal stringers, which span transverse floor beams. The arch and viaduct spans have 8" thick, non-composite, reinforced concrete decks.

A complete deck replacement was completed in 1997, and the North approach was widened in 2001.

The Canadian crossing, or North Channel Bridge, is 67 years old in 2005. Recent bridge inspection reports indicate that the bridges are generally in good overall condition and well maintained.

Figure 10
North Channel Bridge(s) (Canadian Crossing)



4. Bridge Load Carrying Capacity

Under normal operating conditions (non-construction), all vehicles 90,000 lbs. or more, to a maximum permitted load of 130,000 lbs., require escorts. All vehicle weights are determined through the use of weigh-in motion scale systems at the U.S. and Canadian toll plazas.

Other vehicles requiring escorts are those with a height of 14 feet or more to a maximum of 15 feet 6 inches; those with a width of 8 feet 6 inches to a maximum of 18 feet; and any vehicle carrying hazardous materials which are "Route Controlled" under U.S. Federal Highway regulations.

Trucks traveling in the same direction are required to maintain a minimum spacing of 500 feet (150 meters) while crossing over the bridge(s).

5. Bridge Conditions – Commercial Vehicle Spacing

As noted earlier, the North and South Channel bridges are 67 years old in 2005 and are inspected annually. Recent bridge inspection reports stated that they are generally in good overall condition and well maintained. To preserve the structural life of the suspension bridge, however, a "Truck Train Analysis" prepared for the Thousand Islands Bridge Authority in 1989 recommended a minimum spacing between trucks traveling over the suspension bridge be

maintained to prevent overstressing the bridges. Based on this study a spacing of 500 feet (150 meters) between commercial vehicles was been implemented and both enforced and managed by the Thousand Islands Bridge Authority.

C. Intelligent Transportation Systems (ITS) and Traveler Information Systems

A number of ITS improvements have been made at the Thousand Islands Crossing since the 1998 Study to monitor traffic operations, address incidents, and provide information to travelers or those planning to travel between the U.S. and Canada. These include:

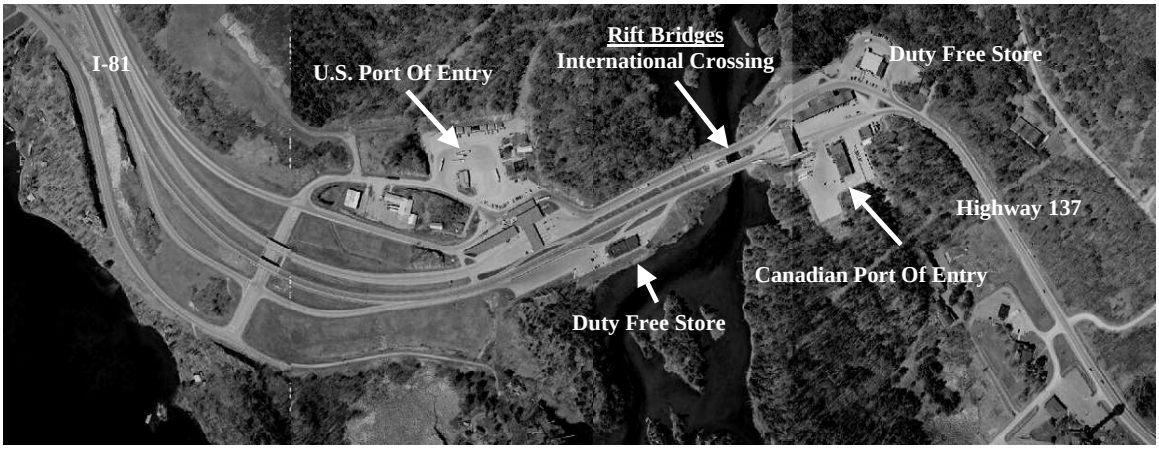
- TIBA cameras are used to monitor the North Channel Bridges and the Highway 137 approach to the southbound toll collection facilities. Real time information showing traffic on this approach can be viewed from these cameras through the TIBA Web site (www.tibridge.com), but requires a password.
- Hourly posting of estimated wait times to cross into the U.S. are posted on the U.S. Customs & Border Protection Web site (http://nemo.customs.gov/process/bordertimes/bordertimes.asp) and estimated wait times to enter either Canada or the U.S. on the Canada Border Service Agency Web Site (www.cbsa-asfc.gc.ca/general/times/menu-e.html). The Canada Border Service Agency also provides this information through their Wireless Portal Prototype. The MTO also posted this information on portable variable message signs on Highway 401; however, this information is no longer posted due to concerns over the accuracy of this information. The wait time estimates that are posted are based on each agency's best estimate as to how far the traffic is backed up and how long it will take to be processed through the Port Of Entry.
- Trail Blazing Signs to the Ogdensburg Crossings in the U.S.
- A Queue End Warning System on northbound I-81 operated by the NYSDOT. The NYSDOT has installed microwave-sensing devices on northbound I-81 to detect backups of waiting traffic entering Canada. Cameras were also installed for verification of these backups (monitored by the NYSDOT offices in Watertown, New York) and variable message signs that can be used to warn northbound drivers of stopped traffic waiting to cross the border on I-81 on the approach to the Canadian Port Of Entry. Another variable sign has also been installed on northbound I-81 prior to Interchange 50 to also provide information to northbound drivers.

In addition, both the NYSDOT and the MTO are currently in the process of preparing plans to review ITS needs at all border crossings between New York and Ontario.

D. Ports Of Entry

Figure 11 shows the relationship and highway approaches to both the U.S. and Canadian Ports Of Entry, including the international crossing, the Rift Bridge(s).

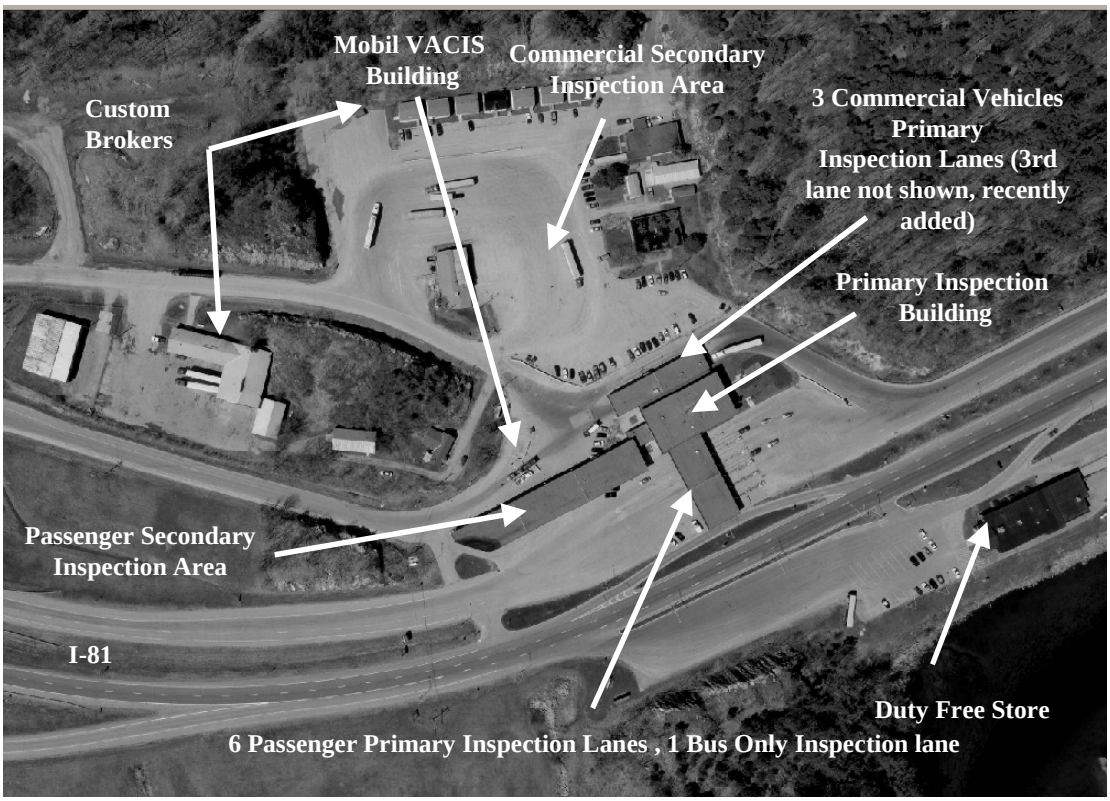
Figure 11
International Crossing and U.S. and Canadian Ports Of Entry



1. U.S. Port Of Entry

The 2003 U.S. Port Of Entry, shown in Figure 12, consists of six (6) passenger primary inspection lanes and booths, one (1) inspection lane for buses only and three (3) commercial primary inspection booths (one that was added in 2004 is not shown). A building for the mobile VACIS was also added to the Port in 2004 (location shown in Figure 12). The highway system from Canada consist of the single southbound travel lane on Highway 137 on Hill Island, which widens to provide two (2) travel lanes passing the Canadian Port Of Entry and over the international bridge (Rift Bridge). After passing over the Rift Bridge, it again widens to provide three (3) approach lanes to the U.S. Port Of Entry. After passing through the U.S. Port Of Entry, passenger vehicles exit using the mainline I-81, and commercial vehicles access I-81 by using the Interchange 52 southbound on ramp. Access to the Rift Camp and other property west of the U.S. Port is provided by a county road, which currently travels around the U.S. Port of Entry.

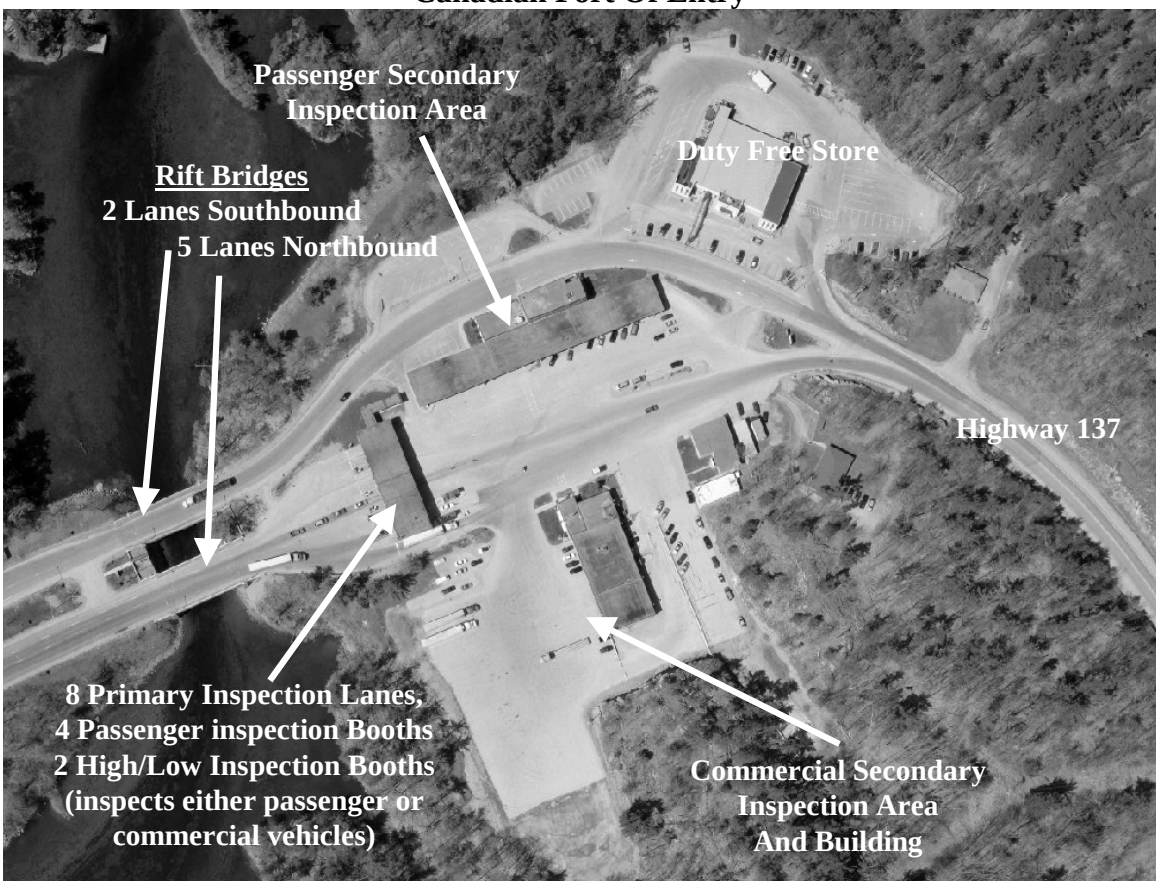
Figure 12
U.S. Port Of Entry



2. Canada Port Of Entry

The 2003 Canadian Port Of Entry shown in Figure 13, provides eight (8) primary inspection lanes, consisting of four (4) passenger primary inspection booths and two (2) high/low primary inspection booths, which can inspect either commercial or passenger vehicles. The remaining two (2) lanes currently do not have inspection booths and are no longer used to inspect traffic due to security and safety concerns. The Port includes a mobile VACIS for inspection. The highway system from the U.S. consists of the two (2) I-81 northbound lanes, which widen to provide five (5) travel lanes over the Rift Bridge on the approach to the Canadian Port Of Entry (5^{th} lane added in 2004). After passing through the Canadian Port Of Entry, passenger and commercial vehicles exit using the single Highway 137 northbound lane on Hill Island.

Figure 13
Canadian Port Of Entry

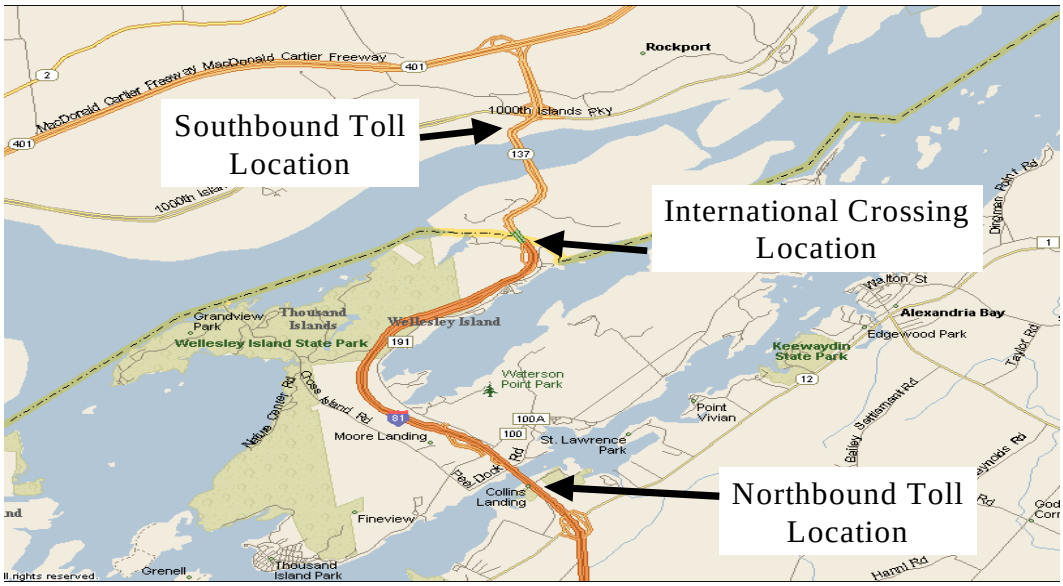


E. Toll Collections

Figure 14 shows the location of the toll collection facilities at the Thousand Islands Crossing. Tolls are collected southbound for traffic destined for the U.S. or Hill Island, Canada. Tolls are collected northbound for traffic destined to Canada or Wellesley Island, U.S. Toll revenue collected is and has been used to maintain and operate the Thousand Islands Crossing in both the U.S. and in Canada.

Since, tolls are collected at Highway 137 southbound approach to the Thousand Islands North Channel Bridge(s) and at the I-81 northbound approach to the South Channel Bridge international traffic is charged a toll in either direction. Traffic between the U.S. Mainland to Wellesley Island, and between the Canadian Mainland and Hill Island, only pay tolls in one direction.

Figure 14
Toll Collection Facilities at the Thousand Islands Crossing



Passenger cars and school buses can either pay cash or use a prepaid (discounted) fare card. The fare card is a magnetic strip swipe card, which is handed to the attendant to swipe. Passenger cars and buses are charged a flat rate with an additional charge for trailers. With a discount pass, the cost of a round trip between the U.S. Mainland and Wellesley Island or Hill Island and the Canadian Mainland is less than $0.35 ($2.00 for full fare), an 82.5% discount over full fare. For international travel between the U.S. Mainland and the Canada Mainland, the cost with the discount pass is less than $0.70 ($2.00 full fare), or $1.40 for a round trip ($4.00 full fare), a 65% discount over full fare. To put this into perspective, at $2.00 per gallon of gasoline, with a vehicle achieving 20 miles per gallon of gas, the cost in gasoline to travel over and back on the one mile South Channel Bridge (total of two miles) costs $0.20, while the toll cost is only $0.35 for the same trip.

Commercial vehicles pay by the number of axles. The toll is $9.00 for a standard five-axle commercial vehicle. Commercial vehicle charge accounts are also available, however, the driver must sign a receipt, which adds to the time to be processed through the tolls. Weigh-in motion scales are used in the commercial vehicle toll collection lanes to check the weight of the vehicles prior to allowing them to cross. Passenger vehicles are also allowed to use commercial vehicle lanes.

Cash payments are accepted in either currency with the exchange rate between the U.S. and Canada closely monitored and applied.

The average time to collect tolls at either of the toll collection plazas is approximately the same: 14 seconds for passenger vehicles and 35 seconds for commercial vehicles. These are nearly identical to those times identified in 1997.

The longer times for commercial vehicles reflect both a longer time to pull up to be processed and to be held at the tollbooth in order to achieve truck spacing on

the bridge. Trucks are held prior to the weigh-in motion scale and tollbooth until the truck paying the toll is released in order to properly weigh the vehicle. In addition, commercial vehicles are held at the tollbooth, until the previous truck (that has paid the toll) has traveled approximately 500 feet (150 meters). This action (holding the truck) is taken in order to try to achieve a minimum of 500 feet between each commercial vehicle traveling up the bridge to protect the structural condition of the bridge. A commercial vehicle traveling this 500-foot distance from the toll plaza requires approximately 23 seconds under free flow conditions (average speed of 14.8 mph). This travel time increases as passenger traffic increases because trucks must merge into the stream of passenger traffic processed through the tollbooths.

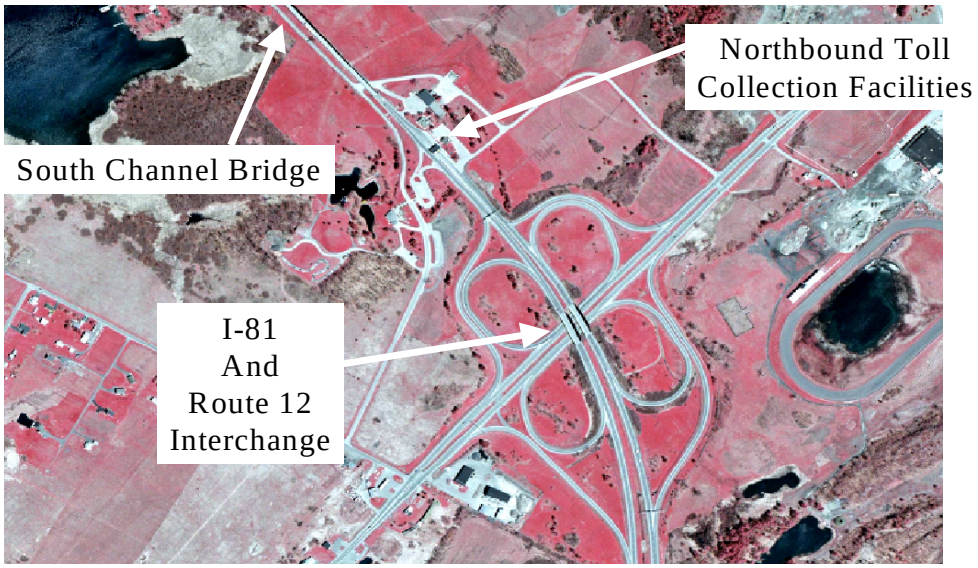
Managing the weight of commercial vehicles and maintaining a 500-foot spacing between commercial vehicles protect the bridge structures. However, these measures add approximately 8 to 10 seconds to the time required to process a commercial vehicle through the toll facilities and, in turn, impact the processing capacity of the toll collection facilities.

Besides using these facilities to collect tolls and protect the existing bridge structures from commercial vehicles that are over-weight or traveling too closely, the Southbound Toll Collection facilities are also used to regulate southbound traffic traveling to Hill Island or the U.S to insure that backups of traffic from the U.S. Port Of Entry will not impede emergency vehicle access to Hill Islands.

1. Northbound Toll Collection Facilities – U.S.

Figure 15 shows the aerial location of the toll plazas. The U.S. Toll Facilities consist of three booths, with four approach lanes. One lane and booth processes commercial vehicles (passenger vehicles may also use this lane). The remaining three lanes are for passenger vehicles only. Tolls are collected on the driver's side at two of these three lanes and on the passenger's side in the remaining lane.

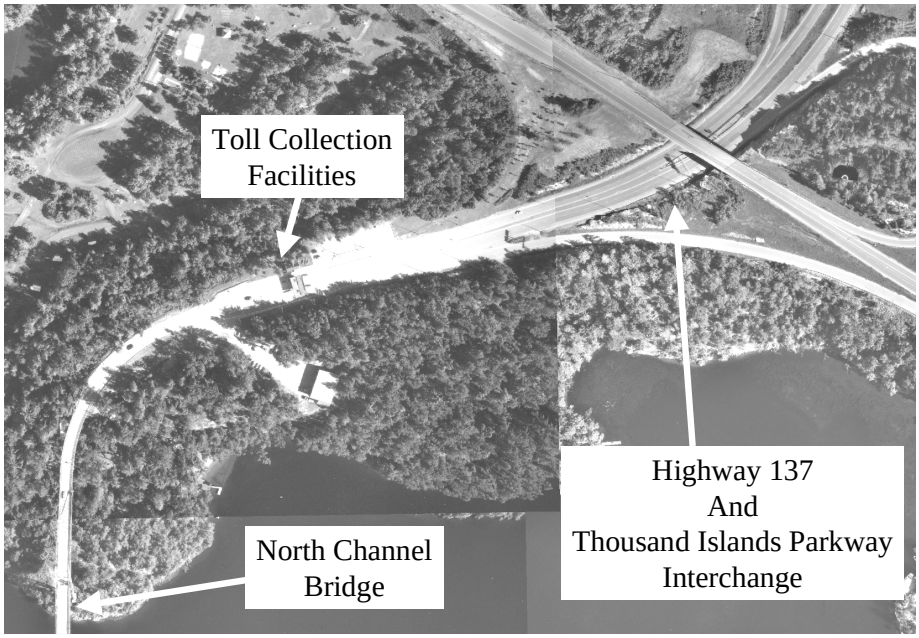
Figure 15
Northbound Toll Collection Plaza – U.S.



2. Southbound Toll Collection Facilities - Canada

Figure 16 shows the aerial location of the Southbound Toll Collection Plaza. The Canadian Toll Facilities consist of two booths with three approach lanes. Two lanes and booths can process either commercial or passenger vehicles (the left and right lanes). The left lane, however, is primarily used to process commercial vehicles, while the right lane is primarily used to process passenger vehicles. The remaining middle lane is for passenger vehicles only, where a single booth serves both the middle lane (with toll collection on the passenger's side) and the right lane (with toll collection on the driver's side).

Figure 16
Southbound Toll Collection Plaza – Canada



VII. 1998 Operations and Now

A. Introduction

The Northern New York Border Crossing Study was published in November 1998. The two-year study examined travel, commerce, and operations at all the major border crossings between Northern New York State and Canada and identified strategies to accommodate current and future travel demand. Appendix J contains the reports from this study.

The 1998 report identified a limited number of facility improvements based on actual travel at the crossing in 1996, inclusive of forecasts 25 years into the future to the year 2021. It identified the future need to add additional passenger toll collection lanes and booths for both the northbound and southbound direction to meet future travel demand at the crossing. It also identified the need to add additional passenger and commercial vehicle primary inspection lanes within the Canadian Port Of Entry along with the possible need to add an addition bridge capacity by twin spanning or replacing the current North and South Channel Bridges.

The travel forecasts have been updated and estimated to the year 2032 as part of the US/Canada International Bridge Feasibility Study. Travel on each of the components of the crossing have been refined and times to collect tolls or process a vehicle through primary inspection have been updated and incorporated into the future travel estimates.

