



U.S. Department
of Transportation

**Federal Highway
Administration**

*Intermodal Surface Transportation Efficiency Act
Section 6015 Study: Assessment of Border Crossings
and Transportation Corridors for North American
Trade (Northeast)*

An Assessment of the Adequacy of U.S–Canadian Infrastructure to Accommodate the Trade through Eastern Border Crossings

Appendix: Descriptive Profiles of Michigan Frontier

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REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302 and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.



PB95-112256

2. REPORT DATE
February 1994

3. REPORT TYPE AND DATES COVERED
Final Report
August 1992-January 1994

4. TITLE AND SUBTITLE
**An Assessment of the Adequacy of the U.S. Canadian Infrastructure to Accommodate Trade through Eastern Border Crossings:
Appendix 5 Descriptive Profiles of Michigan Frontier**

5. FUNDING NUMBERS
HW476/H4027

6. AUTHOR(S)
Dr. John C. Taylor, Mike Garver, Amy C. Flanagan

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
U.S. Department of Transportation
Research and Special Programs Administration
John A. Volpe National Transportation Systems Center
Cambridge, MA 02142

8. PERFORMING ORGANIZATION REPORT NUMBER
DOT/VNTSC-FHWA-94-3.E

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
U.S. Department of Transportation
Federal Highway Administration
400 7th Street, S.W.
Washington, DC 20590

10. SPONSORING/MONITORING AGENCY REPORT NUMBER
FHWA-PL-94-009-07

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT

This document is available to the public through the National Technical Information Service, Springfield, VA 22161

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 calls for a study of U.S. international border crossings. The objective of the study is to identify existing and emerging trade corridors and transportation subsystems that facilitate trade between the United States, Canada, and Mexico.

This appendix contains a series of border crossing profiles covering the major crossings and in some cases minor crossings in the border frontier. The frontier itself is a definition created for the 6015 Study to aid in the analysis of trade and traffic flows. The crossings included in this discussion include all commercial ports in the frontier, all ports identified as having infrastructure needs, and most of the smaller ports if traffic volumes warranted. These latter predominantly serve local needs.

14. SUBJECT TERMS
Intermodal Surface Transportation Efficiency Act (ISTEA), Port of Entry, Border Crossings Inspection Facilities

15. NUMBER OF PAGES

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT
Unclassified

18. SECURITY CLASSIFICATION OF THIS PAGE
Unclassified

19. SECURITY CLASSIFICATION OF ABSTRACT
Unclassified

20. LIMITATION OF ABSTRACT

SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS					APPROXIMATE CONVERSIONS FROM SI UNITS				
Symbol	When You Know	Multiply By	To Find	Symbol	Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH					LENGTH				
in	inches	25.4	millimeters	mm	mm	millimeters	0.039	inches	in
ft	feet	0.305	meters	m	m	meters	3.28	feet	ft
yd	yards	0.914	meters	m	m	meters	1.09	yards	yd
mi	miles	1.61	kilometers	km	km	kilometers	0.621	miles	mi
AREA					AREA				
in ²	square inches	645.2	square millimeters	mm ²	mm ²	square millimeters	0.0016	square inches	in ²
ft ²	square feet	0.093	square meters	m ²	m ²	square meters	10.764	square feet	ft ²
yd ²	square yards	0.836	square meters	m ²	m ²	square meters	1.195	square yards	yd ²
ac	acres	0.405	hectares	ha	ha	hectares	2.47	acres	ac
mi ²	square miles	2.59	square kilometers	km ²	km ²	square kilometers	0.386	square miles	mi ²
VOLUME					VOLUME				
fl oz	fluid ounces	29.57	milliliters	mL	mL	milliliters	0.034	fluid ounces	fl oz
gal	gallons	3.785	liters	L	L	liters	0.264	gallons	gal
ft ³	cubic feet	0.028	cubic meters	m ³	m ³	cubic meters	35.71	cubic feet	ft ³
yd ³	cubic yards	0.765	cubic meters	m ³	m ³	cubic meters	1.307	cubic yards	yd ³
NOTE: Volumes greater than 1000 l shall be shown in m ³ .									
MASS					MASS				
oz	ounces	28.35	grams	g	g	grams	0.035	ounces	oz
lb	pounds	0.454	kilograms	kg	kg	kilograms	2.202	pounds	lb
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")	Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
TEMPERATURE (exact)					TEMPERATURE (exact)				
°F	Fahrenheit temperature	5(F-32)/9 or (F-32)/1.8	Celcius temperature	°C	°C	Celcius temperature	1.8C + 32	Fahrenheit temperature	°F
ILLUMINATION					ILLUMINATION				
fc	foot-candles	10.76	lux	lx	lx	lux	0.0929	foot-candles	fc
fl	foot-Lamberts	3.426	candela/m ²	cd/m ²	cd/m ²	candela/m ²	0.2919	foot-Lamberts	fl
FORCE and PRESSURE or STRESS					FORCE and PRESSURE or STRESS				
lbf	poundforce	4.45	newtons	N	N	newtons	0.225	poundforce	lbf
lbf/in ²	poundforce per square inch	6.89	kilopascals	kPa	kPa	kilopascals	0.145	poundforce per square inch	lbf/in ²

* SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380.

**An Assessment of the Adequacy
of U.S–Canadian Infrastructure
to Accommodate the Trade
through Eastern Border Crossings**

**Appendix:
Descriptive Profiles
of Michigan Frontier**

Sponsored by the
Office of Policy Development
Federal Highway Administration

August 1994

PREFACE

Congress, under Section 6015 of the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA), mandated an international border crossing study regarding trade and transportation between the United States, Canada, and Mexico. Specifically, the study's objectives