Comparison of 1998 study analysis and travel forecast to present conditions indicate a number of observations that have changed the needs over time at this crossing. Commercial vehicle traffic has grown faster and are expected to continue to growth at a higher rate that was previously forecasted, placing greater demands on the highway system, toll collection, enforcement processing, and particularly on the bridges over the north and south channel. Passenger travel, however, has been the opposite, tending to grow slightly slower than previously forecasted. Appendix A provides further details on how these travel forecasts were developed and a comparison to those used in the 1998 study.

Time to collect tolls from passenger vehicles in either direction has remained approximately the same as found in the 1998 study. Time to process a commercial vehicle through the toll collection facilities, however, has increased slightly.

The biggest change, however, has resulted changes in enforcement processing times since 9/11/2001, particularly into the U.S. Processing times for both passenger and commercial vehicles entering the U.S. have increased by nearly 350%. Time for passenger vehicles to be inspected for entering Canada has also increased by 138%, however, time to process a commercial vehicle into Canada has decreased. Canadian enforcement practices with respect to staffing primary processing lanes that do not have booths have also changed in that these lanes are no longer used.

Appendix C provides further details on these processing times and how they where determined.

The 1998 Study made a series of short and long-range recommendations for improvements within or on the approaches to these crossings to facilitate the movement of traffic. Most of the short-term improvements identified in this study for the Thousand Islands Crossing have either been completed or are under construction. These include the additional lane on the northbound Rift Bridge and trail blazing signs to the Ogdensburg-Prescott Crossing from I-81. Others are planned for the future, such as expansion of the Canadian toll collection facilities.

Forecasts of future travel, made as part of the 1998 study, also identified the longer term possible need to twin span or replace both the South and North Channel Bridges to provide four travel lanes to accommodate future traffic. It also identified possible alternatives that might delay the need for this major infrastructure investment, such as improvements to the highway system leading to the Ogdensburg-Prescott Crossing that might attract traffic from the Thousand Islands Crossing. Follow-up detailed studies were recommended in the 1998 Study concerning both of these issues. One, better known as the DANC study, completed in 2002 examined possible transportation improvements in Northern New York that could provide improved access, including to the Ogdensburg Prescott Crossing. The other study was to refine and better estimate when, or if, a major investment should occur at the Thousand Islands Crossing (i.e., twin spanning or replacement of the major bridges). This is addressed within this Study, "US/Canada International Bridge Feasibility Study".

B. Travel and Processing Changes Since 1998

Two items were identified that significantly affected the results of the 1998 Study:

a. The events of 9/11/2001 have significantly changed border inspection procedures and processing.
b. Commercial vehicle traffic using the crossing increased faster than was forecasted, while passenger traffic was increasing at a much lower rate (which is partially due to 911/2001).

The continued higher than forecasted increases in commercial vehicle traffic using this crossing will shorten the time as to when additional travel capacity will be required at this crossing. Updated travel forecasts and the ability of each component of the crossing to process future travel volumes is addressed in the next two sections.

The following addresses the significant changes in border operations and primary inspection times that have occurred as a result of 9/11/2001 and how the Thousand Islands Bridge Authority is managing traffic operations as a result of these changes.

1. Processing Times

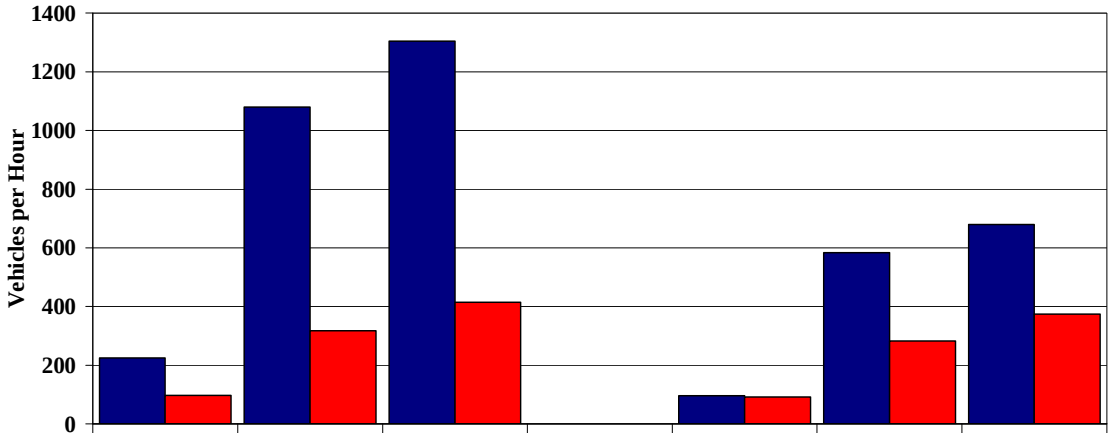
The time it takes to process a vehicle, through either a toll lane or primary inspection lane (processing time) and the number of lanes opened (staffed), determines the number of vehicles that can be processed through a facility in an hour. Processing time is the sum of two components: the time it takes to travel to the toll or inspection booth after the vehicle in front leaves (access time), and the time it actually takes to pay the toll or be inspected (transaction time). These times were both surveyed in 1997 at the Thousand Islands Crossing and again as part of this study in 2003.

A comparison of these times show that nearly all of these times have gone up (except for commercial vehicle toll payment), and, as a result, it has reduced the capacity of some of these facilities to process traffic. In addition, the number of lanes used to process traffic has also changed. These changes are documented in the following section.

2. Primary Inspection Processing

The events of 9/11/2001 significantly changed border inspection procedures and processing times for vehicles to pass through Primary Inspection over what was surveyed in 1997. Figure 17 shows how these changes have impacted the ability of each Port Of Entry to process travel demand.

Figure 17
Maximum Vehicles Per Hour That May Be Processed Through Primary Inspection Facilities in 2003 Versus 1997



	U.S. Trucks	U.S. Cars	U.S. Total		Can. Trucks	Can. Cars	Can. Total
1997	225	1080	1305		96	584	680
2003	97	318	415		92	282	375

a. To Enter the U.S.

The 2003 survey found that it now takes over three times longer to process either a car or a commercial vehicle through primary inspection than it did in 1997. These increased processing times have resulted in significant and frequent backups of traffic and long waits using this crossing in 2003 and 2004. Further, while the 1998 Study found that the U.S. Port Of Entry did not require expansion within the time frame studied (2021), the changes in inspection practices and inspection time now requires that the Port facilities be expanded as soon as possible to meet current travel demand.

Upon entering the U.S. inspection plaza, the changes in processing times are the result of increased inspection times and increased travel times required to access the inspection booth. Passenger primary time increased from 20 seconds to 68 seconds. Commercial vehicle time increased from 37 seconds to 111 seconds. In both cases, there has been a slight increase in access times since vehicles are now stopped farther from the inspection booth because of the installation of license plate readers and radiation detectors (an increase of 2 to 3 seconds). The majority of increased time is for vehicle inspection. Figure 17 shows the impact of the changes over time. It also reflects the impact of the additional third commercial primary inspection booth added in 2004. Even with three (3) operational commercial vehicle inspection lanes, only half the volume of commercial vehicles can be processed in one hour, as compared to the number that could be processed in 1997 with only two lanes.

b. To Enter Canada

Upon entering Canada the greatest impact is not only increased inspection times, but also the number of lanes used to process passenger vehicle traffic, which have been reduced for safety and security reasons. Passenger vehicle inspection times increased by 14 seconds (37 to 51 seconds), while commercial vehicle inspection times only increased by 3 seconds (75 to 78 seconds). Although the passenger vehicle processing times have increased the major impact on the ability to process passenger vehicle travel demand is the result of two of the passenger vehicle inspection lanes no longer being used for inspection as they do not have booths installed to protect the inspector. Booths are planned to be added to these lanes in 2005 and will result in an increase in the ability to process passenger vehicles by 50% (assuming all booths are staffed).

C. Other Enforcement Changes 1998 to 2003

Since 1997, new equipment in the U.S. Port Of Entry occupies space previously used to queue or store vehicles that increases the time required to reach the inspection booth. This equipment includes license plate readers and radiation detection portals. The addition of a third commercial vehicle inspection lane and booth in the U.S., along with the addition of X-ray equipment to examine vehicles, both in the U.S. and in Canada, also occupied additional space within

the plaza reducing the area available to park or queue commercial vehicles. Finally, additional enforcement staff, both in the U.S. and in Canada, requires additional employee parking spaces, and places greater demands on existing office space. Overall, both increased staffing levels and additional inspection equipment, along with the needs to provide priority lanes and inspection booths for special enforcement programs, such as FAST and NEXUS place additional space demands on the limited space currently available (both land and office). Therefore both the U.S. and Canadian Ports Of Entry will need to be expanded sooner than was previously estimated in the 1998 Study.

D. Impact On Traffic Operations

The increased passenger vehicle primary inspection times to enter Canada, combined with a lower than forecasted growth in passenger vehicle traffic and only a minor increase in commercial vehicle primary inspection time has only had a minor impact on traffic operations associated with entering Canada. Backups of waiting traffic to enter Canada in 2004 seldom queued backed on I-81 past the U.S. Port Of Entry. With the planned changes for adding or modifying the number of primary inspection booths available in 2005, this will further reduce these backups of waiting traffic, provided these inspection lanes are staffed to meet travel demand.

For traffic entering the U.S., the changes in vehicle inspection times to pass through the U.S. Port Of Entry has resulted in major backups of traffic on a regular basis, which extends, at times, back onto the Highway 401 expressway. These backups are the result of the U.S. Port Of Entry being unable to process all traffic wishing to cross into the U.S. during peak travel periods. Two reasons have been identified as to why this occurs. The first is during certain peak travel demand periods U.S. Customs and Border Protection either does not have, or cannot pay to have, enough staff available due to budget constraints. The second is that even if enough staff can be made available, the current primary inspection facilities do not provide enough lanes and booths to process traffic during these peak travel demand periods and will not until U.S. Port Of Entry is reconstructed and expanded.

To manage these backups and to insure that these backups do not block emergency vehicle access to Hill Island, Canada, the Thousand Islands Bridge Authority holds traffic destined for the U.S at the southbound toll collection facilities on Highway 137 on the Canadian Mainland. In 2004, traffic had to be held for over 773 hours (over a one month period - 24/7) on 199 separate days at the southbound toll collection facilities. The Thousand Islands Bridge Authority staff, as described in following section, manages these backups of traffic.

E. Thousand Islands Bridge Authority - Traffic Management

The Thousand Islands Bridge Authority personnel manage traffic at the Thousand Islands Crossing both by holding commercial vehicles at the toll collection facilities until a 500-foot spacing is achieved and by actually directing traffic when an accident or other situations occur that causes traffic to backup onto the adjacent highway system.

In recent years (since 9/11/2001), a significant number of personnel have been assigned to direct traffic to prevent blockage of the North Channel Bridge and Highway 137 on Hill Island, as well as to minimize the backup of these vehicles out onto the Highway 401 expressway. These backups of traffic are a result of vehicles waiting to be processed through the U.S. Port Of Entry. This has been occurring on a regular basis for both passenger and commercial vehicles from June through September, particularly on Sunday afternoons and holiday weekends. For commercial vehicles, this regularly occurs from Sunday through Wednesday in the afternoon and/or evenings throughout the year.

In 2004, the Thousand Islands Bridge Authority estimated that over 6,000 staff hours, equal to three 3 full time positions, were spent directing traffic related to these backups from the U.S. Port Of Entry. When traffic backs up from the inspection booths to the two-lane Rift Bridge, the Thousand Islands Bridge Authority personnel will hold traffic at the southbound toll collection facilities and stage either passenger or commercial vehicle traffic at a rate that can be processed by U.S. Customs and Border Protection personnel in order to insure emergency vehicle access to Highway 137 on Hill Island.

During these peak travel demand periods, the Thousand Islands Bridge Authority personnel assists Customs and Border Protection personnel to direct traffic for inspection into the appropriate lanes between the Primary Inspection Booths and the Rift Bridge in the U.S. In Canada, Thousand Islands Bridge Authority personnel directs traffic on the southbound two-lane Highway 137 approach to the toll collection facilities to insure a smooth flow of either passenger vehicles or commercial vehicles to the inspection area and to minimize vehicle backups out onto Highway 401. The management of queue backups has been assisted by recent improvements on this approach made by the MTO which included paving the shoulder areas so that three (3) lanes, rather than only two (2) lanes can be used to store waiting vehicles. The MTO also modified the left toll collection lane to allow tolls to be collected from commercial vehicles. This allows commercial vehicles to be directed to use the left shoulder lane to bypass waiting passenger vehicles and reach the toll collection booth during instances of extensive passenger vehicle queues.

Overall, the Thousand Islands Bridge Authority has committed to maintain this type of traffic management on a regular basis until the U.S. Port Of Entry can be reconstructed and expanded to be able to inspect and process all arriving vehicles, without causing major backups of traffic into Canada.

F. Conclusion

Many of the improvements recommended by the 1998 Northern New York Border Crossing Study at the Thousand Islands Crossing have been planned, constructed and implemented to improve traffic operations and provide improved traveler information. The major change at the crossing that has impacted travel has been the increased time to inspect both passenger and commercial vehicles entering either country as a result of 9/11/2001, in particular, U.S. entry. While the 1998 Study found that the U.S. Port Of Entry would not need to be expanded

past the year 2020, the increased inspection times now require it to be expanded as soon as possible. The number of primary inspection lanes, even when fully staffed, cannot process all traffic attempting to enter the U.S. on a regular basis and need to be expanded. The lack of facilities has resulted in major backups of traffic that extend, at times, out onto the Highway 401 expressway and requires active traffic management by the Thousand Islands Bridge Authority personnel to minimize these backups and to insure emergency vehicles access to Hill Island, Canada. The Thousand Islands Bridge Authority, however, is committed to maintain this type of traffic management on a regular basis until the U.S. Port Of Entry can be reconstructed and expanded to be able to inspect and process all arriving vehicles.

Thus, while nearly all of the improvements recommended in the 1998 Northern New York Border Crossing Study for the Thousand Islands Crossing are either planned or have been implemented, additional improvements are now required, particularly as a result of changes in enforcement and inspection practice that have occurred after 9/11/2001 providing a safe and efficient flow of international traffic between the U.S. and Canada.

VIII. Present and Future Travel Demand

A. Summary

To determine the ability of each component of the Thousand Islands Crossing to process current and future traffic, 2002 traffic vehicle information were obtained and examined to determine a typical high peak travel demand period. Review of this data found that the greatest travel demand on any component of this crossing, in either direction, occurred on the South Channel Bridge with the typical highest peak travel demand occurring northbound on a August Friday afternoon from 5:00 PM to 6:00 PM and for southbound travel on a Sunday afternoon in August from 4:00 PM to 5:00 PM. These are the traffic periods, which place the greatest travel demand on each of the components of this crossing (excluding special event traffic).

The traffic data review indicated that a significant volume of traffic using components of this crossing is not related to international travel (travel between the U.S. and Canada). The data showed that 35% to 41% of the traffic traveling over the South Channel Bridge was between the U.S. Mainland and Wellesley Island, U.S. and did not cross the international border. Other non-international traffic using components of this crossing, include travel between the Canadian Mainland and Hill Island, associated with work at the Canadian Port Of Entry (i.e. custom inspector, duty free employees, custom brokers), residents, or other commercial and recreational attraction on Hill Island, and between the U.S. Mainland to the U.S. Port Of Entry on Wellesley Island, again associated with employment and some residential (cottages) in or near the U.S. Port Of Entry. These other two components of non-international travel, however, appear to represent less than 5% of the overall travel demand on the approaches to the international crossing; and, as such, do not have a notable impact on the ability to process travel demand.

Forecast of future travel, refined for this update study, show that passenger vehicle travel is expected to increase by more than 80% over the next 30 years, while commercial vehicle traffic will more than double. Combined, the forecast indicates that overall travel using the crossing is estimated to increase at an average annual rate of 3.5% per year.

In comparison to the 1998 Study Travel Forecasts, it was found that passenger vehicle traffic has been increasing at a slower rate than previous forecasts; however, it is expected that part of the slower rate of growth is a result of unpredictable delays associated with enforcement agency inspection since 9/11/2001. For commercial vehicle travel, it has been increasing at a rate even faster than the high vehicle forecasts estimated in the 1998 Study.

The following section provides greater details associated with current travel demand at this crossing and forecasted future travel demand.

B. Introduction

To analyze each of the components of a crossing's ability to process traffic, it must be first determined when the typical peak travel demand periods (hours) occurs. Generally, within a year, this one-hour period is the 30th highest travel demand hour or for an international crossing, somewhere between the 30th and 100th highest travel demand hour. While higher traffic volumes will occur (other than the traffic volumes used in the analysis), these periods are generally considered to be the result of special events (i.e., traffic leaving a football game), where the volume of traffic from such an event needs to be managed, rather than expanding the ability of facilities to process this unusual traffic event volume.

This analysis must also take into account that commercial vehicle traffic, particularly having to travel up a vertical grade, could occupy the space of two (2) to over seven (7) passenger vehicles. To determine this impact, commercial vehicles must be converted into passenger car equivalents (PCE) consistent with each component of the crossing to identify the peak hour travel demand to be analyzed.

The following section identifies these hours and the forecasts of how this traffic will increase in the future.

C. Current Travel Demand – 2002

Travel volumes at the Thousand Islands Crossing were examined for each of its components for the year 2002. The year 2002 was chosen based on available information.

Review of 2002 traffic travel demand for each of the components of the crossing found that the highest travel demand occurred for vehicles traveling over the South Channel Bridge, with weekday volumes of over 14,000 vehicles per day on a Friday and over 12,500 vehicles on Sunday. This is in comparison to lower daily volumes using the North Channel Bridge during these same days of nearly

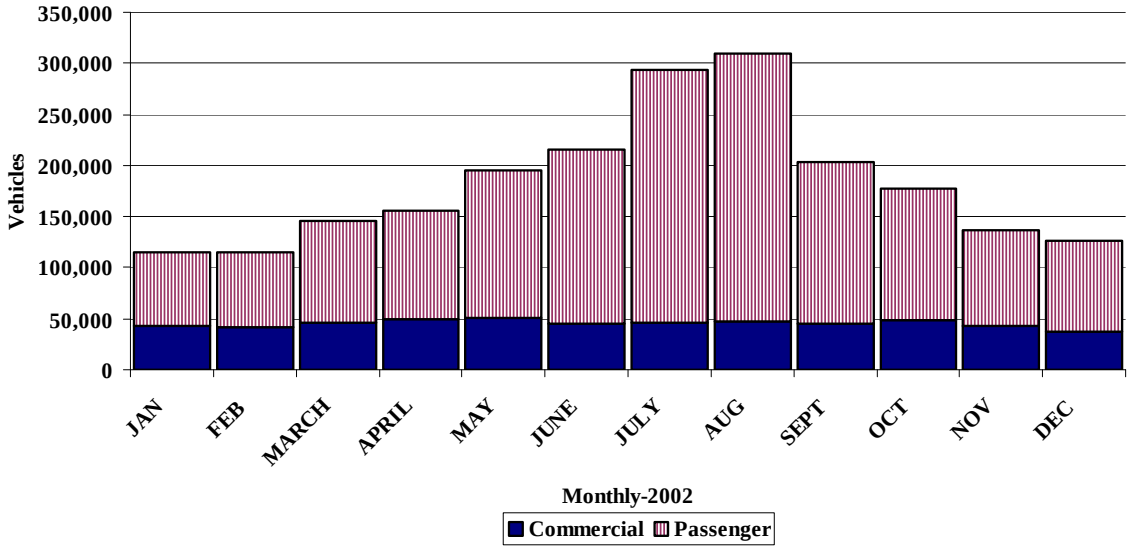
10,000 vehicles on Friday and around 8,500 vehicles on Sunday. The South Channel Bridge also has the longest vehicle grade that commercial vehicles need to climb. The effect of this grade results in one commercial vehicle having the same impact as if 7.2 passenger vehicles where crossing this bridge (i.e., PCE).

The directional volumes (northbound, southbound) were also examined for these two days. It was found that the greatest northbound volume using the South Channel Bridge occurred on Friday, with 7,600 vehicles per day northbound. On Sunday, a similar directional volume of 7,500 vehicles per day occurred in the southbound directions. Based on this, it was determined that the peak travel demand hour to be analyzed in this report should occur for northbound traffic on Friday and for southbound traffic on a Sunday traveling over the South Channel Bridge, which are analyzed in the following sections.

1. Monthly Travel Volumes

Figure 18 shows the peak month travel volume for both commercial and passenger vehicles using the Thousand Islands Crossing, indicating that the typical worst-case volumes occur in August, which is consistent with findings from previous studies. It also shows that commercial vehicle volumes are fairly consistent over all months of the year with slightly higher travel occurring in October and May and lower travel volumes in January and February.

Figure 18
Monthly Vehicle Travel 2002



2. Daily Traffic Volume Variations

Figure 19 shows the daily variation in traffic volume using the Thousand Islands Crossing South Channel Bridge by day of the week in August. It shows that for travel toward Canada (northbound), the peak travel day occurs on Friday.

Figure 19
Northbound Daily Vehicle Travel, August 2002 - South Channel Bridge

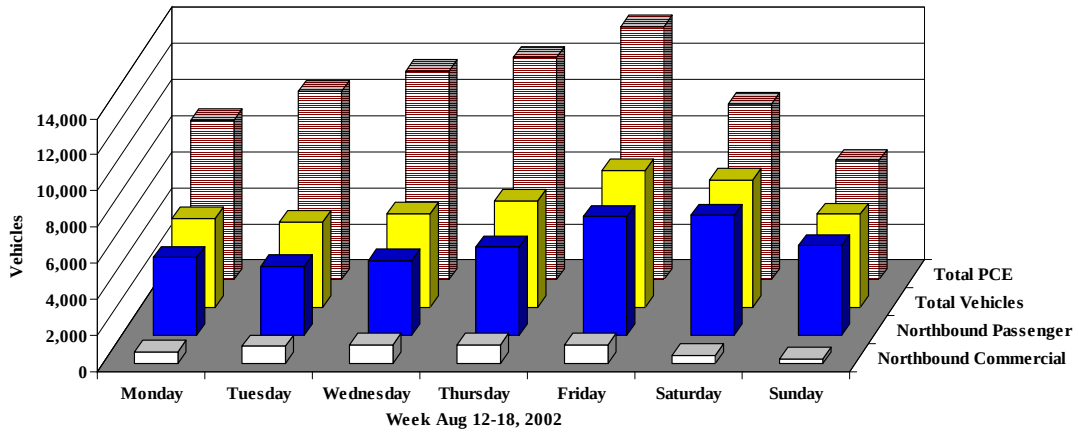
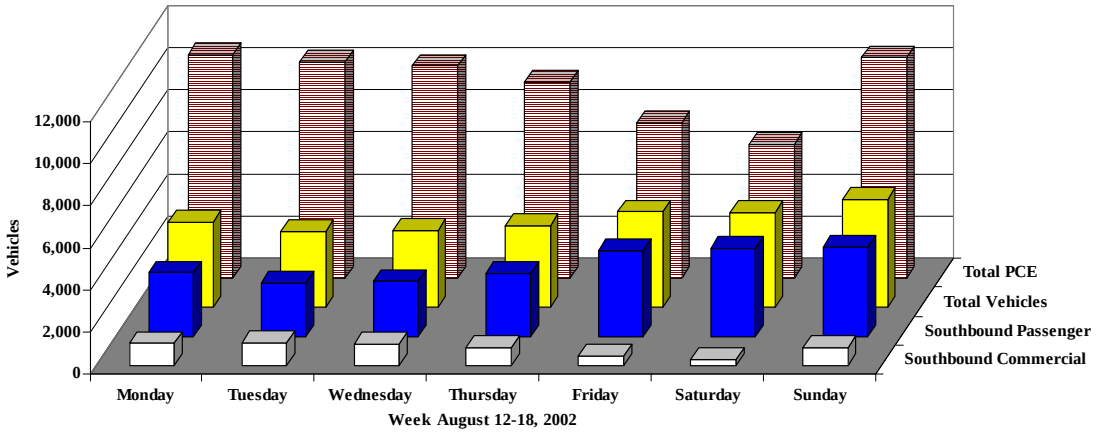


Figure 20 shows that the peak traffic into the U.S. occurs on Sunday, followed by Monday, when both the passenger vehicles and commercial vehicles using this crossing impact the available bridge capacity.

Figure 20
Southbound Daily Vehicle Travel, August 2002 - South Channel Bridge



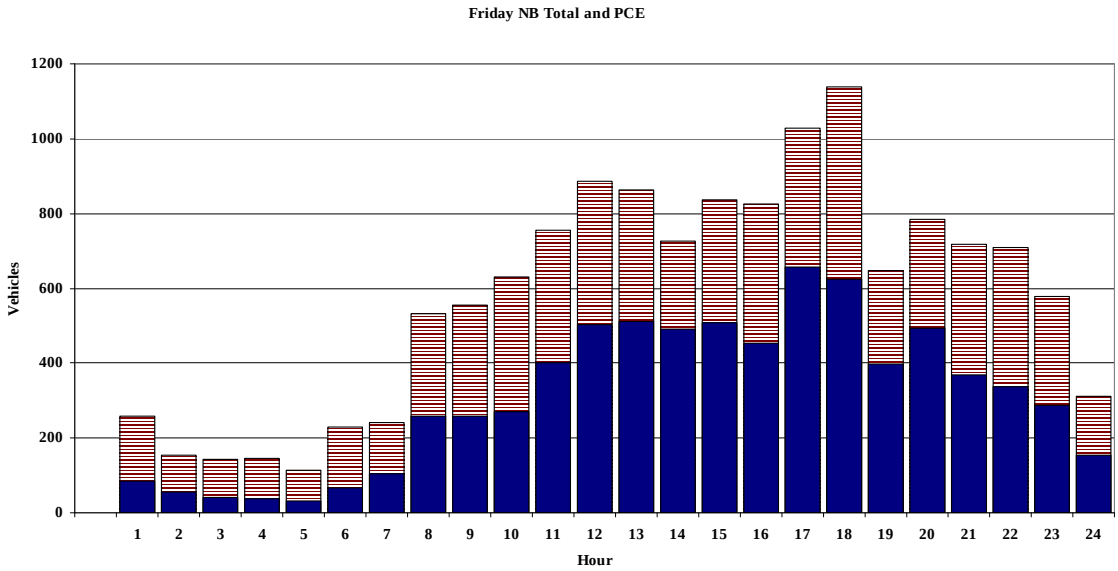
Both these figures, 19 and 20, show the volume of commercial vehicles in white, the volume of passenger vehicles in blue, the combined number of vehicles in yellow, and the last showing the passenger car equivalents (PCE). PCE represents the effects of movement of commercial vehicles in comparison to passenger vehicles. Commercial vehicles are longer and slower, having a greater effect on travel capacity.

The traffic flow summary shows that the peak travel demand periods at this crossing occur in August on a Friday evening, northbound into Canada. Southbound into the U.S., the peak travel demand period occurs in August, on a Sunday afternoon. These are the typical worst-case time period to identify present and future travel needs at this crossing.

3. Peak Hour Volumes

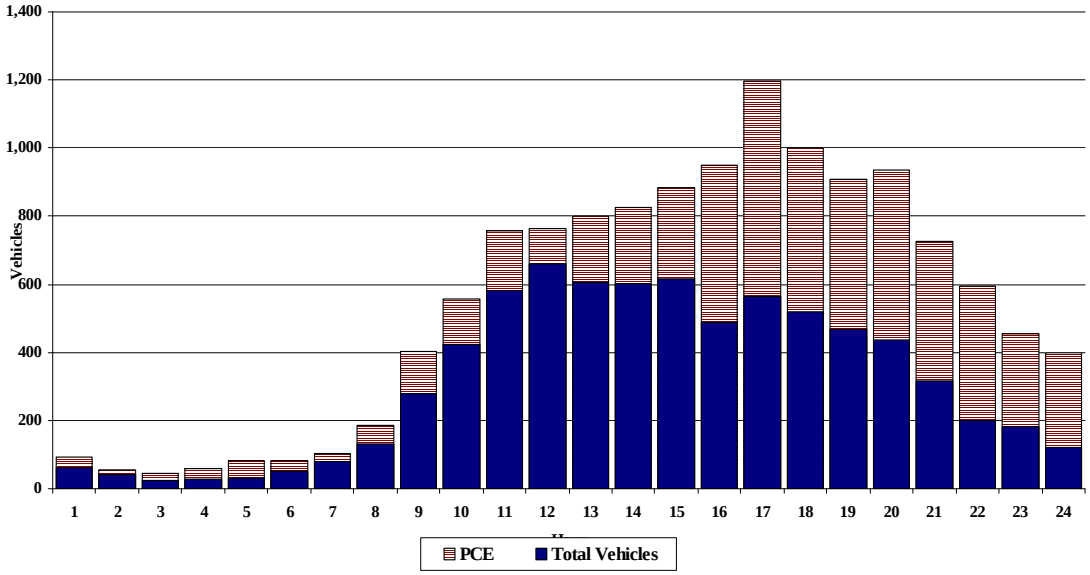
Figure 21 shows that the peak travel demand occurs between the hours of 5 PM to 6 PM on a Friday going north toward Canada. While nearly all commercial vehicle traffic is destined to cross the border into Canada, nearly 40% of the passenger traffic is only traveling between the U.S. Mainland and Wellesley Island, NY, U.S., and does not cross the international border.

Figure 21
Hourly Northbound Vehicle Travel, Friday, August 2002 - South Channel Bridge



Southbound, into the U.S., the peak travel hour occurs on Sunday, as shown in Figure 22. In addition to this traffic from Canada, traffic to and from Wellesley Island returning to the U.S. Mainland (approximately an additional 40% increase) adds to the volume of traffic over the South Channel Bridge Crossing.

Figure 22
Hourly Southbound Vehicle Travel, Sunday, August 2002 - South Channel Bridge



Peak Travel Hours

Based on the traffic flow analysis, the peak travel hours for the present and future needs at the Thousand Islands Crossing were identified. Northbound, they occur on a Friday in August, between 5:00 PM to 6:00 PM and southbound on a Sunday in August, between 4:00 PM to 5:00 PM.

Figures 23 and 24 show the estimated traffic on each component of the crossing in 2002: northbound traffic on Friday and southbound on Sunday during the respective peak travel hours.

Figure 23
2002 Northbound Peak Hour Traffic Volume By Component

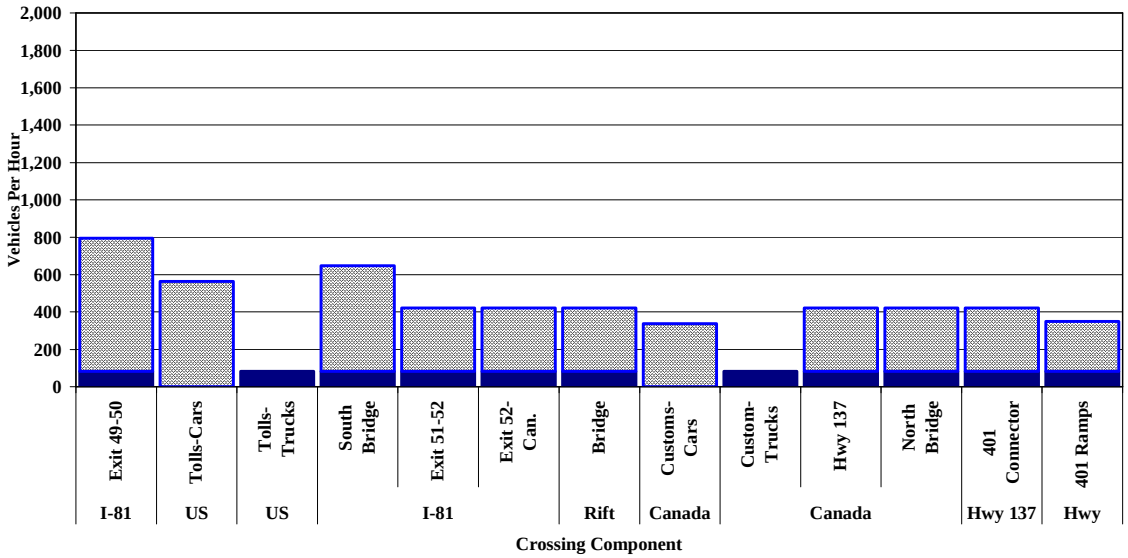
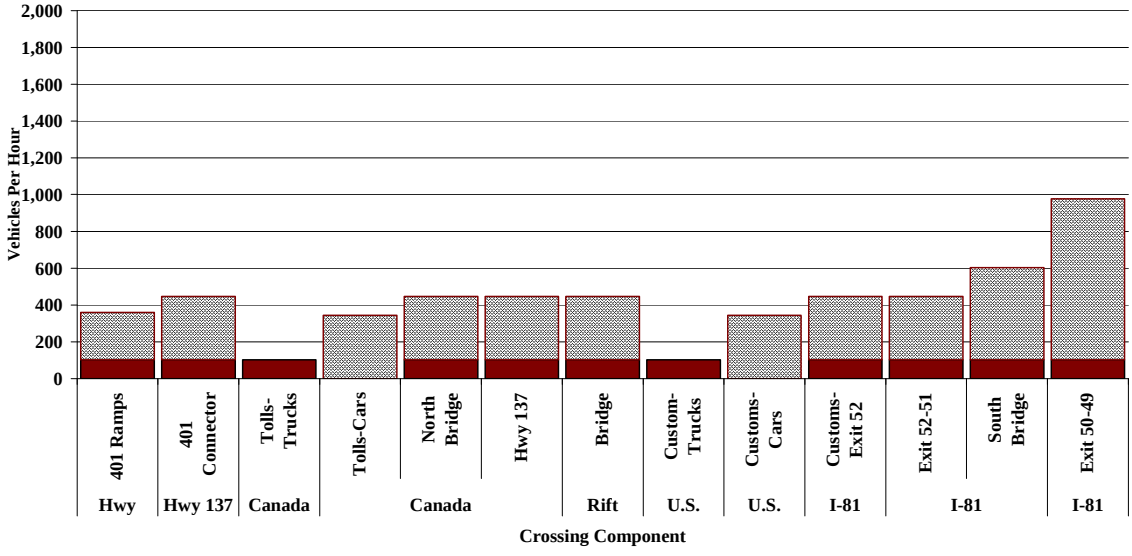


Figure 24
2002 Southbound Peak Hour Traffic Volume By Component



D. Island Traffic and International Crossings

Not all traffic using the Thousand Islands Crossing crosses between the U.S. and Canada. Some of the traffic volumes using the North and South Channel Bridges remains within the respective counties and is destined to the enforcement plazas (i.e., customs agents, customs brokers, employees, etc.) on Hill Island, Canada, and Wellesley Island, U.S., and does not cross the international border. Others are traveling to cottages and other activities on either Hill or Wellesley Islands and do not cross the international border. The majority of this additional traffic, except over the South Channel Bridge, is not determined as part of this study, as the number of trips on a daily basis would not be notable. Activities associated with travel to the enforcement plazas, and between the Canadian Mainland and Hill Island, is estimated to be around 200 to 300 trips per day, in comparison to the daily travel over the North Channel Bridge in August of 2003 of 8,300 vehicles per day, or less than 4% of the volume using the North Channel Bridge.

Travel over the South Channel Bridge between the U.S. Mainland and Wellesley Island, U.S., was expected to be significant because of the major development and recreational opportunities on Wellesley Island. This study, as such, has attempted to account for this non-international travel, both in the travel forecasts and capacity estimates. The most accurate travel volumes using these channel bridges are the volumes obtained from toll collection, however, these volumes are only obtained in one direction over each of the channel crossings (southbound from Canada, northbound from the U.S.). Thus the estimate used in this study were obtained from NYSDOT traffic counts of vehicles crossing the South Channel Bridge and counts between the only two I-81 Interchanges on Wellesley Island (Interchange 51 and Interchange 52). These counts taken in August 2003 indicate that approximately 40% of the traffic using the South Channel Bridge travel only between Wellesley Island and the U.S. Mainland. It also indicates that approximately another 5% of these totals are travel between Wellesley Island, U.S., and Canada.

Based on this analysis, the following assumptions were made with respect to 2002 and forecast of future travel volumes:

- That 60% of the passenger vehicles that use the South Channel Bridge are traveling between the U.S. and Canada (40% reduction for travel between U.S. Mainland and Wellesley Island)
- That 100% of the commercial vehicle traffic that use the South Channel Bridge are traveling between the U.S. and Canada
- That the growth in travel between the U.S. Mainland and Wellesley Island would increase at the same rate as that forecasted for international travel

These are rough approximations, and the available data indicates that this percentage varies by the day of the week and season of the year. For the level of detail required for this analysis, however, it provides a reasonable estimate of the volume of travel that uses the South Channel Bridge, but does not cross over the North Channel Bridge.

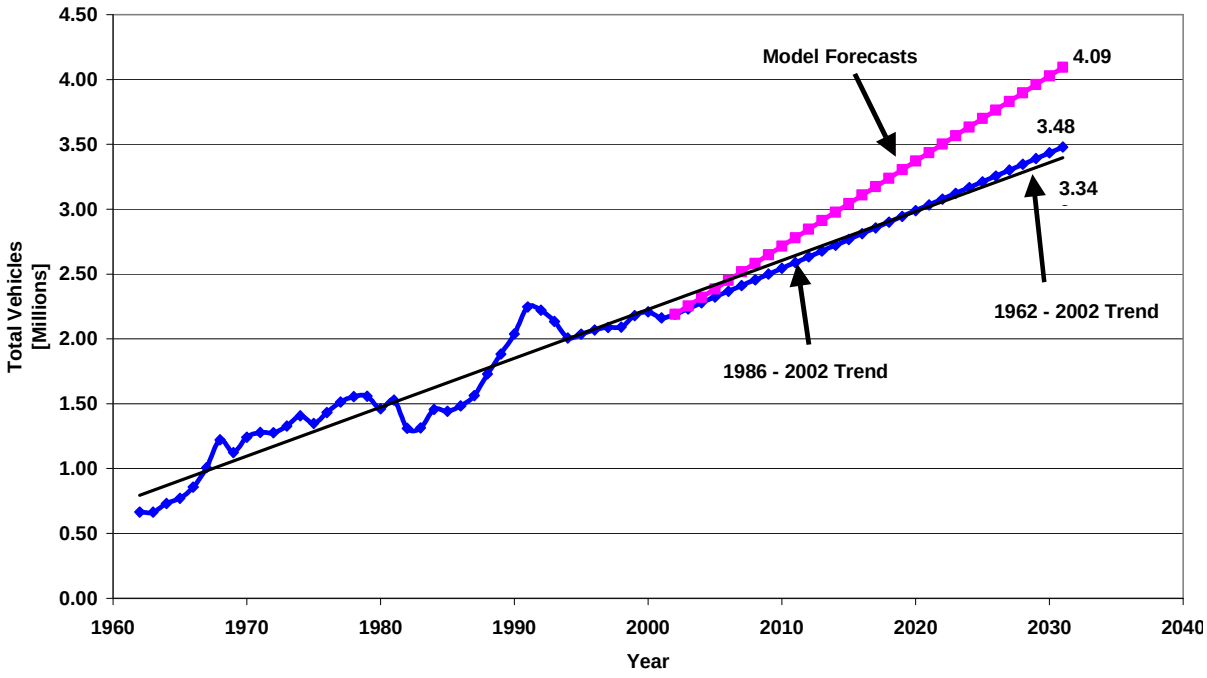
E. Future Travel Demand

Based on previous experience and updated data, a new refined travel forecast for the Thousand Islands Crossing was developed to estimate both passenger and commercial vehicle traffic that would use this crossing. Figure 25 shows the result of this forecast for total vehicles, along with comparisons to historical trends. Details of the forecast process and results are documented in the Appendix A .

The updated travel forecast would indicate that travel, using the Thousand Islands Crossing overall, would increase at an average annual rate of 3.5%. Commercial vehicle travel would increase at an average rate of 3.6 % per year, and passenger vehicle traffic would increase an average rate of 2.9% per year. At these rates, in the year 2032, the volume of passenger traffic using the crossing will increase by over 80% and commercial traffic will more than double over levels that occurred in 2002.

These growth rates in traffic volume were applied to all components of the crossing to determine traffic volumes on all components in the various years analyzed in this report.

Figure 25
Forecast of Annual Vehicles to the Year 2031



1. Comparison To 1998 Forecasts

In the 1998 Study, a high and low travel forecast was made for both passenger and commercial vehicle traffic at the Thousand Islands Crossing to the year 2021. Comparison of these forecasts to actual travel volumes between 1998 and 2003 found that passenger vehicle crossings have increased slower than expected, closer to the long-term trend (low rate of growth); while the commercial vehicle crossings have grown faster than the high growth rate forecasted in the 1998 Study. Comparison of the 1998 Study Travel Forecast and the current study travel forecast for the crossing are shown in Table 1.

Table 1
Forecasted Growth In Traffic 1996 to 2031
1998 Study Compared to 2004 Study

	1998 Study			2004 Study (Model Forecasts)		
Year	PV	CV	Total	PV	CV	Total
1996	1,676,000	394,000	2,070,000	-	-	-
2002	-	-	-	1,647,000	542,000	2,189,000
2011	2,406,000	682,000	3,088,000	2,021,000	713,000	2,734,000
2021	2,890,000	875,000	3,765,000	2,628,000	911,000	3,539,000
2031	3,379,000	1,068,000	4,447,000	2,984,000	1,107,000	4,091,000
Percent Increase 2002-2032				181.18%	204.24%	186.89%

The lower than expected change in passenger vehicle crossings is partly due to increased inspection time and unpredictable delays as a result of 9/11/2001. These additional wait times at the border would be expected to have the greatest impact on shorter local passenger trips (i.e., going to the U.S. for lunch, or a short visit, or tour along the Thousand Islands Parkway). It also may reflect the current economic conditions and the currency exchange rate. Over the longer term, it is anticipated that, as a result of the expansion and increased staffing of both the U.S. and Canadian Ports Of Entry, the wait times to cross the border will be significantly reduced and more predictable. Once this happens, it is anticipated that passenger vehicle traffic would return, over time, to a higher rate of growth.

The higher than forecasted growth in commercial vehicle traffic was not expected since both the U.S. and Canadian economies had slowed down over this time period. The rate of growth in commercial vehicle traffic, however, is expected slow down until the U.S. Port Of Entry is expanded as a result of commercial vehicles choosing an alternative crossing to avoid the long wait times experienced on a weekly basis for trucks to enter the U.S. It is of note that a review of recent Ogdensburg-Prescott Crossing traffic statistics, relating to commercial vehicle crossings, implies this diversion is already happening.

Overall, while the total number of vehicles forecasted to use the crossing in 2021 and beyond is lower than those forecasted in the 1998 Study by 6%, the number of commercial vehicle crossings (those that have the greatest impact on the ability of the facilities to process traffic) are now predicted to be even greater (4% higher) than what was forecasted for the year 2021 in the 1998 Study.

2. Future Traffic Volumes

Based on the travel forecast, traffic volumes for each component of the crossings were summarized for year 2032, as shown in Figures 26 and 27. It was assumed, for this level of analysis, that the rate of growth for international vehicle traffic would be the same rate of growth for non-international traffic (i.e., traffic between Wellesley Island and the U.S. Mainland, traffic entering from the Thousand Islands Parkway, and traffic on I-81 south of the Interchange with Route 12 (Interchange 50)).

Figure 26
2032 Northbound Peak Hour Traffic Volume By Component

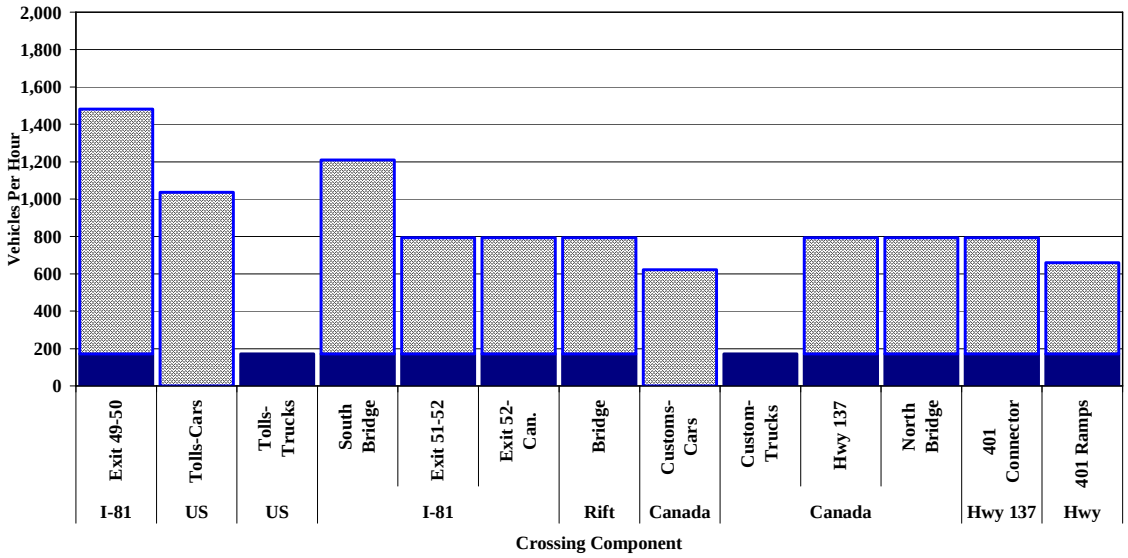
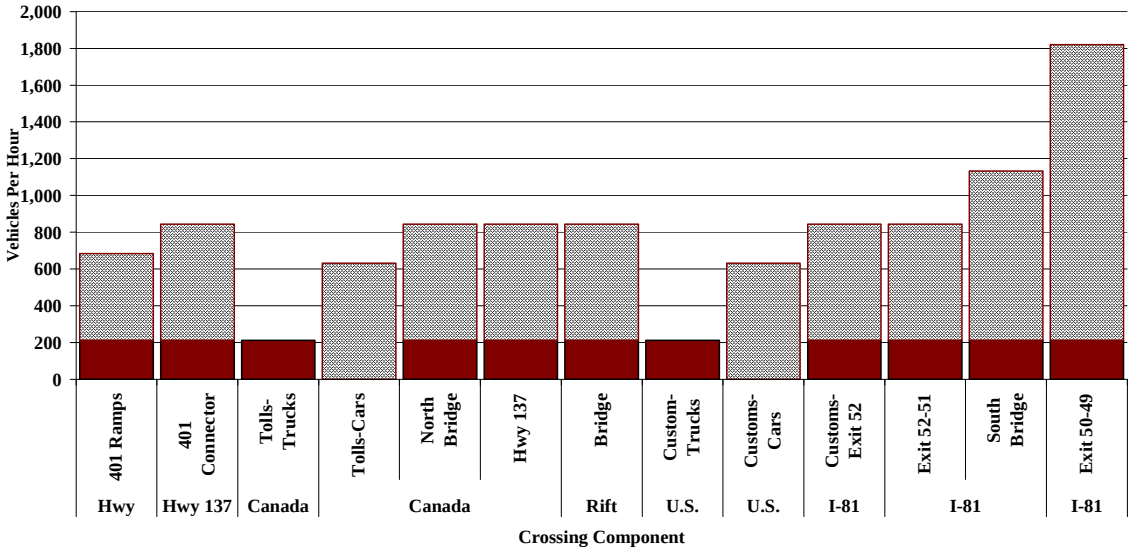


Figure 27
2032 Southbound Peak Hour Traffic Volume By Component



F. Conclusion

Analysis of the traffic volume using the Thousand Islands Crossing reflects similar results to the analysis of this crossing in the 1998 Study. It identified that the peak travel demand period occurs in August and that the greatest traffic volumes occur on the South Channel Bridge. This demand also varies by direction with the highest typical northbound travel volume occurring on a Friday afternoon in August from 5:00 PM to 6:00 PM, and southbound on a Sunday afternoon in August from
4:00 PM to 5:00 PM.

It was also found that a significant portion of the traffic using the South Channel Bridge is between Wellesley Island and the U.S. Mainland, which does not cross the international border.

IX. Component Travel Processing Capacity

A. Summary

A preliminary assessment of each component of the Thousand Islands Crossing to process all vehicles that arrive in one hour to the year 2032 was analyzed. The assessment was based on existing infrastructure available (i.e., travel lanes, primary inspection lanes used, toll collection facilities), traditional Highway Capacity Analysis techniques, and measured vehicle processing time through toll collection and primary inspection lanes. The analysis found that all mainline highway sections, I-81 in the U.S. (U.S. Mainland and Wellesley Island) and Highway 137 in Canada (Canadian Mainland and Hill Island), as well as the ramps associated with the various interchanges that are part of this crossing, have the ability to process all arriving traffic within one hour to and past the year 2032. It also found existing facilities that required staffing (i.e., U.S. and Canadian Ports Of Entry and toll collection facilities) to process travel demand will not be able to process all traffic arriving in one hour, even if fully staffed, without major expansion of these facilities. The analysis also found that while the Rift Bridge(s) can process all present and forecasted future travel demand past the year 2032, the two-lane South Channel Bridge will not. The North Channel Bridge(s) will also be approaching its ability to process all arriving traffic prior to or around the year 2032. Note that prior to 2032, on both the South and North Channel Bridges, the number of commercial vehicles arriving in one hour will exceed the number of commercial vehicles that can be allowed to cross and still maintain the required 500 foot (150 meter) spacing between commercial vehicles. This issue is address in another section.

Thus, in order to maintain this crossing without significant backups of traffic waiting to be processed, major investments will be required over the next 30 years in major bridges and facilities to expand their ability to process all travel demand arriving within one hour.

B. Introduction

This section of the report has been developed to strictly address the ability of current facilities at the Thousand Islands Crossing to process existing and forecast 2032 traffic through or over each of its components. It identifies present and future needs based only on the system's ability to process all traffic arriving in one hour through these facilities. This includes the roadway systems, the bridges, the ability to collect tolls, and the ability to process vehicles through primary inspection. The analysis in this section does not take into account other needs at the crossing, which are addressed in other sections. These include the age of the major bridge structures and the need to replace the bridge decks around the year 2018, as well as the need for expanded space at the Ports Of Entry to accommodate increase staffing levels and the addition of new enforcement technologies. Further, there are other issues that have been identified that affect the ability of this crossing to process all traffic that arrives within one hour. These issues include maintaining spacing between commercial vehicles as they cross over the major bridge structures, the inability of vehicles to reach primary inspection lanes since they are blocked by vehicles waiting to be inspected in

another lane, and the effects of commercial vehicles starting from a stop after paying the toll and accelerating up the vertical 5.5% grade and/or around a substandard curve to cross over the major bridges. These unique attributes are addressed in greater detail in later sections of this report.

C. Vehicle Processing Capacity

The maximum ability of any component of a crossing to accommodate travel demand (number of vehicles) within a one-hour period is normally considered as component "capacity." Once travel demand within one hour exceeds this capacity, all traffic arriving within one hour will not be able to pass through or over this component. When capacity is exceeded, backups of traffic and delays for vehicles to travel over that component occur, and opportunities of adding additional "capacity" to process travel needs to be considered.

An example of this would be if toll collections at the crossing can only process 100 vehicles in one hour, then 100 vehicle per hour would be the toll collection facilities capacity). If the number of vehicles that arrive in one hour passing through this toll facility is 200, or double the capacity, then the facility would be over capacity and the last vehicle arriving within that hour will have to wait an additional hour before it will be able to pay the toll and pass through this component of a crossing. In this case, to avoid this delay, either the number of toll collection facilities needs to be doubled, or the means to reduce the time to collect these tolls needs to be instituted, in order to avoid these long delays and vehicle backups.

D. Components Capacity To Process Traffic

The Thousand Islands Crossing consists of a series of components with unique characteristics that determine the ability to process traffic through or over it, varied by direction (northbound and southbound). Figures 28 and 29 show the estimated vehicle carrying or processing capacity of each existing component of the crossing, based on observed processing times in 2003, the number of lanes and type of facilities (four-lane divided expressway, such as I-81, to two-lane at grade arterial, such as Highway 137 on Hill Island). The graphical data also reflect the impact of commercial vehicles on each component based on peak commercial vehicle travel in each direction (83 northbound on Friday and 102 southbound on Sunday - 2002 data). For staffed facilities, these figures represent the capacity when all Primary Inspection Booths or Toll Collection lanes are staffed and operational. Commercial vehicle traffic on the highway system and bridges also has a greater impact on the maximum carrying capacity of these components than passenger vehicle traffic. An increase in commercial vehicle traffic not only increases the volume of traffic, but also reduces the available capacity of the highway and bridge components of the crossing. For example, doubling the number of commercial vehicles per hour from 83 vehicles to 166 vehicles on the South Channel Bridge, without any increase in passenger vehicle traffic, would reduce vehicle carrying capacity from 1,102 northbound to 505 total vehicles per hour.

Figure 28
Northbound Vehicle Carrying Capacity

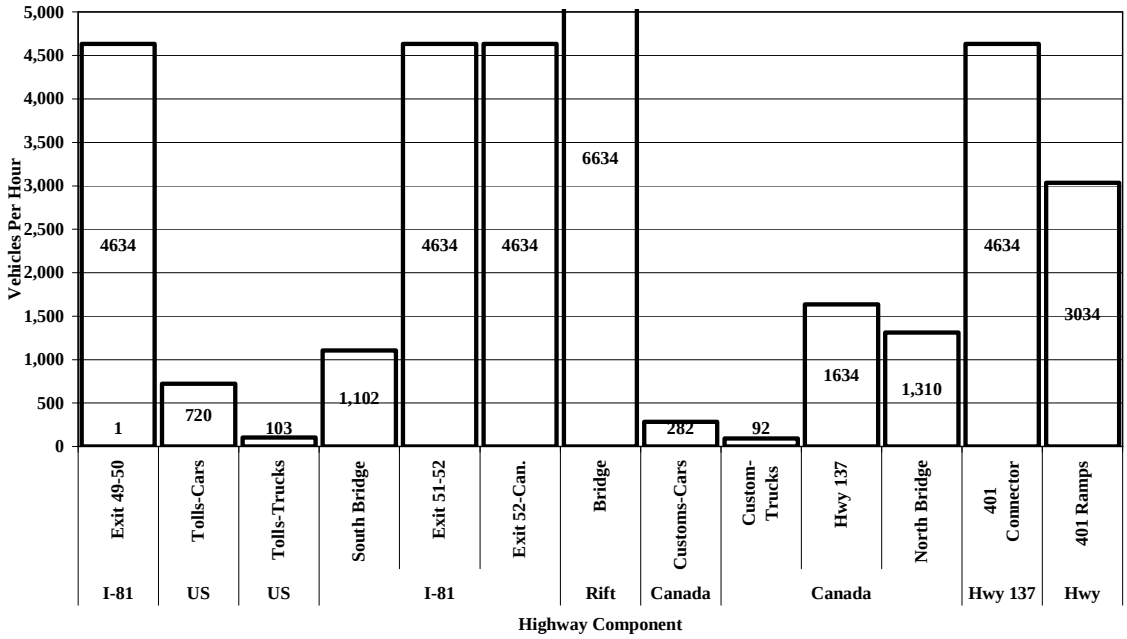
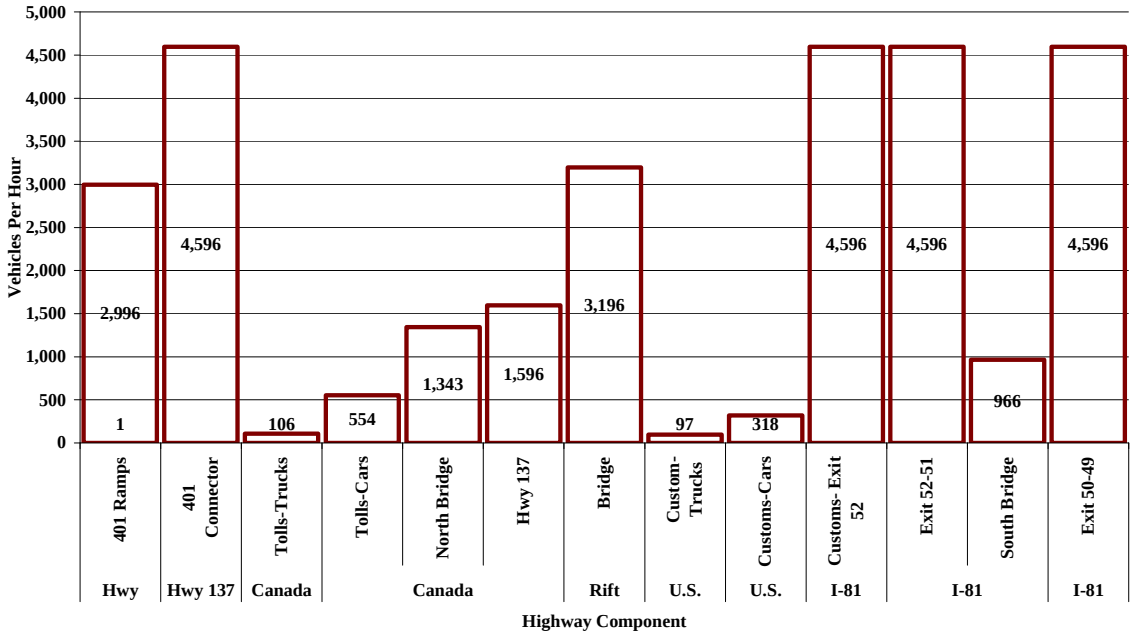


Figure 29
Southbound Vehicle Carrying Capacity



These figures show a wide range in the ability of each of the components to process traffic. For northbound and southbound traffic, the least capacity is associated with the ability to process commercial vehicles through primary inspection into either the U.S. or Canada. This is closely followed by the ability to collect tolls from commercial vehicles.

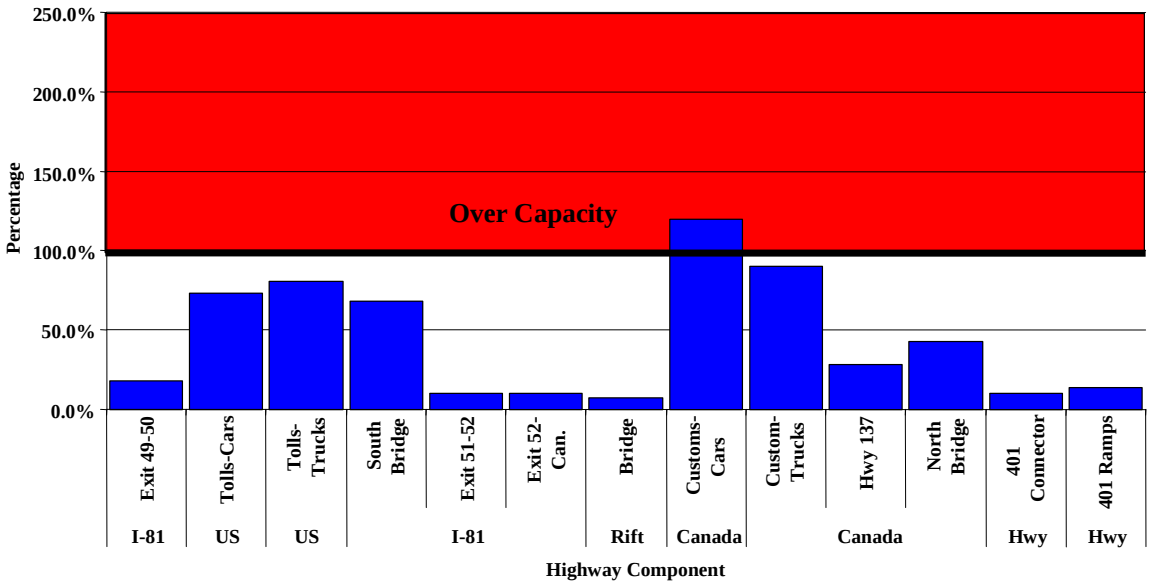
E. Ability To Process Travel Demand Today and in the Future

The following figures show the ability of each component of the Thousand Islands Crossing to process present and anticipated travel demand by direction for northbound traffic during an August, Friday, peak travel hour and for southbound traffic during an August, Sunday, peak travel hour. The years analyzed are 2002, 2005, 2018, and 2032.

1. Northbound Travel

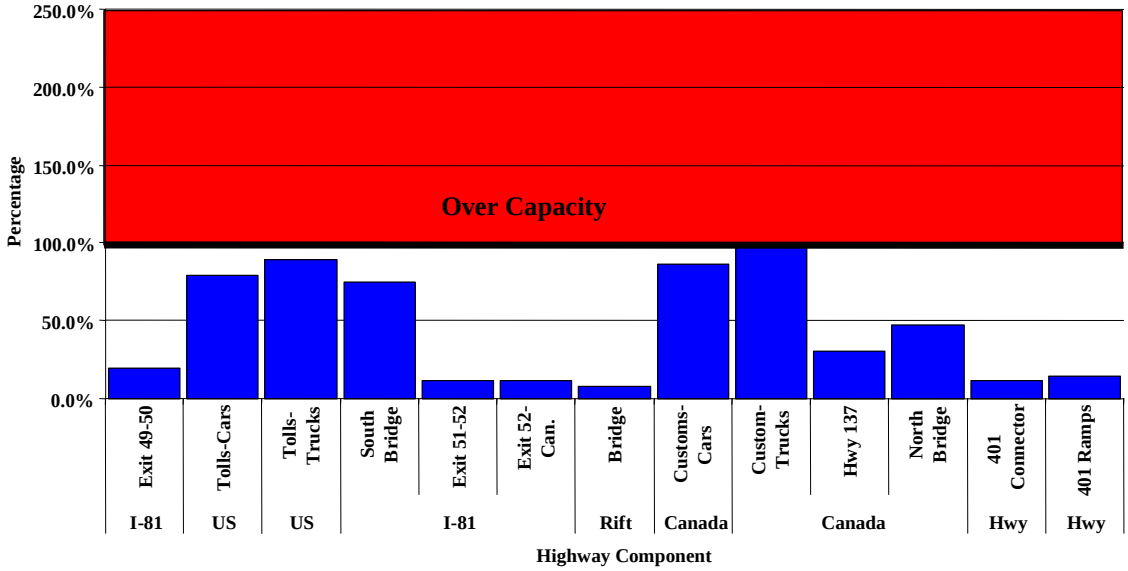
Figure 30 shows that for northbound travel in 2002, only the Canadian passenger primary inspection facilities could not process all traffic arriving during the peak travel hour. It also reflects that only the four (4) primary inspection lanes with an inspection booth are used to inspect passenger vehicles entering Canada. Figure 31 shows the improvement expected to occur in 2005 when inspection booths are added to the two inspection lanes that are currently un-staffed because of the lack of these booths.

Figure 30



Year 2002 - Percent of Capacity Used Northbound Friday

Figure 31



Year 2005 - Percent of Capacity Used Northbound Friday

Figure 32 shows that for northbound travel in year 2018, the ability of Canadian Port Of Entry to process all passenger and commercial vehicle traffic during an August, Friday evening, peak travel hour will be exceeded for both passenger (even if all 6 lanes staffed) and commercial vehicle traffic. Figure 32 shows a similar situation in the ability to collect northbound tolls from either commercial or passenger vehicles. The South Channel Bridge is also at its estimated capacity to process traffic over it by 2018.

In year 2032, without expansion of facilities, the current facilities will be further over capacity; the South Channel Bridge will be well over its capacity to process traffic and the North Channel Bridges will be approaching their ability to process all arriving traffic.

Figure 32
Year 2018 - Percent of Capacity Used Northbound Friday

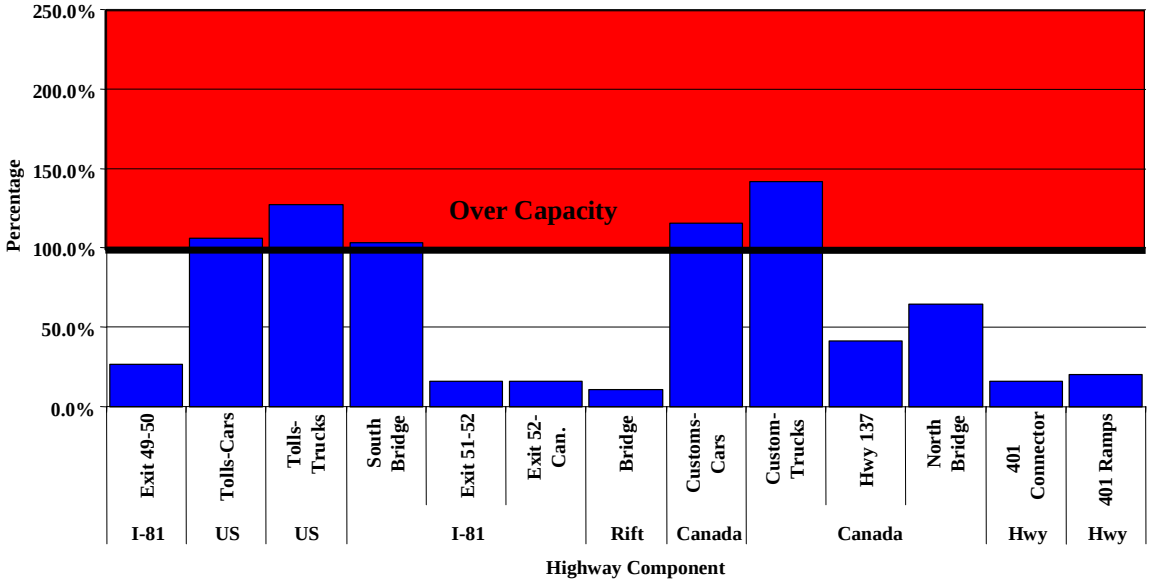
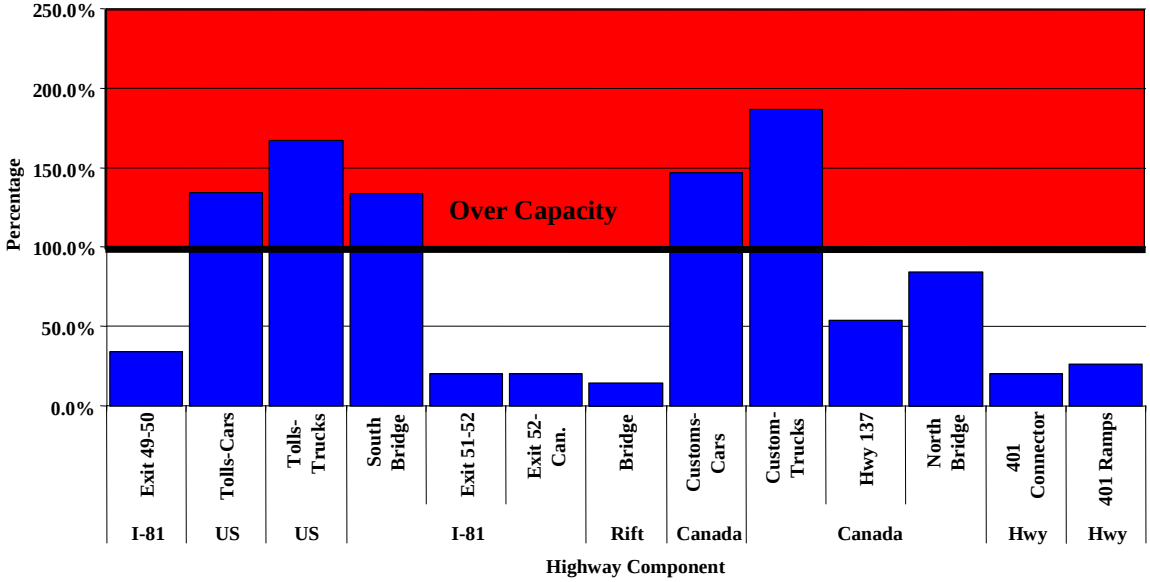


Figure 33
Year 2032 - Percent of Capacity Used Northbound Friday



2. Southbound Travel

Figure 34 shows that for southbound travel in year 2002 on a Sunday in August, the current U.S. Port Of Entry has exceeded its ability to process both passenger and commercial vehicles even with all primary inspection lanes opened. The ability to collect tolls from southbound commercial vehicles is also at capacity. Figure 35 shows basically the same result for year 2005 conditions, however, it reflects the impact of the third (3rd) commercial vehicle inspection booth that was added to the U.S. Port Of Entry in 2004. Note that even with the addition of this third commercial vehicle inspection booth, the current facility still cannot process all commercial vehicles expected to arrive in one hour to enter the U.S.

Figure 34
Year 2002 - Percent of Capacity Used Southbound Sunday

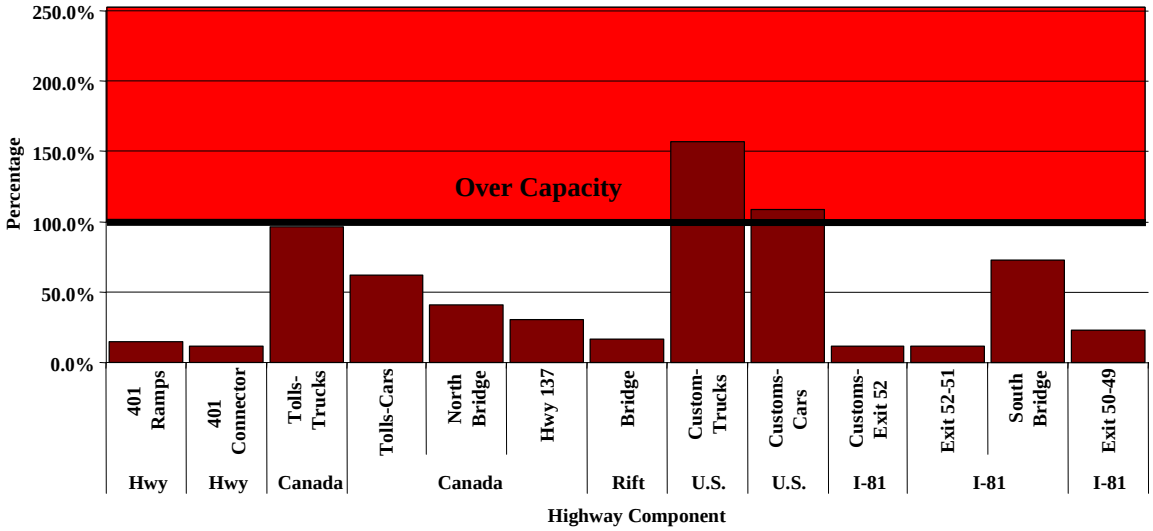


Figure 35
Year 2005 - Percent of Capacity Used Southbound Sunday

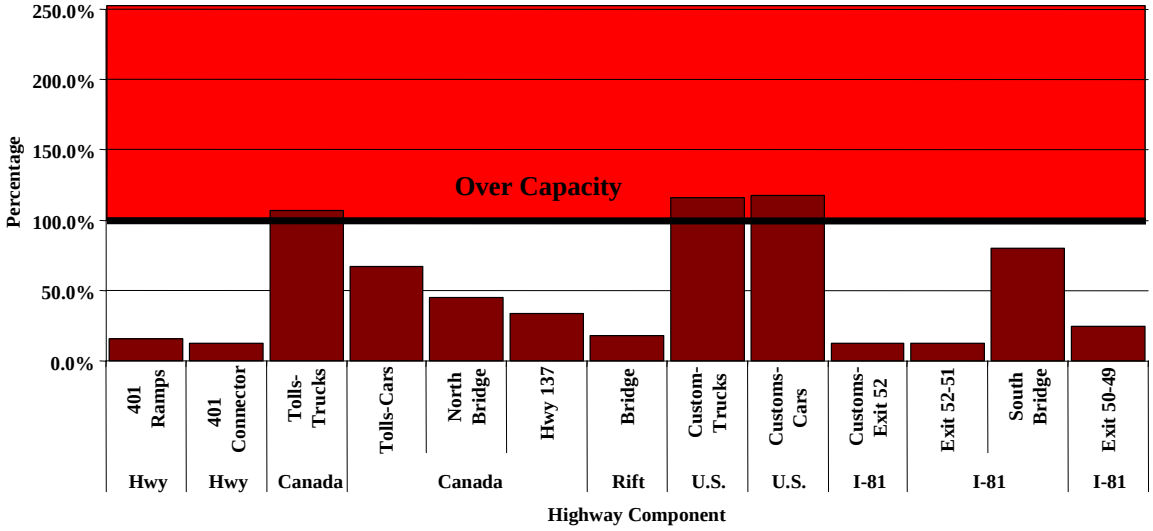
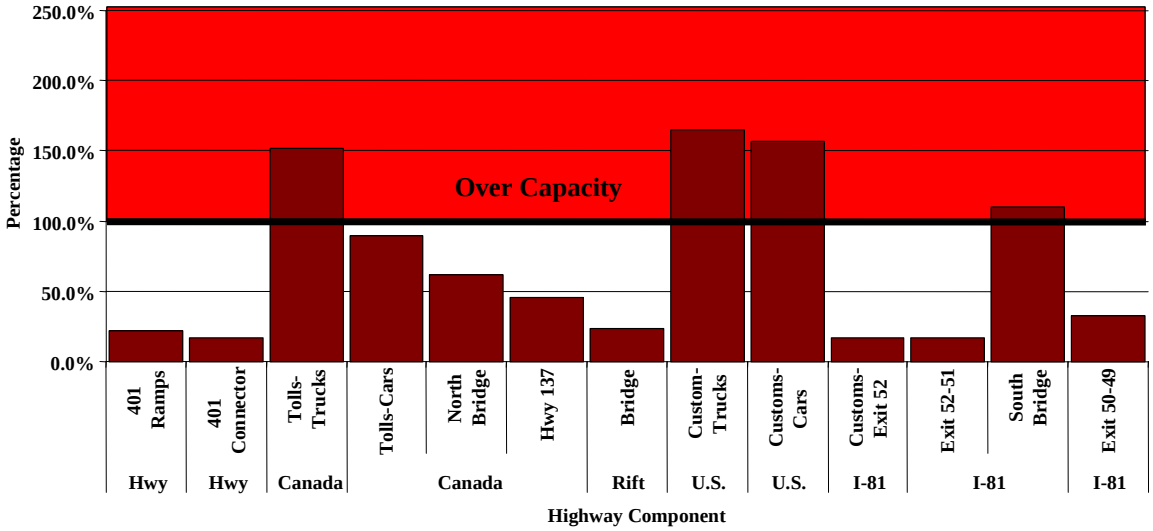


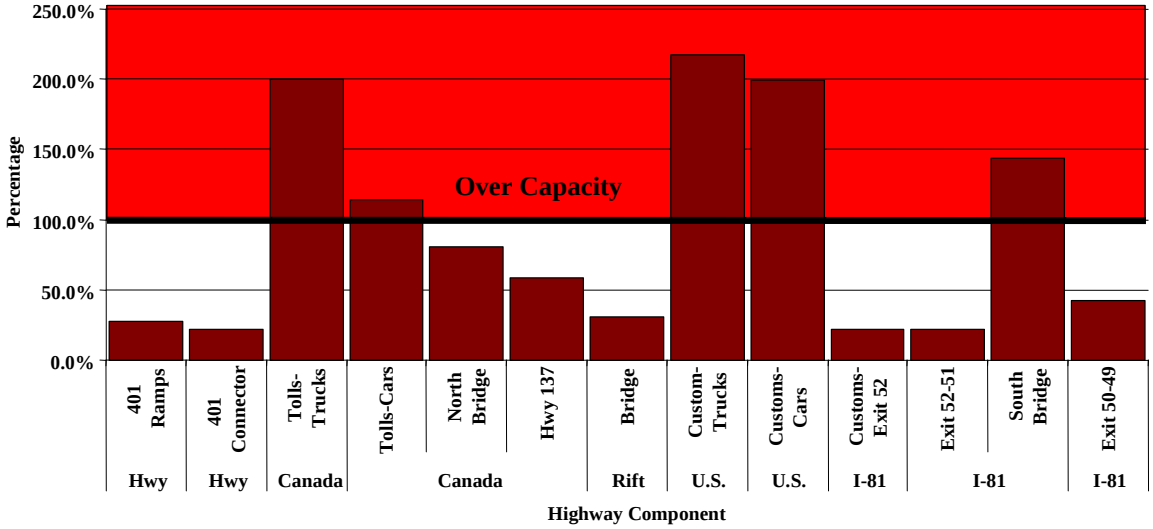
Figure 36 forecasts that by the year 2018, these facilities will continue to be over capacity without major expansion; and, again, the South Channel Bridge will be at, or over, capacity for southbound vehicle traffic during the Sunday peak travel hour.

Figure 36
Year 2018 - Percent of Capacity Used Southbound Sunday



By the year 2032, without further improvements, all southbound toll collection vehicle inspection facilities will be over capacity, along with the South Channel Bridge being nearly 50% over capacity; and, again, the North Channel Bridge(s) will be approaching capacity.

Figure 37
Year 2032 - Percent of Capacity Used Southbound Sunday



3. Highway Facilities and Interchange Ramps

With the exception of the South Channel Bridge and assuming that the distance between commercial vehicles on both the North and South Channel Bridges could be reduced, the analysis shows all other bridges and mainline highway sections to have more than adequate vehicle processing capacity to meet present and future travel to well past the year 2032. This includes the various interchange ramps associated with the crossing including the I-81 ramps, with Route 12 (Interchange 50), and Interchanges 51 and 52 on Wellesley Island in the U.S., the Thousand Islands Parkway Interchanges with Highway 137 and the Highway 137 interchange with Highway 401 in Canada. Review of present and future traffic volumes using these various ramps all indicate that these ramps can and will accommodate all arriving traffic to the year 2032 and beyond.

F. Conclusions

Based on the above capacity analysis, it is clear that over the next 30 years, major investment needs to be made at the Thousand Islands Crossing if it is to serve all those wishing to use it. On the positive side, the surface highway facilities can accommodate all traffic forecasted to arrive in either direction to 2032 and beyond. On the negative side, both Ports Of Entry, toll collection facilities, as well as the South Channel Bridge and possibly the North Channel Bridge(s), will need to be expanded in the future if all traffic arriving is to be processed through this crossing.

A ballpark estimate of funds required to be invested in the Thousand Islands Crossing to expand all the facilities necessary, including replacing or twin spanning the South Channel Bridge and possibly the North Channel Bridge(s), was estimated at around $300 million. At this magnitude of investment over thirty years, the question that needs to be explored is whether this investment should be made at the Thousand Islands Crossing or better invested in a new crossing or improved access to an alternative crossing. This issue is explored in the section on alternatives to expanding the Thousand Islands Bridge Crossing.

X. Alternatives To Investing in the Thousand Islands Crossing

A. Summary

A need to make a major investment at the Thousand Islands Crossing over the next 30 years has been identified. This investment includes expansion of the U.S. and Canadian Ports Of Entry, as well as major investment to add additional travel capacity by twin spanning or replacing South Channel Bridge and possibly the North Channel Bridge(s). The cost of making this investment is estimated at around $300 million. Prior to making such a major investment, it is prudent to undertake an investigation of possible alternatives that could eliminate or delay the need for making this investment at the Thousand Islands Crossing. These alternatives were identified and investigated in this section.

The investigation reviewed a potential alternative crossing that might be used, as well as the possibility of a new crossing. The possibility of a diversion of commercial vehicle traffic to rail and what the impact of an additional ferry service might have was also examined. The analysis found that any alternative that would delay a major investment at the Thousand Islands Crossing past the year 2032 requires that at least 25% of the international passenger vehicle and 40% of the international commercial vehicle traffic be attracted to this alternative. Both rail and ferry services were found not to be able to attract this volume of traffic.

A new highway crossing, or the use of an existing alternative crossing, was also examined. The most logical place for a new crossing was identified to be from Watertown, NY, to Kingston, Ontario, with new bridges over the St. Lawrence River from the U.S. Mainland to Wolf Island, Howe Island, and then onto the Canadian Mainland; and the most logical use of an existing crossing would be to use the Ogdensburg-Prescott Crossing. To attract the volume of traffic required, however, (to either a new crossing or to Ogdensburg-Prescott Crossing), the crossing would need to be served by full grade separated expressways from I-81 in the U.S. to Highway 401 in Canada. Based on this, two alternative expressway routes where examined for Ogdensburg-Prescott Crossing Alternative. One was the most direct route following the Route 37 Corridor between Ogdensburg and I-81 near Watertown, NY. The other is the route recommended by the "North Country Transportation Study" that follows Route 812 to Route 11 and then connecting to I-81 near Watertown, NY.

Magnitude cost estimates was made for each of these highway alternatives. It was found that to implement any of these highway alternatives would require an investment of nearly double, if not more, than the investment estimated for the Thousand Islands Crossing improvements. These highway alternatives would require expansion or construction of new Ports Of Entry and the environmental impacts associated with construction of 39.5 miles to up to 69.5 miles of new expressway.

The analysis also found that only a direct expressway route following the Route 37 Corridor between the Ogdensburg-Prescott Crossing and I-81, Interchange 49 north of Watertown, would be able to attract enough traffic to delay major

investments associated with both the Thousand Islands North and South Channel Bridges past the year 2032. Implementation of the other two (a new crossing or an expressway connection to Ogdensburg, following the preferred "North Country Transportation Study") would only delay the need for 10 to 15 years. They would, however, delay the need to add capacity to the Thousand Islands North Channel Bridge past the year 2032.

Based on this, it was concluded that investing in the Thousand Islands Crossing is the best alternative. Investment in other alternatives might delay the need for some of the major investments required at the Thousand Islands Crossing, however, both the cost to implement and their environmental impacts are estimated to be significantly higher because of the need to construct between 39.5 to 69.5 miles of new expressway.

B. Introduction

In the previous section, based on the forecast of future travel using the Thousand Islands Crossing, it was determined that the South Channel Bridge improvements would either be a new twin spanned bridge or replaced with a new four-lane bridge around the year 2018. A similar treatment would be required for the North Channel Bridge(s) by possibly the year 2025. These improvements were identified to address both the age of these structures and the ability to process future traffic. In addition, a major investment is planned to replace and expand the U.S. Port Of Entry by the year 2010 at this crossing, and there will be a need in the future to expand the Canadian Port Of Entry. The total cost of these improvements and expansions are estimated to be in the hundreds of millions of dollars.

Prior to making such a major investment, it is prudent to undertake at least a preliminary investigation of possible alternatives that could eliminate or delay the need for making these investments at the Thousand Islands Crossing. This section examines some alternatives that have been suggested.

C. Travel Attraction Required

An analysis was conducted to determine the percentage of the diversion of traffic (both passenger vehicles and commercial vehicles) from the Thousand Islands Crossing required for the South Channel Bridge (the bridge with the least capacity) not to exceed its traffic carrying capacity in the forecasted future (year 2032). To accomplish this, the forecast change in non-international traffic (traffic between Wellesley Island NY to the U.S. Mainland) was assumed to continue to use the South Channel Bridge alternatives crossing would not satisfy these travel needs. The analysis found the following:

- That if all international passenger vehicles were diverted to another crossing and the Thousand Islands Crossing became a "commercial vehicle only" bridge (with the exception of passenger traffic between Wellesley Island and the U.S. Mainland), the South Channel Bridge would still be over capacity by the year 2032.

- If 50% of the commercial vehicle traffic was diverted to another crossing and no international passenger traffic was diverted, the South Channel Bridge would be at capacity in the year 2032.
- A combination of the two diversion scenarios would suggest that 40% of the commercial vehicles and 25% of the passenger vehicles could be diverted. Even with these vehicle reductions, the South Channel Bridge would be at capacity in 2032.

Thus, to delay any need to provide additional vehicle carrying capacity at the Thousand Islands Crossing to or past the year 2032 would have to attract 50% of the commercial vehicles using this crossing without any diversion of passenger vehicles, or 40% of the commercial vehicles and 25% of the passenger vehicles.

To accomplish this level of diversion either to a new crossing or use of an existing crossing would require a full high speed expressway connection between Highway 401 and I-81. This conclusion is based on the fact that while the Ogdensburg-Prescott Crossing provides a shorter route (approximately 6 miles) between Highway 401 to the I-81 Interchange 49 with Route 411, most commercial vehicles on Highway 401 that could use the Ogdensburg-Prescott Crossing, use the Thousand Islands Crossing instead. The Thousand Islands Crossing route, even with the greater travel distance, is 11 minutes faster to travel between these two points, and commercial vehicles do not have to travel over slower two (2) lane rural highways. Thus, it is concluded for the alternative analysis that only a full-grade separate expressway type facility will provide the incentives for commercial, as well as, passenger vehicles to accept an alternative route.

D. Cost Assumptions

The following are the assumptions used in estimating the alternative costs:

a. Only an expressway-to-expressway route, four-lane divided, grade-separated interchanges, with travel speed of 65 mph, is required to divert traffic.
b. New expressway cost - $10 million per mile (assume all on new location).
c. New enforcement plaza cost - $75 million per plaza.
d. Expanded enforcement plaza cost - $25 million per plaza.
e. New toll plazas cost - $5 million.
f. New bridge construction cost @ $16,000 per foot (two travel 14-foot lanes; plus 5 foot sidewalk, 38 feet wide).

All costs are in U.S. 2003 dollars.

E. Alternatives to the Thousand Islands Crossing

A number of alternatives were examined to address possible future bridge capacity issues in the future. They included the following:

a. New crossing on new location.
b. Diversion of traffic to the Ogdensburg Bridge Crossing using two possible routes:
   - Route 37 Corridor
   - Route 11 to Route 812 Corridor (DANC Recommended Corridor)
c. Diversion of trucks to rail or ferry service

The following describes each of the alternatives examined.

F. New Crossing – Kingston to Watertown

Possible new alternative crossing sites from south of Ogdensburg to Lake Ontario were reviewed with respect to connections to existing expressways (Highway 401 and I-81) and the distance that would be required to span the St. Lawrence River. Based on this review, an alternative that would connect Watertown, NY, to Kingston, Ontario was chosen as a logical, possible, and typical crossing for comparison as a new crossing on a new location for this study.

Under this alternative a new bridge crossing between Canada and the U.S. would be created, starting near I-81, Interchange 46, and ending near Highway 401 Interchange 632. It would involve three major bridge structures:

a. Cape Vincent, NY, U.S.A., to Wolfe Island, Ontario, Canada, approximately one mile distance over the St. Lawrence River South Channel
b. From Wolfe Island, Ontario, Canada, to Howe Island, Ontario, Canada, approximately one mile distance over the St. Lawrence River Canadian Middle Channel
c. From Howe Island, Ontario, Canada, to the Canadian Mainland, approximately ½ mile distance over the St. Lawrence River Bateau Channel

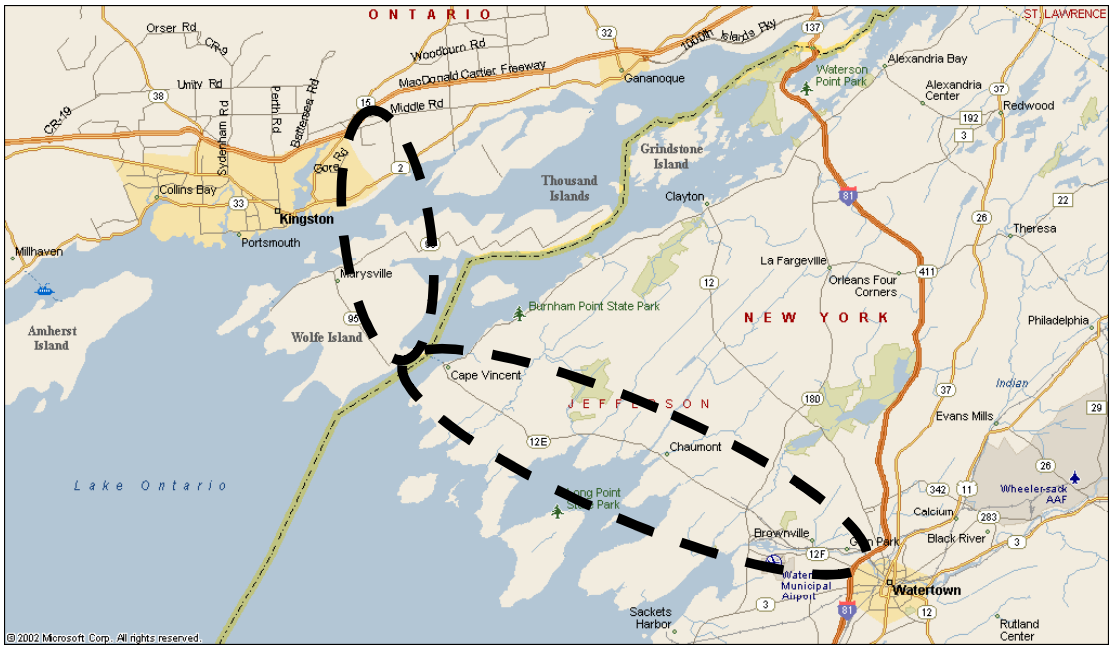
The entire distance would be approximately 40 miles, including bridges over the St. Lawrence River (Figure 38).

1. Order of Magnitude Construction Costs

- Expressway Construction at $10.0 million per mile = $370.5 million
- Two and one half miles of major bridge structure at $16,000 per foot = $225 million
- New Custom Inspection Facilities @ $75 million per facility = $150 million
- Two new Tolls Collection Facilities @ $5 million per facility = $10 million

Total Crossing Cost estimated at approximately $755 million, including expressway connections and major channel crossings (exclusive of property costs).

Figure 38
Watertown, NY to Kingston Ontario
I-81 to Highway 401 Corridor



2. Possible Attractions from the Thousand Islands Crossing

This route would be approximately 11 miles shorter between Watertown and Kingston; and at 65 mph, 10 minutes faster. Given a shorter travel time and distance to be traveled, a significant diversion of traffic from the Thousand Islands Crossing to this crossing would be expected. Based on the 1998 Study, approximately 33% of the passenger vehicle travel would prefer this Route. Based on Transport Canada's 1999 National Roadside Study (NRS) of trucks traveling throughout Canada, 33% of the commercial vehicles would also choose this shorter and faster route (based on travel from Kingston and points west of Kingston), over the Thousand Islands Crossing. Based on these percentages of diversion to the Kingston to Watertown crossing, the need to add additional travel capacity to the Thousand Islands South Channel Bridge would be delayed from around 2015 to between 2025 and 2030. For the Thousand Islands North Channel Bridge, the needs to add additional travel capacity would be delayed to well past the current future year travel forecast of 2032.

G. Ogdensburg-Prescott Crossing Alternative

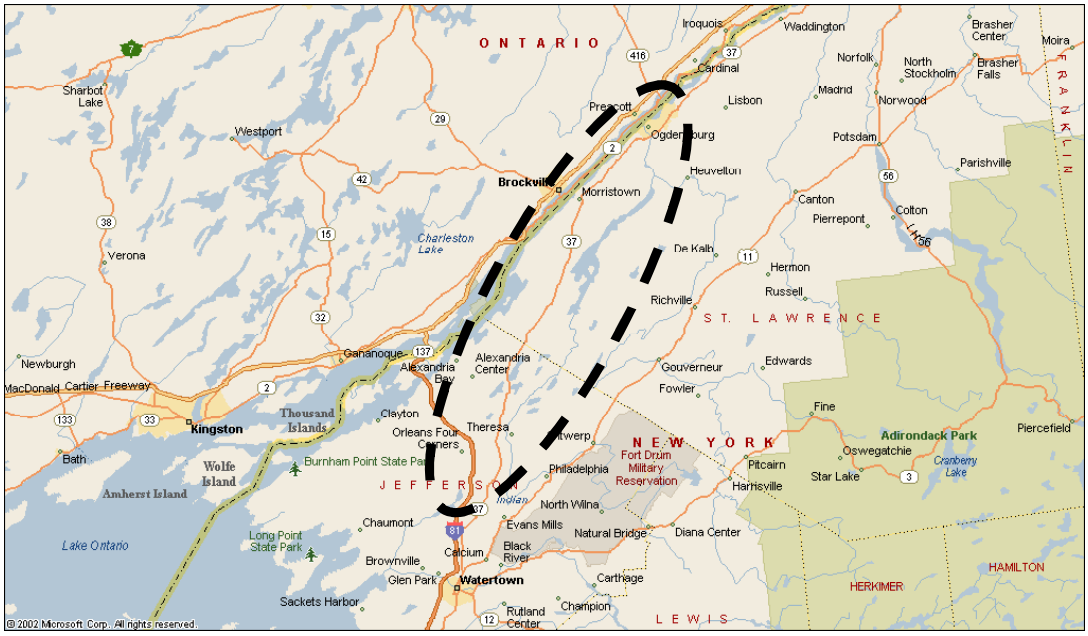
This international crossing currently exists and was identified in the 1998 Study to have excess capacity that could accommodate traffic attracted from the Thousand Islands Crossing without requiring further improvements to the bridge. The U.S. Port Of Entry at this crossing has also recently expanded and would require minimal additional facilities to process a significant increase in traffic volumes. The Canadian Port Of Entry, however, would need to be expanded, particularly for commercial vehicle inspection. Toll collection facilities would also need to expand with increased traffic volumes.

The Highway 401 and Highway 416 Expressways serve this crossing on the Canadian side. In the U.S., two-lane rural roads generally serve this crossing, with at grade intersections controlled by traffic signals and with local development and access along these roads that pass though a number of rural communities. Thus, to attract the necessary volume of traffic, highways in the U.S. between Ogdensburg and I-81 near Watertown, NY, would need to be improved to expressway standards. To address this alternative, two possible corridors between Ogdensburg and I-81 near Watertown were examined: the Route 37 Corridor, the Route 812, and Route 11 Corridor locally referred to as the "DANC Corridor".

1. Route 37 Corridor

A route following Route 37 would be the most direct route between the Ogdensburg Prescott Crossing and I-81 north of Watertown, NY. It would require approximately 50 miles of new expressway to be constructed between the crossing and the I-81 Interchange 49. The Corridor is shown in Figure 39.

Figure 39
Route 37 Corridor

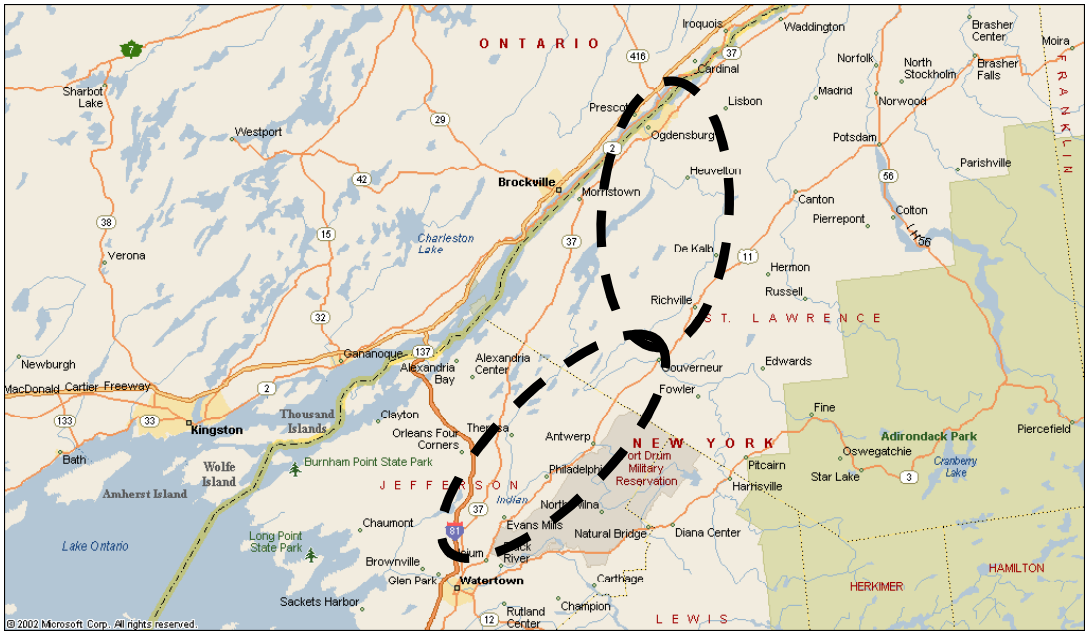


2. DANC Corridor (Route 812 and Route 11)

This is the preferred route identified to serve this area in the "North Country Transportation Study" prepared for the Development Authority of the North Country, February 2002, or DANC Corridor. This corridor would generally follow Route 812 between Ogdensburg to Route 11 and then south following the Route 11 Corridor and connect to I-81 north of Watertown, near the I-81 Interchange 48. It would require approximately 69 miles of new expressway to be constructed between the crossing and the I-81 Interchange 48.

The DANC Corridor is shown in Figure 40

Figure 40
DANC Corridor - Route 11 and 812



3. Order of Magnitude Construction Costs

a. Route 37 Corridor

- 50 miles of Expressway at $10.0 million per mile = $500 million
- No improvement to the existing bridge expected
- One Expanded Custom Inspection Facility = $25 million
- Expanded Toll Collection Facility = $2 million

Total Crossing Cost around $557 million, including expressway connections.

b. DANC Corridor - Route 11 and 812

- 69 miles of Expressway at $10.0 million per mile = $690 million
- No improvement to the existing bridge expected
- One Expanded Custom Inspection Facility = $25 million
- Expanded Toll Collection Facility = $2 million

Total Crossing Cost around $717 million, including expressway connections.

4. Travel Time Changes

A review of average time to travel over the existing roadways between Highway 401 Interchange with Highway 416 (Highway 16) (the interchange that services the Ogdensburg-Prescott Crossing in Canada) and the I-81 Interchange with NYS Route 342 (Exit 48) north of Watertown, NY, U.S.A. indicates why more drivers do not choose the Ogdensburg-Prescott Crossing.

The possible travel routes in NY that were examined between these two expressways were:

- **Thousand Islands Crossing** – Use Highway 401 in Canada (Exit 721) to Exit 661 (Highway 137). Use Highway 137 to reach I-81 on Wellesley Island, NY, and remain on I-81 to Exit 48 (north of Watertown, NY).
- **The Route 37 Corridor** – Using the two lanes, Route 37 from Ogdensburg, NY, to Route 411, then Route 411 to the I-81 Interchange (Exit 49), and then I-81 to reach Interchange 48.
- **DANC Corridor** – Using the two lanes Route 37 to Route 812 near Ogdensburg, NY. Travel the two lanes Route 812 to Route 11 in Governor, NY. Then travel Route 11 to reach Route 342, north of Watertown, NY, and using Route 342 to reach the I-81 Interchange with Route 342 (Exit 48).

For the purposes of this comparison, the following travel speeds were used:

- **Expressways** – 65 mph
- **Two lane rural arterials** (Route 37, Route 11, Route 68, etc.) – 50 mph
- **Sections through towns and villages** – 35 mph

Table 2 presents a basic time and distance analysis of travel between these two key origins and destinations, both at the anticipated current travel speed and if the facilities (roadways available) would allow a 65 mph travel speed.

Table 2
Travel Time and Distance Comparison of Alternative Routes

Approach/Crossing	Current Time	Distance	At 65 mph
Thousand Islands Crossing	64 minutes	66.6 miles	61.5 minutes
Rte 37 Corridor	75 minutes	60.2 miles	55.6 minutes
Rte 11 to Governor and Rte. 812	102 minutes	69.5 miles	64.2 minutes

Note that the time required for vehicle inspection at border crossings or to pay the toll are not included in the time estimate, nor are delays associated with roadway congestion or road construction.

The table shows that the Thousand Islands Crossing route currently provides the shortest travel time, while the Ogdensburg-Prescott Crossing, Route 37 Corridor, is the shortest route in terms of travel distance. Ogdensburg-Prescott Crossing, Route 37 Corridor, while shorter, however, takes 7 minutes more to travel than the Thousand Islands Crossing route. The Ogdensburg-Prescott Crossing, using Route 812 and Route 11 is the longest route and nearly an hour longer to travel than the Thousand Islands Corridor Route.

Table 2 also shows the travel time between these two points, if vehicles could travel at 65 mph on a four-lane, grade separated expressway roadway, over these same distances. The travel time summary suggests that even with a full expressway provided from Ogdensburg-Prescott Crossing along the Route 812 and Route 11 Corridor, the travel time and distance would still be longer than using the Thousand Islands Crossing and, as such, no significant volume of international traffic would be expected to be attracted away from the Thousand Islands Crossing (all things being equal) along this corridor.

The travel time and distance from the Ogdensburg-Prescott Crossing using the Route 37 Corridor, would, however, provide both a slightly shorter and faster route between Canada and the U.S., than using the Thousand Islands Crossing. In this case, a significant attraction of travel from the Thousand Islands Crossing might be possible.

5. Possible Attraction from The Thousands Islands Crossing

Refinement of the 1998 Study showed that approximately 27% of the passenger vehicle traffic, using the Thousand Islands Crossing, passes by the Ogdensburg- Prescott Bridge Crossing.

Based on refined origin and destination data on commercial vehicle movements obtained from Transport Canada's 1999 National Roadside Study (NRS), two-thirds (66%) of the commercial vehicles that use the Thousand Islands Crossing, pass by the Ogdensburg-Prescott Crossing. Thus, for the purposes of this analysis, an estimate of 27% of all international passenger vehicles and 67% of commercial vehicles have the opportunity to use the Ogdensburg-Prescott Crossing, but choose the Thousand Islands Crossing instead.

a. Using Route 37 Corridor

With this volume of traffic already passing the Ogdensburg-Prescott Crossing to reach the Thousand Islands Crossing, construction of a high-speed expressway connection following the Route 37 Corridor would be expected to attract enough traffic away from the Thousand Islands Crossing to delay the need to provide additional travel capacity to either the North or South Channel Crossing past the year 2032. This route would be both shorter and faster.

b. DANC Corridor

Even with a high-speed expressway serving this corridor, it would still be slightly longer, in travel, time, and distance. It would, however, be expected to attract some volume of traffic from the Thousands Islands Crossing given the current volumes that pass by this crossing, and a new expressway facility would be more predictable and safer. It would require, however, more than 61% of the commercial vehicles and nearly all of the passenger vehicles that pass this crossing to use this crossing in order to delay the additional travel capacity to the South Channel Crossing

to beyond the year 2032. This is not expected, since that route would still be longer in distance and travel time than using the Thousand Islands Crossing. For the North Channel Crossing, however, this route would be expected to attract enough traffic to delay the need for additional travel capacity to well beyond the year 2032.

H. Truck to Rail

The volume of trucks on these bridges is one of the primary reasons these bridges will reach capacity. One possibility of reducing the volume of trucks using these crossings is to divert truck traffic to rail operations. To determine the feasibility of this diversion, both rail routes and distance travel were examined based on the truck traffic origins and destinations.

Rail service between the U.S. and Canada that might be available to divert trucks to rail begins in the Montreal area and crosses the border at:

- Rouses Point, serving Albany, New York City, and the east coast
- Fort Covington, serving the Syracuse area and beyond
- Other Canadian lines that cross in the Buffalo and Detroit Areas.

In addition, rail service is considered economical for most goods when the distance is more than 500 miles. A review of the major origins and destination of truck traffic crossing the northern border indicates that trips longer than 500 miles would be trips that begin or end outside of New York and the New England States; west of Toronto, or east of Quebec.

At the Thousand Islands Crossing, approximately 20% of the commercial trips begin or end in the region and approximately 8% travel more than 500 miles. Diversion to rail, even for this small percentage of trucks, is unlikely due to the lack of a rail crossing between Montreal and Buffalo.

As such, diversion of truck to rail by itself, at the Thousand Islands Crossing, does not appear to be a viable alternative to resolving future over-capacity conditions. Attracting long-distance truck traffic to rail, where possible, however, would improve overall traffic operations in the region, since at least 15% of all trucks crossing the northern New York Border travel over 500 miles.

I. Ferry Service

Ferry service between the U.S. and Canada in the proximity of the Thousand Islands Crossing is feasible. It currently exists along the Watertown to Kingston route through Cape Vincent and has existed at a number of other locations in the past. It is not a feasible option, however, to attract a volume of commercial or passenger vehicle traffic from the Thousand Islands Crossing because of the increased travel times it would incur. It would also involve significant expenses associated with the ferries, the additional facilities needed, and maintaining ice-free channel(s) between Canada and the U.S. when the St. Lawrence River freezes over.

J. Conclusions

Of the alternatives examined, only the construction of a new expressway following the Route 37 Corridor would be expected to attract enough traffic to use the Ogdensburg-Prescott Crossing to delay the need to add additional travel capacity by twin spanning or replacing both the Thousand Islands South Channel and North Channel Crossings past 2032. It would also cost nearly double the estimated investment required to maintain the Thousand Islands Crossings. It is also noted that this alternative is not the preferred corridor identified in the "North Country Transportation Study" where major investments were recommended.

Investment in the preferred "North Country Transportation Study" route or a new crossing (Watertown and Kingston) would be more than double the estimated investment required to maintain the Thousand Islands Crossing and would not be able to delay the need to have to add additional vehicle travel capacity on the Thousand Islands South Channel Crossing beyond the year 2032. These two alternatives, however, would delay the need for any capacity investments associated with the North Channel Crossing well past the year 2032, and both have merits for improving international and travel in Northern New York State.

Finally, volume of traffic that might be attracted to using rail or a new ferry service was found to have little, if any, impact on the need to make a major investment in the Thousand Islands Crossing.

Thus, making a major investment in the Thousand Islands Crossing is the recommended alternative. While most of these alternatives have merit, they can, at best, only delay the need for an additional major investment at the Thousand Islands Crossing. Those alternatives that can delay this need would also require a major investment of nearly double, or more, than the required investment in the Thousand Islands Crossing. Finally, given the need for construction of 39.5 miles to 69.5 miles of new expressway on new location, these alternatives and their associated environmental impacts will be to a much greater area than those that can be expected by investing in the Thousand Islands Crossing.

XI. Present and Future Needs

A. Introduction

With the recommendation presented in the previous section stating that future investments for an international crossing in this area should be made at the Thousand Islands Crossing, the following section identifies the specific needs to be addressed at this crossing. This section presents these needs for future improvements by the various components of the Thousand Islands Crossing. To summarize the report findings, based on anticipated travel demand to the year 2032, the surface roadway system, the five highway interchanges, and the International Crossing -"Rift Bridge(s)" all have available vehicle carrying capacity to process all anticipated travel demand, as well as the approach highways, to and past the year 2032. These crossing components will, however,

require normal maintenance and improvements to the traveler information systems currently available. All other components, the North and South Channel Bridges, facilities to collect tolls and both the U.S. and Canadian Ports Of Entry will require major investments to expand these facilities to support future travel demand.

B. Surface Roadway System

The surface roadway system composed of I-81 in the U.S. and Highway 137 in Canada that serve the Thousand Islands Crossing all have ample vehicle carrying capacity to meet present and future travel demand past the year 2032. Currently, nearly every component of the roadway system is capable of accommodating 4 times the traffic volume that currently uses it. In 30 years, it will still be able to accommodate twice the expected traffic volume that is forecasted to use them.

Thus, other than maintenance, no expansions of the current surface roadway system serving the crossings are required within the foreseeable future.

C. Highway Interchanges That Serve The Crossing

The following interchanges serve the crossing:

- I-81 with Route 12 (Interchange 50)
- I-81 with County Route 100 (Interchange 51)
- I-81 Deringer Road (Interchange 52)
- Highway 137 Interchange with the Thousand Islands Parkway
- Highway 401 Interchange with Highway 137

All these interchanges have ample capacity to process forecasted traffic volumes to 2032 and beyond. Thus, other than maintenance, no expansion is necessary to provide additional travel capacity for the foreseeable future.

The I-81 with Route 12 (Interchange 50) does, however, contain a substandard Interstate Highway System Ramp (westbound Route 12 on-ramp to northbound I-81), which does not provide an acceleration lane and is controlled by a “stop sign”.
Northbound commercial vehicles waiting to pay the toll to cross the Thousand Islands South Channel Bridge will back up, at times, past this ramp entrance. Most of the time, when this occurs, the commercial vehicles leave a gap for traffic entering from the ramp to proceed to the I-81 left lane. This presents the potential for increased traffic accidents, since these commercial vehicles also block the view of the oncoming high-speed traffic to the driver attempting to enter I-81 and creates the need to modify this ramp to prevent the possibility of these types of accidents.

D. The Crossing Bridges

There are three major bridges within the crossing, each with unique issues. These issues are individually named below:

1. South Channel Bridge – U.S. Mainland to Wellesley Island, U.S.

This bridge is approximately one mile long, with a 5.5 percent grade. The bridge, which connects I-81 on the U.S. Mainland to I-81 on Wellesley Island not only serves international traffic, but U.S. traffic between Wellesley Island and the U.S. Mainland. Approximately 40% of the travel over this bridge remains within the U.S., while 60% is traveling between the U.S. and Canada.

The bridge grade, combined with increasing volume of commercial vehicles, and both local and international passenger vehicles, is currently approaching the bridge's ability to process all the traffic that arrives within that same hour. When this occurs, traffic on I-81 will backup and queue on I-81 waiting to cross the bridge. Based on the updated travel forecasts, these backups can be expected to begin within the next 10 to 20 years unless additional travel lanes are added by either twin spanning the current bridge or replacing the current bridge with a new 4-lane bridge that will meet U.S. Interstate Highway Standards. The "Life Cycle Cost Analysis" prepared for this study (Appendix F) found that it is more economical over the long term to replace the South Channel Bridge entirely, rather than twin spanning the bridge and continuing to maintain the existing bridge, which is currently over 67 years old. Further, twin spanning of the existing bridge will not eliminate the need to maintain the 500 feet (150 metres) spacing between commercial vehicles on the existing structure that would remain. Replacement of the bridge using current bridge design standards, however, would eliminate the need to maintain commercial vehicles spacing over the new structure.

In this same time frame, the number of commercial vehicles arriving to travel over the South Channel Bridge in either direction (northbound or southbound) will be greater than can be allowed to cross during that hour. This is a result of the need to maintain a 500-foot (150 metres) distance between commercial vehicles traveling over the bridge in order not to overstress the existing structure. Appendix C provides further information on spacing requirements).

Finally, in this same time frame (10 to 20 years), there will be a need to again replace the existing bridge deck (travel surface). To replace the deck on the bridge requires alternating the traffic that is attempting to cross (i.e., first one direction while the other direction waits, then the other direction) for at least all or part of the day. This activity (re-decking, with night work when traffic volumes are lower) takes an entire construction season, if not two. The recent re-decking of this bridge used this alternating traffic from around 6:30 PM to 6:00 AM on the crossing. While traffic operations were maintained and backups of waiting traffic were generally manageable, there where periods when both traffic destined to cross the bridge and traffic destined to the I-81 Interchange with Route 12 interchange was backed up for miles. With continued increases in traffic using this bridge over the next 10 to 20 years, significantly longer backups and delays can be expected, impacting not only local travel, but also the economics of international travel.

Thus, there is an immediate need to address a plan for adding additional travel capacity for the South Channel Bridge in order for it to process all arriving traffic within the same hour that it arrives and avoid back up traffic on I-81 in either the northbound or southbound direction.

2. Rift Bridge(s) - The U.S. / Canada International Bridge between Hill Island, Canada, and Wellesley Island, U.S.

These are actually two side-by-side bridges over the St. Lawrence River, International Rift bridging over the international boundary between the U.S. and Canada. The northbound bridge (into Canada) now provides five (5) travel lanes. The southbound bridge (into the U.S.) provides two (2) travel lanes. This number of travel lanes can accommodate all traffic traveling over it, both now and the foreseeable future.

It has been suggested that to provide additional vehicle storage on the southbound approach to the U.S. Port Of Entry, the southbound Rift Bridge should be widened to provide an additional travel lane. With the current U.S. plans to expand the U.S. Port Of Entry to process all arriving traffic, the need to widen the southbound bridge to store another three to four commercial vehicles to address current needs no longer appears warranted.

3. North Channel Bridge(s) Canadian Mainland to Hill Island Canada

The North Channel Bridge(s) are actually three connecting bridges over the St. Lawrence River North Channels.

Travel over the North Channel Bridges is significantly lower than travel over the South Channel Bridge (less traffic between Hill Island, Canada, and the Canadian Mainland). This bridge also has a 5.5 uphill grade, however, it is shorter (in both directions) than the same grade on the South Channel Bridge; and, as such, has less of an impact on its ability to process traffic over the bridge. As a result, even with the increase in traffic forecast to use this bridge in the year 2032, it will only use 80% of the bridge's ability to process traffic over it.

The number of commercial vehicles arriving to travel over the North Channel Bridge in either direction (northbound or southbound) will be greater than can be allowed to cross during that hour within 10 to 20 years, however. This again is the result of the need to maintain a 500-foot (150 metres) distance between commercial vehicles traveling over the bridge in order not to over-stress the existing structure.

This bridge has a substandard 15 mph curve that not only reduces its ability to process traffic, but also results in commercial vehicles flipping on their side and blocking all traffic until the vehicle can be removed.

In the next 10 to 20 years this bridge(s) will also need to be re-decked, which again requires the use of alternating one-way travel over it for the duration of

at least one construction season. As when previously decked replaced, it is expected that this re-decking will be done overnight when traffic volumes are lower. With the continued forecasted increase traffic volume using this bridge, longer delays and backups can be expected.

Given these issues and identified needs, there is a short term need to begin addressing the requirement to replace or twin span the North Channel Bridge(s) at some point in the future. The "Life Cycle Cost Analysis" prepared for this study (Appendix G) indicates that it will be more economical over the long term to replace the North Channel Bridge(s) entirely, rather than twin spanning the bridge and continuing to maintain the existing 67 year old bridge. Further, twin spanning of the existing bridge will not eliminate the need to maintain the 500 feet (150 metres) spacing between commercial vehicles on the existing structure that would remain. Replacement of the bridge using current bridge design standards, however, would eliminate the need to maintain commercial vehicles spacing over the new structure.

E. Canadian Port Of Entry

The 1998 Study identified the need to expand the number of lanes for primary vehicle inspection in the future and it is confirmed in this study. The most immediate need, however, is to install passenger primary inspection booths in the two (2) available lanes that do not currently have a booths installed. With the installation staffing of these booths, additional primary inspection lanes for either commercial vehicles or passenger vehicles would not be necessary for another 5 to 10 years. The most immediate need for future expansion would be for an additional commercial vehicle primary inspection booth. These improvements are planned to be made in 2005.

While the most immediate short-term needs may be addressed with only minor modification, the long-term needs indicate the need to provide a total of two (2) additional commercial and three (3) additional passenger vehicle primary inspection lanes, at a total of five (5) additional lanes. Given the short distance between the Rift Bridge and the current primary inspection area, widening this plaza to provide an additional five (5) primary inspection lanes does not appear possible without relocation of the entire primary inspection booth area farther into Canada. The current enforcement plaza also has:

- Limited land area available to expand
- A need for additional office space and commercial vehicle parking
- A need for additional space in commercial secondary for inspection and other enforcement practices (such as the use of VACIS)
- Limited parking for enforcement staff

Given all these issues, there is a medium-term need to begin to identify and plan for future expansion or reconstruction of the entire enforcement plaza to address current and expected future needs. Appendix E provides a more in-dept analysis of the Canadian Port Of Entry needs, requirements, and alternative examined for possible future expansion.

F. U.S. Port Of Entry

The U.S. enforcement plaza's needs are similar to the Canadian Port Of Entry, but have more immediate needs. There is an immediate need to add a fourth commercial vehicle primary inspection booth and lanes, along with an additional passenger vehicle primary inspection lane. In the forecasted future, there is an overall need (by year 2032) for a total of seven (7) commercial, twelve (12) passenger and one (1) bus primary inspection lanes. Currently, there are only three (3) commercial, six (6) passenger, and one (1) bus primary inspection stations with limited or shared approach lanes. Other needs identified include:

- Creating FAST and NEXUS lane(s) for low risk travelers and commercial goods
- Additional office space and commercial vehicle parking
- Additional space in commercial secondary for inspection and other enforcement practices (such as the use of VACIS)
- Expanded and secure parking for enforcement staff

To address this, the U.S. General Service Administration is progressing with plans to expand and redevelop the entire Port Of Entry to accommodate current traffic and enforcement needs. The current schedule is to begin construction of a replacement port, at its current location beginning in 2006 and completed around 2010. The cost to expand and replace this port is estimated at US $85 million.

Appendix E provides a more in-dept analysis of the Canadian Port Of Entry needs, requirements, and alternative examined for possible future expansion.

G. Toll Collection

Tolls are collected at the Thousand Islands Crossing in both directions. For southbound traffic, tolls are collected on Highway 137 on the Canadian Mainland near the beginning of the North Channel Bridge. Tolls are collected for northbound traffic on I-81 on the U.S. Mainland near the beginning of the South Channel Bridge. Commercial vehicles are directed to use only one of the available lanes to pay the toll, and weigh-in motion is used in these lanes to insure that the truck weight does not exceed the allowable weight for the bridge structure.

The toll facilities are also used to manage traffic flows. Both the southbound and northbound toll collection facilities are used to hold commercial traffic in order that a 500-foot (150 metres) spacing between commercial vehicles is achieved as they travel over the bridges. Maintaining this distance for commercial vehicles starting from a stopped condition also impacts the volume of commercial traffic the bridge can accommodate. Tolls are also used to hold or regulate traffic for maintenance and project activities, weather conditions (high winds, ice, etc.), and allow oversize load passage over these bridges. These toll facilities are also located in the proximity of the major substandard highway features associated with the substandard curve on the North Channel Bridge and proximity of I-81 / Route 12 northbound ramp to the South Channel toll collection plaza.

The southbound tolls are regularly used to regulate and hold traffic destined for U.S. Port Of Entry when commercial and/or passenger vehicles waiting to be processed through the U.S. Port backs up on the 2-lane portion of Highway 137 on Hill Island, while still providing a consistent stream of commercial or passenger vehicles to the U.S. Port Of Entry for processing. Regulating this traffic is necessary to ensure this backup of traffic from the U.S. Port Of Entry does not block emergency vehicle access to residential, commercial, and the Canadian Port Of Entry, as well as to maintain local travel on Hill Island.

The need to regulate this flow of traffic at the southbound toll collection facilities now occurs nearly daily. In 2004, traffic had to be held at the southbound toll facilities on 199 separate days, for a total of 772 hours and 56 minutes (over 32, 24-hour days). The Thousand Islands Bridge Authority also estimates that Authority staff spent 6,250 hours (approximate three full time personnel) directing traffic at the crossing to both prevent these backups from blocking traffic on Hill Island, provide a regulated flow of traffic to be processed through the U.S. Port Of Entry, and finally, to the extent possible, prevent these backups from extending out onto the Highway 401 Expressway in order to reduce the real potential of serious traffic accidents on this high-speed facility.

Thus, the current toll facilities are not only used to collect tolls, but to manage traffic flow, maintain spacing between commercial vehicles over the major bridge structure, allow emergency vehicle access to Hill Island, and to protect these structures from over-weight vehicles.

A review of peak period travel demand also shows that the ability to collect tolls from all vehicles attempting to cross during these periods is either at, or approaching, capacity. Survey information for 2002 indicates that the ability to collect tolls from southbound commercial vehicles is at capacity, however, since the current toll facilities can send more traffic (commercial or passenger vehicles) within one hour than the U.S. Port Of Entry can process within that same hour (even if all inspection lanes are opened and staffed), expansion of the toll facilities prior to the U.S. Port expansion will have no impact on current traffic backups on Highway 137 that occur frequently. By the year 2015, it is forecast that the capacity of the current toll collection facilities for all vehicles, both in the U.S. and Canada will be exceeded. When exceeded, traffic waiting to pay the tolls will back up on I-81 and Highway 137, respectively, increasing delays to travelers using the crossing and increasing the potential for traffic accidents on the approaches. These backups will also block the Route 12 on and off ramps to and from northbound I-81. A similar situation will occur with the Thousand Islands Parkway on and off ramps to and from southbound Highway 137.

Appendix C provides a more in-dept analysis of toll collection needs and requirements, including review of alternative toll collection locations and the impact of the use of electronic toll collection. This analysis concluded that collection of tolls should remain at or near the existing location and use of electronic toll collection would not eliminate the need to expand the toll collection facilities in the future.

H. Intelligent Transportation System (ITS) Needs

There are a number of ITS needs associated with the Thousand Islands Crossing that have been identified both in this study and previous studies. The most pressing need is to install a Queue End Warning System on Highway 401 in Canada to warn motorists of stopped and waiting traffic on Highway 401. As noted above, these backups have generally been occurring on a regular and frequent basis since 9/11/2001, due to frequent backups from the U.S. Port Of Entry, and most likely, will continue until the U.S. Port Of Entry expansion is complete, sometime after year 2010.

Another need identified is to develop and install an ITS system to provide accurate and reliable information to motorists on the expected wait times to cross the border or of incidents that affect travel in the area. Current estimates are those provided by CBP and CBSA staff at the Thousand Islands Ports Of Entry which currently are an officer's best guess as to how far traffic is backed up and how long it will take, prior to reaching the Port to be inspected. They can vary greatly, depending on how many inspection lanes are opened and how enforcement practices are being carried out during that time. Further, this information needs to be provided to drivers, not only traveling in the immediate area, but at key decision points, which may be many miles away, such as prior to I-81 Interchange 49, or prior to Highway 401 Interchanges with Highway 416/Highway 16 (Ogdensburg Crossing). Use of the Highway Advisory Radio System and variable message signing along the I-81 and Highway 401 corridors needs to be considered to transfer this information.

There also continues to be a need for overhead variable message signs on the approach to the U.S. and Canadian Port Of Entry to direct traffic into the correct lanes on the approach to primary inspection [including FAST and NEXUS lane(s)]. Most passenger vehicle drivers are unfamiliar with these Ports Of Entry since they use this crossing once a year or less. These signs can also be used to more effectively address changing traffic needs throughout the day. For example, during periods of high commercial vehicle traffic and low passenger vehicle traffic destined to pass through the U.S. Port Of Entry, they can direct commercial vehicles to use two (2) of the three (3) approach lanes past the Rift Bridge, while directing passenger vehicles to use the remaining lane. The reverse may occur during periods of high passenger vehicle demand and lower commercial vehicle demand.

A similar system to assist in directing traffic on the approaches to the North Channel and South Channel Bridges prior to the toll collection facilities also needs to be considered. On Highway 137 southbound, prior to the toll collection facilities, it may be used to direct commercial vehicles to use the left lane and passenger vehicles to use the right lane. In periods where passenger vehicles are backed up from the U.S. Port Of Entry past the toll collection facilities, it may be used to direct commercial vehicles to use the left shoulder area, while directing passenger vehicles to use and be stored in the two (2) approach normal travel lanes.

On the I-81 northbound approach to toll collection facilities, sign(s) may be used to direct all traffic intending to cross the South Channel Bridge to the left lane in the event of backups or an incident on the bridge that is disrupting traffic flow and leaving the right lane open for traffic destined to exit on Route 12. In this situation, the sign(s) would direct northbound traffic destined to Route 12 to use the right lanes and reduce the combined length of traffic waiting on I-81 by separating traffic destined to these separate destinations.

Finally, there is a need for overhead signing on northbound I-81 requesting drivers not to block the exit to the Duty Free Store

Overall, there is a significant need to expand the ITS available at the Thousand Islands Crossing to:

- Monitor traffic flow and detect incidents
- Provide actuate and timely estimates of border wait times so that a motorist may make an informed decision as to where, or when, to cross the border
- Direct traffic into the correct lane, depending on travel demand, or to assist with incident management
- Warn motorist of stopped traffic on the approaches to this crossing to avoid traffic accidents that occur because of stopped, or slow-moving, traffic in normal high-speed expressway lanes

I. Conclusions - Needs

The study has found that while the highway system serving the Thousand Islands Crossing [including the Rift Bridge(s)] has ample capacity to process all travel demand to the year 2032 and beyond, the current South Channel Bridge and North Channel Bridge(s) do not. It also identified that major maintenance investments will need to be made in these bridge structures prior to 2032 to maintain safe travel conditions, as well as a need to address various substandard highway features associated with this crossing. While the traffic accident review found that most accidents are a result of traffic volumes, weather conditions, and deer crossings, it also found that this information does not reflect the changing conditions and traffic backups as a result of 9/11/2001. Finally, it identified the need for expansion of the current ITS at this crossing to warn of stopped traffic on the approaches to this crossing, to assist in directing traffic, and to provide better information of the time they may have to wait to be processed either into Canada or into the U.S.

XII. Thousand Islands Crossing Recommendations and Need for Further Studies

A. Introduction

Each of the Thousands Islands Crossing component needs were analyzed as to when they would be needed and their relationship to other components needs at the crossing. They were then combined into a schedule of seven recommended improvements. A ballpark estimated cost of each recommended improvement, possible funding source(s) and the agency(s) most likely responsible for making these improvements were also identified. Each recommended improvement was also reviewed to identify any implementation, environmental, social or engineering issues that might affect ability to implement the improvement(s) identified. Finally, follow on studies were identified to obtain additional information to refine or implement these recommendations.

The following summarizes each of the improvements and additional studies recommended for the Thousand Islands Crossing:

1. Queue End Warning System on Highway 401

To avoid accidents by warning motorists of stopped traffic waiting to enter the U.S. that are backed up from Highway 137 out onto this expressway because of the lack of facilities to process all traffic destined to the U.S. through this Port. This occurred on 199 days in the year 2004. Figure 41 shows a typical summer Sunday backup from the U.S. Port Of Entry, which backs out onto Highway 401.

Figure 41
Typical Backups From the U.S. Port Of Entry from the Southbound Toll Collection Facilities Looking North Towards Highway 401

Additional Studies Recommended – Integration with MTO/Transport Canada Intelligent Border Crossing Study and with New York State "Statewide Intelligent Transportation System, Corridors and Border Crossing Study"

Schedule – Immediate, 2005 – 2006

Jurisdiction – Ministry Of Transportation – Ontario (MTO)/Transport Canada BIF

Estimated Construction Cost – US$3 million

Possible Funding Of Improvements – MTO or Transport Canada

Implementation Issues – None

Environmental and Social Issues – None

Engineering Issues – None

2. Expansion of the U.S. Port Of Entry

The six (6) passenger primary inspection lanes, one (1) bus lane, and three (3) commercial vehicle primary inspection lanes are not capable, even when fully staff, to process all the traffic arriving to enter the U.S. on a regular basis. In 2004, southbound traffic had to held at the southbound toll facilities on 199 days and for 773 hours because of the inability of this Port Of Entry to process traffic into the U.S. The Port also lacks space to support enforcement activities and personnel, including secure parking. Plans to expand the U.S. Port Of Entry are underway.

Additional Studies Required/Recommended

- U.S. Environmental Study, 2005 (required)
- Investigation of whether to move all or part of the Canadian Port Of Entry into the U.S., 2005 (Bi-National Study recommendation)
- Overall Intelligent Transportation Plan and Traveler Information System, including an automated wait time system incorporated into the Port design, 2005 – 2006 (recommended)
- Port design, 2006 – 2007 (required)

Schedule – Port construction 2007 to 2010 – 2012

Jurisdiction – U.S. General Services Administration

Estimated Construction Cost – US$85 million

Funding of Improvements – U.S. Federal Government

Implementation Issues – Minor. Requires purchase of property from the TIBA and two (2) other private parcels of land adjacent to the existing Port. Remainder of the land is either GSA owned, or owned by the U.S. Federal Highway Administration and the NYSDOT.

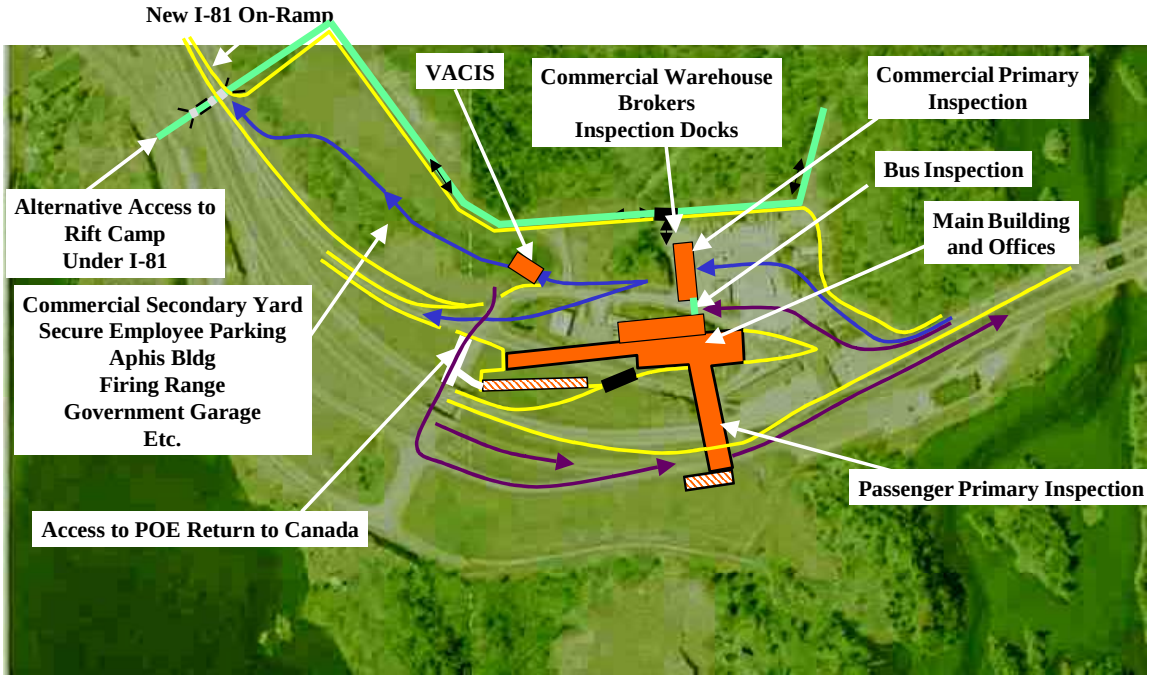
Environmental and Social Issues - Expected to be minor. Possibility of archeological sites may need to be investigated (most land for the Port expansion, however, has been disturbed by previous construction activities). Possibility of some social issues, with respect to adjacent waterfront

residences and maintaining access to the Rift Camp and other properties located west of the Port. It is also expected that there will be a significant amount of rock removal required to expand the Port.

Engineering Issues - Maintain enforcement activities and traffic operations while the Port is being constructed.

Figure 42 shows a possible concept layout and expansion for the U.S. Port Of Entry.

Figure 42
Possible Concept Layout – U.S. Port Of Entry



3. Canadian Port Of Entry

The Canadian Port Of Entry was also found to be currently at, or approaching, its ability to process all vehicles arriving to enter Canada through Primary Inspection. In 2005, The Federal Bridge Corporation is planning on moving two primary passenger inspection booths into two (2) inspection lanes that do not currently have booths and then constructing two (2) new High/Low Booths (designed to process both passenger and commercial vehicles) in the vacated passenger vehicle lanes. This action will satisfy the primary inspection needs through the Canadian Port Of Entry to the year 2012 – 2015. Beyond those years, and given current conditions, the entire Canadian Port Of Entry may need to be expanded, and additional land area to expand this port will be required, either on Hill Island, Canada, or by moving all or part of the Canadian Port Of Entry into the U.S. Expansion of the Canadian Port Of Entry within the current land available cannot be accomplished because of the proximity of the 8 primary inspection lanes to the Rift Bridge and the need to expand secondary inspection buildings, office space, and parking.

Short Term Improvements

Installation of (2) passenger primary inspection booths and conversion of two (2) passenger primary lanes, serving to inspect both passenger vehicles and commercial vehicles, by construction and installation of two (2) High/Low booths.

Additional Studies Required/Recommended – Explore possible Shared Border Opportunities associated with the planed US Port of Entry reconstruction

Schedule – 2005 – 2006

Jurisdiction – Federal Bridge Corporation, Limited

Estimated Construction Cost - US$1.5 million

Funding Improvements – Federal Bridge Corporation, Limited

Implementation Issues – None

Environmental and Social Issues – None

Engineering Issues – None

Long Term Improvements

Expansion or replacement of all, or part, of the Canadian Port Of Entry. Figure 43 (refer to the following page) shows a possible expansion of the Canadian Port Of Entry entirely within Canada. Figure 44 (refer to the following page) presents possible concept layout of Joint Canadian / U.S. Port Of Entry.

Additional Studies Recommended:

- Investigation and decision on whether to move all, or part, of the Canadian Port Of Entry into the U.S., 2005, or to remain in Canada and expand into adjacent lands not currently owned by the Federal Bridge Corporation, Limited
- Overall Intelligent Transportation Plan and Traveler Information System including an automated wait time system incorporated into the present or future Port design 2005 – 2006 (recommended)

Schedule – 2012 – 2015

Jurisdiction – Federal Bridge Corporation, Limited

Estimated Construction Cost – US$ 25 million

Funding Improvements – Federal Bridge Corporation, Limited

Implementation Issues – Possible purchase of commercial use, private lands, in Canada and amount of land available in the U.S. to relocate part, or all, of the Canadian Port Of Entry into the U.S.. Possible separation of Canadian passenger inspection personnel from Canadian commercial inspection personnel.

Environmental and Social Issues – Possible impacts on current undisturbed land and impacts on Hill Island commercial developments

Engineering Issues – None identified

Figure 43
Possible Concept Layout For Expansion Of The Canadian Port Of Entry in Canada

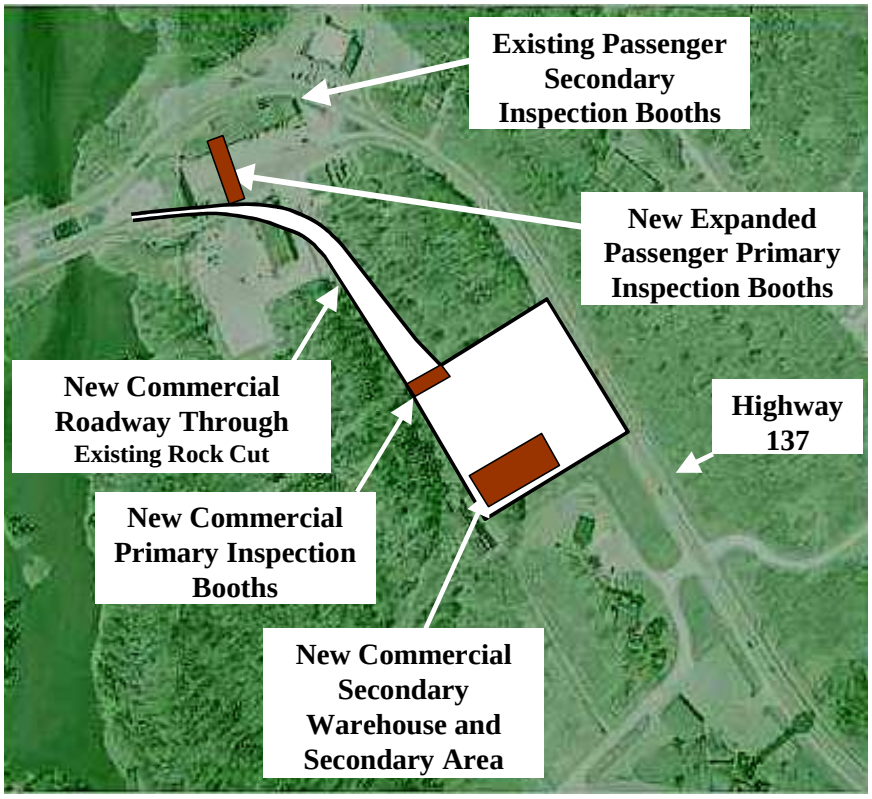
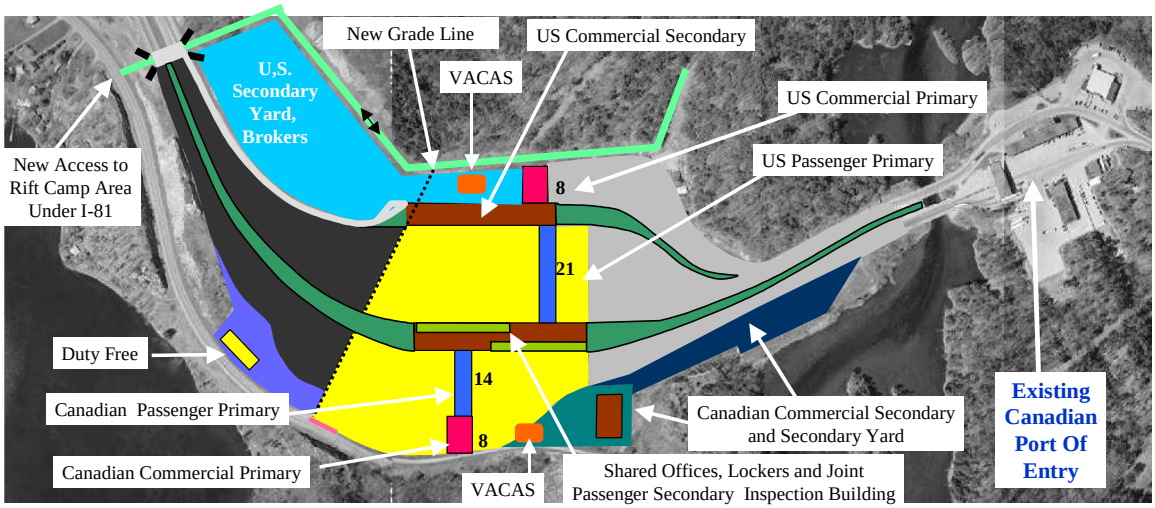


Figure 44
Possible Concept Layout of Joint Canadian / U.S. Port Of Entry in the U.S.



4. Southbound Toll Collection Facilities

Southbound Toll Collection Facilities are also currently at capacity, however, since the U.S. Port Of Entry cannot process the volume of traffic that currently can be processed through the current toll facilities, this expansion is not necessary until around the year 2010 – 2012 when the U.S. Port Of Entry is expected to be completed. Two (2) additional toll lanes will be required to satisfy forecasted travel demand to the year 2032. It is recommended that one of these toll lanes be added prior to the opening of the U.S. Port Of Entry (as currently planned, Figure 45). Plans to add a second additional toll collection lane, however, should be deferred until a determination is made as to whether replace the bridge decks prior to year 2032 and then replace the bridge(s) after 2032, or to just replace the bridge(s) prior to replacing the deck.

Additional Studies Recommended – None

Schedule – 2010 – 2012 for the first additional lane, 2018 and beyond for the second additional lane

Jurisdiction – Federal Bridge Corporation, Limited

Estimated Construction Cost – US$3–US$5 million

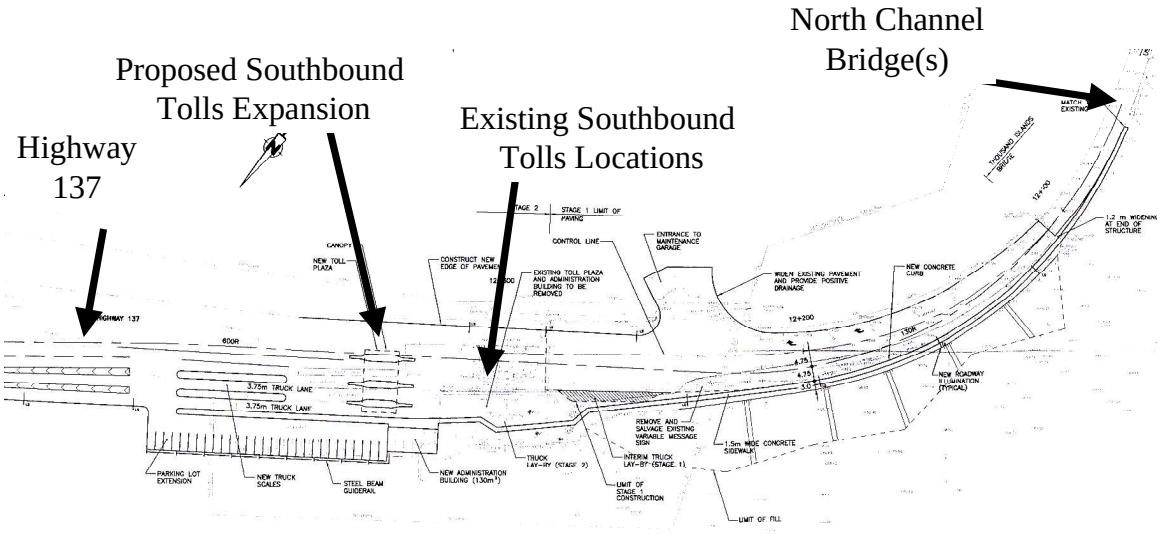
Funding Improvements – Federal Bridge Corporation, Limited

Implementation Issues – Transfer of land between the Federal Bridge Corporation, Limited and Parks Canada

Environmental and Social Issues – None identified

Engineering Issues – None identified

Figure 45
Southbound Toll Collection Expansion



5. Traveler Information Systems and Intelligent Transportation Systems

There is a need for an expanded traffic monitoring system, traveler information and incident detection, and a queue end warning system at the crossing. The recommended improvements are required to provide both timely and actuate information on wait times to cross the border in order to manage and address incidents at the crossings. There is also a need to provide overhead variable lane designation signage to direct traffic in the correct lane(s), both on the approaches to the U.S. and Canadian Ports Of Entry, on the Highway 137 approach to the southbound toll collection facilities, and on the I-81 approach to the northbound toll collection facilities.

Additional Studies Required/Recommended – Development of an overall ITS plan, involving all agencies operating at, or responsible for, supporting highway approaches.

Schedule – To take advantage of the U.S. Port Of Entry design and replacement, planning for an overall ITS system should be determined beginning in 2006, with construction of improvements as necessary or needed.

Jurisdiction – All agencies operating at, or responsible for, supporting highway approaches (see funding, below)

Estimated Construction Cost – US$12 million

Funding Improvements – Most likely all agencies operating at or responsible for the highway approaches to this Crossing would need to assist in funding various ITS improvements. These agencies include:

- The NYSDOT
- The TIBA
- The U.S. General Services Administration and the U.S. Customs and Border Protection Agency
- The Canadian Federal Bridge Corporation, Limited
- Canada Customs and Border Services Agency
- The Ministry Of Transportation – Ontario
- Transport Canada

Implementation Issues – Coordination and agreement by all involved agencies (identified under funding) and building upon two current ITS Provincial and Statewide studies being conducted by the MTO and the NYSDOT (estimated studies completion 2005).

Environmental and Social Issues – None identified

Engineering Issues – None identified

6. Northbound Toll Collection Facilities and I-81 Interchange 50 Substandard Ramp

It is recommended that expansion of the northbound toll collection facilities be undertaken and coordinated with improvements to I-81 Interchange 50. The northbound toll collection facilities will reach capacity around the year 2012 – 2015, requiring two (2) additional lanes and booths to process the

forecasted travel demand to the year 2032. This expansion needs to be coordinated with the replacement or twin spanning of the South Channel Bridge and with the recommended correction of the substandard I-81 Interchange ramp from westbound Route 12.

The recommended modification of the I-81 Interchange 50 substandard ramp is to modify the southeast quadrant of this cloverleaf interchange to allow Route 12 traffic that currently uses the northeast quadrant of this interchange to enter and exit through a new at grade intersection on Route 12. This at new grade intersection will require installation of a traffic signal and construction of a westbound left turn lane on Route 12 (Figure 46 below).

Additional Studies Required/Recommended – An additional study is recommended to determine the future preferred location for replacement or twin spanning of the South Channel Bridge. This study needs to be completed prior to refinement of a new location for toll collection facilities.

Schedule – 2012–2018

Jurisdiction – The TIBA and the NYSDOT

Estimated Construction Cost:

- Toll Collection Facilities Expansion US$5 million
- Modification to I-81 Interchange 50 US$2 million

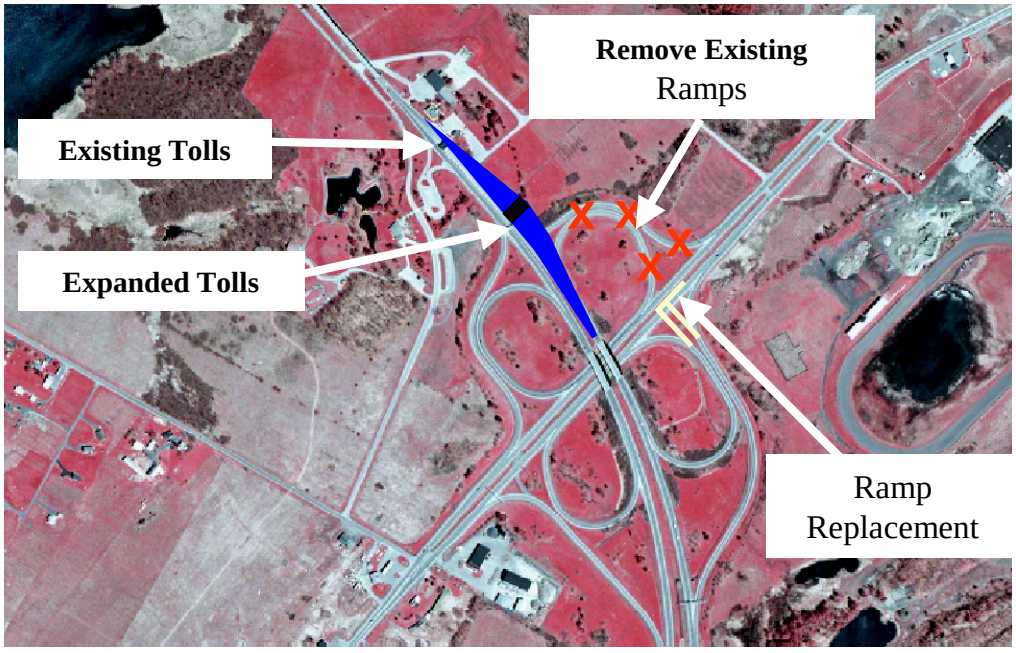
Funding Improvements – The TIBA and the NYSDOT

Implementation Issues – None Identified

Environmental and Social Issues – None Identified

Engineering Issues – None Identified

Figure 46
Northbound Toll Collection Concept and Modifications to Interchange 50



7. South Channel Bridge

Traffic arriving to cross over this bridge is expected to be greater than the bridge can process by the year 2015 – 2020; at which point, there will be a need for a second two-lane bridge or replacement of the existing bridge with a new 4-lane bridge. Around 2018, it is estimated that the existing bridge deck will need to be replaced and that the number of commercial vehicles arriving in an hour will exceed the ability to maintain the 500-foot (150 meters) spacing on the bridge required to maintain the structural life of the bridge. It is the recommendation of this study, based on the Life Cycle Cost analysis, that this bridge be replaced prior to the time the decks on the existing bridge need to be replaced. The replacement structure should be either just east or just west of the existing South Channel Bridge, designed to U.S. Interstate Standards and provide 4 travel lanes. A schematic of South Channel Bridge replacement alignments are presented in Figure 47.

Additional Studies Required/Recommended – A number of additional studies are recommended prior to a final decision and implementation of a new structure, as follows:

- A long-term in-depth study of the structural condition of the bridges to both refine the time frame as to when the actual bridge decks need to be replaced and to also identify any other major future structural improvements or repairs that would be required to further indicate the need for this bridge to be replaced (2005 – 2008).
- A preliminary in-depth investigation to determine the preferred location for replacing this structure, whether just east or just west of the existing structures or other possible alternative at the existing bridge location This study should include the possibility and impacts of lowering the future bridge from 150 feet to 120 feet over the St. Lawrence Seaway shipping channel (2006 – 2008)

Schedule:

- The U.S. Environmental Process and Environmental Impacts Study (2008 – 2014).
- Bridge design – 2014-2016
- Bridge construction – 2016-2018
- Removal of the existing structure – 2019

Jurisdiction – The TIBA in cooperation with the NYSDOT and the U.S. Federal Highway Administration.

Estimated Construction Cost – US$100 million, including roadway and possible interchange modifications.

Improvements Funding – The TIBA after paying for the costs to maintain and operate this crossing, sets aside remaining revenues to finance major structural improvements and possible future replacement of this structure. A preliminary analysis conducted as part of this study, however, would indicate that revenue from toll collections most likely cannot generate sufficient funds to pay for replacement of the South Channel Bridge (and associated highway approach improvements), even with a 10% increase in tolls every 5 years over the next 30 years. While toll revenues, even with toll increases, is not

expected to generate sufficient revenues over time to pay for the bridge replacement, these revenues could fund a part of this replacement with the assistance of a funding partner.

Alternative financing options / partners could include a request to the U.S. Federal Highway Administration to assist in correcting a substandard Interstate Highway, South Channel Bridge, or the NYSDOT to assist in paying for required highway improvements on the approaches to the South Channel Bridge.

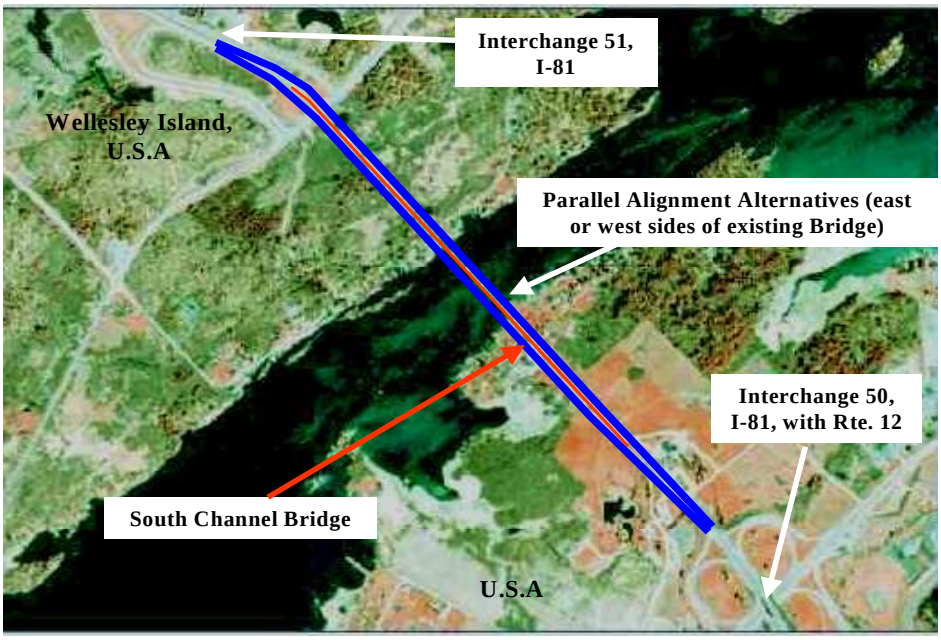
Implementation Issues – Other than the need to purchase additional river front property on Wellesley Island and seeking a funding partner, no other implementation issues have been identified at this time. The land owned by the TIBA appears to be sufficient to allow construction of a replacement bridge structure without requiring the purchase of additional property on the U.S. Mainland.

Other issues would include the need to relocate either all, or part, to the TIBA administrative / maintenance building (if a replacement bridge is located on the east side), or relocation of the New York State "Welcoming Center" facilities (if located on the west side).

Environmental and Social Issues – The major environmental issues most likely to be of concern is the removal of what might be considered an historic bridge and the concerns as to what a new bridge would look like. There will also be concerns with the need to purchase additional river front property to construct the north end of the bridge on Wellesley Island.

Engineering Issues – The major engineering issue identified with replacing the existing bridge is the type of bridge replacement. If, however, during the environmental process, there were a decision to maintain the existing bridge and construct a new 2-lane parallel bridge, the major engineering issue would be how to keep the existing bridge operational (structurally) for another 20 to 30 years.

Figure 47
Replacement South Channel Bridge Alignments



8. North Channel Bridge(s)

The ability of these bridge(s) to process all arriving traffic is forecasted to exceed prior to the year 2032. In year 2032, these structures will be 94 years old, and the ability to process all commercial vehicle traffic and still maintain the 500-foot (150 metres) spacing between commercial vehicles will be exceeded (around the year 2018). The bridge decks will also need to be replaced on the bridge around the year 2018. If, because of commercial vehicle spacing, structural conditions or higher than forecasted traffic volumes should occur prior to year 2032, then a new 2-lane bridge(s) may need to be constructed, or the bridge(s) replaced with a new 4-lane bridge prior to that time.

Additional Studies Recommended – Unlike other needs identified with the various components of the Thousand Islands Crossing, the timing and need to replace the North Channel Bridge(s) is not as defined and requires additional studies. Replacement of the North Channel Bridge(s) is also expected to have more severe environmental impact, depending on whether it can be replaced with a new lower level 2-lane bridge, or if a higher level 4-lane bridge is required and whether the substandard curve on the north end of the North Channel Bridge(s) needs to be corrected by constructing the bridge(s) on a new alignment.

Based on these issues, it is recommended that the following studies be undertaken prior to 2012 in order for the Federal Bridge Corporation to make an informed decision as to whether to replace the North Channel Bridge(s) rather than replacing the deck on the existing bridge(s) around the year 2028. These studies will also allow the Federal Bridge Corporation to be in a position to act quickly should a funding partner become available, or a decision is made to replace these structures because of structural conditions or higher than forecasted increases in traffic volumes.

- A long term in-depth study of the structural condition of the bridges to both refine the time frame as to when the actual bridge decks need to be replaced and to also identify any other major future structural improvements or repairs that would be required to extend the useful life of the North Channel Bridge for another 30 to 40 years. . In particular, the long-term condition of the main suspension cables needs to be identified, since to replace the main cables would require the bridge to be closed for a period of one to two years.
- Given that an “All Canadian Seaway” is not longer under consideration, determine whether the bridge clearance over this Canadian Middle Channel (for ships) can be reduced from 120 feet (41 meters) to 60 feet (20 meters). If the clearance can be reduced to 60 feet (20 meters), replacement of the North Channel Bridge(s) could be accomplished providing only two (2) travel lanes (rather than four (4)) and still accommodate all forecasted traffic to the year 2080 and beyond. A lower clearance over the Canadian Middle Channel would reduce the vertical grade (uphill travel) that commercial vehicles would have to travel and as

such, increase the overall vehicle carrying capacity of each travel lane. This would also reduce the overall cost to construct a new bridge, and possible delay the need to widen Highway 137 on Hill Island.

- An in-depth study to determine the impacts to correct the substandard curve on the existing bridge(s) and highway approach lanes. This improvement requires any replacement bridge to be constructed on a new alignment or to construct any replacement bridge parallel to the existing bridges. A parallel structure (4 lanes with shoulders) could be constructed within approximately 140 feet or less, either east or west of the existing structure. Replacing the structure to the east side would allow some improvements, but not necessarily correct this substandard curve.

Schedule – This is difficult to estimate until the additional recommended studies are completed and a decision is made as to whether to replace the deck on the existing bridge(s) around the year 2018, or replace the North Channel Bridge(s) after year 2032, or to replace the bridge prior to the need to replace the deck with a new 4-lane structure(s). Thus, the recommended additional studies should be conducted prior to the year 2012, as well as continuing to monitor the growth in traffic. A decision should be made whether to replace these bridge(s), or just replace the deck on this existing bridge to allow the environmental process to begin in year 2012, with design and construction completed by approximately year 2020 – 2022.

Jurisdiction – Federal Bridge Corporation, Limited

Estimated Construction Cost – Between US$91million to US$120 million, depending upon the future bridge(s) alignment, including roadway and possible interchange modifications costs.

Improvements Funding – Excess toll revenues will be adequate to replace the bridge deck(s) on the North Channel Bridge(s). Excess toll revenues alone, as identified with the South Channel Bridge, even with toll increases, most likely cannot fund the replacement of these structures and associated approach improvements or modifications. In addition to the Federal Bridge Corporation, Limited, is also responsible for paying for all maintenance and improvements associated with the Canadian Port Of Entry. Thus, to replace the North Channel Bridge(s) and Canadian Port of Entry, the Federal Bride Corporation, Limited, will also need to seek a funding partner.

Implementation Issues – If the bridge is replaced, the purchase of additional river-front property on Hill Island and the Canadian Mainland will be required. The issues of correcting or modifying substandard curve at the north end of the North Channel Bridge, as well as issues associated with a lower level bridge over the Canadian Middle Channel (which would then only require it to be replaced with a 2-lane) will also need to be addressed prior to making any decisions as to future actions

Environmental and Social Issues – There are number of environmental issues associated with replacing the North Channel Bridge(s) including:

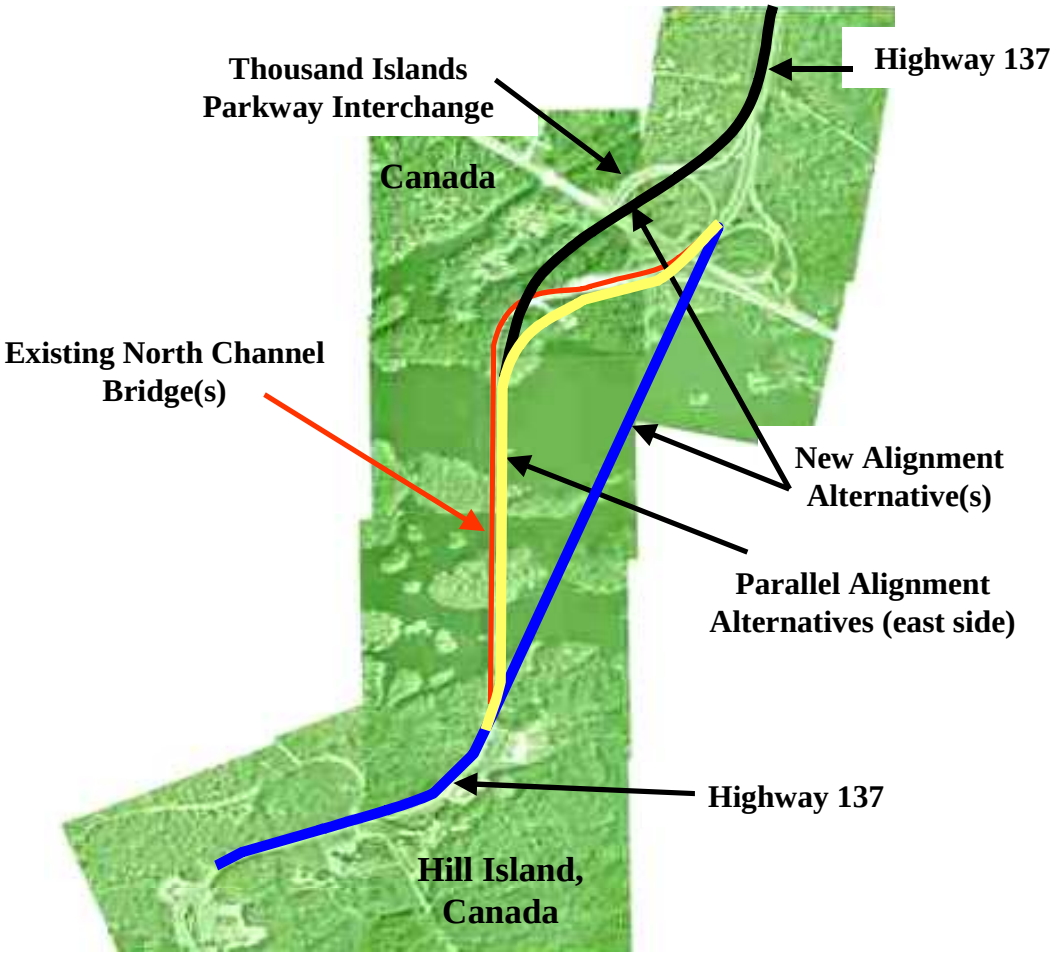
- Removal of what might be considered an historic bridge
- The aesthetics of what a new bridge would look like
- Issues associated with the need to purchase additional river front property on the Canadian Mainland and on Hill Island
- Impact on existing parkland on Georgina and Constance Islands

– And if replaced with a 4-lane structure, the needs and environmental impacts of widening Highway 137 on Hill Island to 4 lanes, also.

Engineering Issues – The major engineering issues identified with replacing the existing bridge is to what type of bridge to replace it with; and if not replaced, the major engineering issue would be how to keep the existing bridge(s) operational (structurally) for another 20 to 30 years past the time the deck on the existing bridge(s) is replaced. If replaced on a new alignment to eliminate the existing substandard curve, then there is also the engineering issue of possibly constructing one of the bridge supports in one of the deepest parts of the St. Lawrence River, as well as, other associated environmental concerns.

Concept alignments are presented in Figure 48.

Figure 48
Possible North Channel Bridge Alignments and Alternatives To Correcting Existing Substandard Curve



B. Summary of Thousand Islands Recommended Improvements and Studies

The following is a list, in priority order, of the suggested improvements or studies and the decisions that need to be made between 2005 and 2032:

2005 - 2008

- Canadian Port - Install two (2) Primary Inspection Booths in vacant lanes – 2005
- Design and install Queue End Warning System on Highway 401
- Determine the feasibility and desirability of moving all, or part, of the Canadian Port Of Entry into the U.S.
- Determine overall ITS Strategy and plan
- U.S. Port Replacement – Environmental process and design
- South Channel Bridge Preliminary Analysis
  - Long-term structural analysis of the bridge
  - South Channel Bridge location (east or west)
  - Preliminary decision on twin span or replacement, timing, and probable location
- Canadian Port - Conversion of one passenger lane to High/Low Booth – 2008

2009 - 2011

- Construction of U.S. Port
- Implementation of ITS Plan
- Expansion of Southbound tolls by one lane – 2010 - 2012
- South Channel Bridge Environmental Process – 2009
- Review travel demand – 2010
- North Channel Bridge(s) Preliminary Analysis
  - Long-term structural analysis of the bridge(s)
  - Determine the benefits, impacts, and costs of correcting alignment
  - Determine feasibility of low-level replacement bridge(s)
  - Decision on re-decking and delaying twin spanning or replacement of bridge(s) until past the year 2032

2012 - 2018

- I-81 Interchange 50 - ramp modifications – 2012
- Expansion of Canadian Port Of Entry – 2012
- Northbound toll expansion (two lanes) – 2013
- Review of Travel Demand – 2015
- South Channel Bridge Design

2019 – 2032

- South Channel Bridge Construction (2 years)
- Review travel demand – 2020
- North Channel Bridge(s):
  Deck replacement, or
  Environmental Process for twin span or replacement
- Additional southbound toll lane – 2024
- Possible North Channel Bridge(s) replacement or twin spanning and widening of Highway 137 on Hill Island to four lanes

C. Conclusion

In summary, the most immediate needs are to warn traffic on Highway 401 of stopped traffic; have the U.S. Port Of Entry designed and constructed; determine the longer term structural needs, including timing for deck replacement for the South Channel Bridge; and add or modify primary inspection booths at the Canadian Port Of Entry.

Short-term (2009-2011) needs include the beginning of the Environmental Process to replace or twin span the South Channel Bridge; modifications to the southbound toll collection facilities to add an additional lane; begin preliminary investigation associated with the structural needs; and identify possible future alignment and height of the North Channel Bridge(s).

Mid-term (2012-2018) needs include expansion or replacement of the Canadian Port Of Entry; make modifications to the I-81 Interchange 50 ramps; and to expand the northbound toll collection facilities.

Finally, the long-term (beyond 2018) needs include construction of the South Channel Bridge and decisions on the need and timing for improvements to the North Channel Bridge(s).

XIII. Community Involvement

A. Introduction

This study of the Thousand Islands Crossing was undertaken to identify a long-term plan and implementation strategy to guide future investments at the crossing over a thirty-year (30) period. It was undertaken with the understanding that that any major recommendations that resulted from this study, prior to acceptance and implementation, would require future detailed engineering and environmental studies, including active involvement of all affected parties and the community at large. This study, however, did include an active community involvement program, both in the U.S. and in Canada.

B. Community Involvement Program

This community involvement program consisted of the following components:

1. **Steering Committee** was developed to oversee all aspects of the study. This committee was composed of all key representatives responsible for the implementation of various improvements at this crossing. The following individuals make up and participated as part of the Steering Committee for this Study.

Mark Frechette / Scott Docteur	NYSDOT, Region7
Alan Ricalton	NYSDOT, Region 7
Brian M. Kirch	NYSDOT, Planning & Strategy Group
Gerry Johnston	The Federal Bridge Corporation Limited
Sheila Tremblay	The Federal Bridge Corporations Limited
Brian Hicks / Andrew Spoerri	Transport Canada
Alicia Nolan	Federal Highway Administration
Robert Davies	Federal Highway Administration
Norm Meyers	Ontario Ministry of Transportation
Heide Garbot / Frank Pravitz	Ontario Ministry of Transportation
Hendrick H. Saaltink	The Seaway International Bridge Corp., LTD.
Robert G. Horr, III	Thousand Islands Bridge Authority
Karen Wilson	U.S. General Services Administration

The Steering Committee, over the course of this study, met six times (6) to review progress, to comment on results obtained in each phase of the study, and to provide additional information to the consulting team. The Steering committee also reviewed and commented on draft sections of the report prior to release to the public.

2. **Advisory Committee** was also formed to provide advice on various components of the crossing. This committee included agencies that operate or are responsible for overseeing various aspects within or near the crossing. It included the following members.

Robert F. Hagemann III	Jefferson County
Bruce Armstrong	Jefferson County Planning
Donald Grant	Thousand Islands Bridge Authority
Francis Garrett	Thousand Islands Bridge Authority
Daniel B. Loughney	Ogdensburg Bridge and Port Authority
Thye Lee	The Federal Bridge Corporation Limited
Alan Whitcomb	Customs & Border Protection
Dan Mallory	Canada Border Services Agency
Heather Howard	Thousand Islands Tax & Duty Free Store
Jeffrey Durand	Ammex Tax & Duty Free Shops
Penny Moulton	UPS Supply Chain Solutions
Kim McCabe	Fed Ex
Deborah Reynolds	Peace Bridge Brokerage

Invitations to sit on the Advisory Committee were also extended to major brokerage firms that operate on both sides of the border, but there was little, if any, participation from these companies. The advisory committee met four (4) times during the course of the study to review information and results and provide additional insight on traffic operations and needs at the crossing. A number of members of the Advisory Committee were invited and attend the sixth and final Steering Committee meeting held on June 27, 2005.

3. **Public Information Meetings** to inform the general public concerning possible future needs at the crossing and possible solutions identified to meet these needs were held in both the U.S. and in Canada on separate nights. The first sets of meetings were held near the beginning of the study and the final set were held after draft recommendations on future improvements had been identified. Comments and issues identified in these meetings were either addressed or included in the various reports prepared for this study.

4. A **WEB Site** using the Thousand Islands Bridge Authority WEB Site was also advertised and used to post presentations made at the public meetings, as well as the final report of this study for general public review and comment.

5. **Press Releases and Media Interviews** where also used as part of the overall program to inform the public.

Overall, the committee structure worked very well to provide both two-way information between the consulting team and the various owners and operators at the crossing. The public information meetings, however, where lightly attended. This was not unexpected given the nature of the study and the limited population in the area, however, the time of year when these meeting were held (winter and then late fall, 2004) and limited media coverage of when these meeting were to occur (particularly for the second meeting in the U.S.), also contributed to a light attendance in both the U.S.

and Canada. In the U.S., public information meetings were held at the Thousand Islands Bridge Authority in Alexandria Bay, New York, on December 2, 2003 and October 4, 2004. In Canada, the meetings were held on December 3, 2003 and October 5, 2004 at the Lansdowne Community Building in Lansdowne, Ontario.

From these meetings, articles were published in the Watertown, Brockville, and Kingston newspapers along with information in the Thousand Islands Association newsletter and Brockville Business News. In addition, television interviews and coverage were given to Watertown TV7, TV2, and TV10 and Kingston TV11.

The low attendance and public comments at the 2nd US public meeting prompted the need to hold another (3rd) public meeting in the U.S. during the summer of 2005. This meeting occurred on July 26, 2005, was attended by approximately 40 persons, and was covered by a reporter from the TI Sun and well as Watertown TV7 and TV2. Follow up TV coverage also occurred on Watertown TV10, as well as an article in the Ottawa Sun. A number of general questions were presented concerning the study electronic toll collection and whether private property may be needed to construct a new South Channel Bridge

Major comments from the public information meetings in the U.S. included concerns whether funds necessary to improve the Thousand Islands Crossing would not be better spent on improving the highway system to the Ogdensburg Bridge Crossing. It was also suggested that all trucks should be required to cross at the Ogdensburg Crossings since trucks were the major reasons that improvements would be required in the future. Questions as to the need to obtain private property to construct a new South Channel Bridge were also addressed.

In Canada, most comments related to the access to Hill Island, Ontario, Canada, when the backups from the U.S. Port Of Entry blocks and delays Hill Island residences from reaching their cottages and homes. Similarly, for commercial interests on Hill Island there was indication that they were losing business because of traffic backups, including the hotel on Hill Island.

C. Recommendation

Given the number of projects recommended by this study and the number of agencies that are impacted by the bridge operations, continued periodic meetings of the Steering/Advisory Committee members may be beneficial to keep the lines of communication open in an effort to address future improvements at this bridge crossing.

XIV. Conclusion

This study has found that the 8.5 mile Thousand Islands Crossing is one of the most important crossings between the U.S. and Canada for trade and tourism, as well as supporting hundreds of thousands of local, regional, and international jobs. Currently, the major bridge structures serving this crossing are well maintained and in good repair for structures constructed in 1938. Similarly, other than a number of substandard highway features, the highway systems serving this crossing will not need to be expanded until well past the design year based on forecast travel volumes to the year 2032. By year 2032, the volume of traffic expected to be used on this crossing is forecasted to nearly double over existing volume; and prior to year 2032, major investments will need to be made in other components of this crossing, including expansion or replacement of both the U.S. and Canadian Ports Of Entry, expansion of toll collection facilities, possible correction to substandard highway features, and replacement of the South Channel Bridge to maintain acceptable travel operations. Further, the ability of the North Channel Bridge(s) to process all arriving traffic to the year 2032 is also questionable.

To maintain this crossing into the future would require combined major investments of between US$237 million to US$357 million between years 2005 and 2032, and it is the Bi-National Bridge Study recommendation that this investment should be made at the Thousand Islands Crossing rather than investing in a new crossing, or to construct a new expressway to a less used crossing as examined by this study.

The recommended improvements at the Thousand Islands Crossing are:

1. An immediate need to install a Queue End Warning System on Highway 401 to avoid accidents by warning motorists of stopped traffic waiting to enter the U.S. that are backed up from Highway 137 onto Highway 401.
2. Expansion of the U.S. Port Of Entry for which environmental analysis is expected to start in year 2005, with an estimated completion date of between years 2010 and 2012.
3. Expansion of the Canadian Port Of Entry by first adding and modifying primary inspection booths in year 2005; and then, around the year 2012, expanding all or part of the Canadian Port Of Entry either in an expanded area on Hill Island, Canada, or into the U.S.
4. Also around the year 2012, the northbound and the southbound toll collection facilities need to be expanded, and the I-81 Interchange 50 substandard ramp corrected.
5. There is a need for other expanded Intelligent Transportation System improvements, including overhead variable message, lane designation signing, an installment of an automatic procedure to reliably determine wait times to cross the international border, as well as a means to transfer this information to the traveling public.
6. The bridge decks on the major bridge structures (the South Channel and North Channel Bridges) are estimated for replacement around the year 2018. For the South Channel Bridge, this is also the time period when the ability of a 2-lane bridge to process all traffic arriving in one hour over it, begins to be exceeded. The Life Cycle Cost Analysis conducted, as part of this study, recommends that it is

more economical to replace this bridge entirely with a new 4-lane bridge than to replace the deck on the existing structure and construct a new 2-lane bridge, parallel to the existing bridge around year 2018.

While a similar recommendation was identified for the North Channel Bridge(s), the need to add additional travel capacity is further into the future, and there are a number of alternatives to North Channel Bridge(s) that need to be explored. A series of additional studies are, therefore, recommended in order for informed decisions to be made on when and where the North Channel Bridge(s) should be replaced in the future.

All of these improvements will require coordination and funding by all the various agencies that are responsible for this crossing, including the approaches and replacement of either the South Channel or North Channel Bridges. These recommended improvements, most likely, require a funding partner, since revenues generated by toll collections alone would not be sufficient enough to cover the major costs involved in replacing these structures.

Generally, only minor implementation and engineering issues are anticipated with the improvements identified. Most of the environmental and social issues are also not expected to be major, with the exception of replacing the North Channel Bridge(s). This replacement will require a much greater investigation in the near future to make a determination as to how to minimize these possible issues.

While the needs and investments required at the Thousand Islands Crossing over the next 30 years are significant, they can be achieved. The cost of failing to make these improvements is even greater, including protection of both the U.S. and Canada and the loss of numerous local, regional, and international jobs created by the existence of this crossing. Implementation of this long-term plan and implementation strategy to guide investments at the Thousand Islands Crossing over the next 30 years, however, will achieve the goal of all agencies that operate at the U.S./Canada border, “to protect the safety and well-being of the citizens of their respective country and to facilitate continued trade, travel, and commerce between the U.S. and Canada.”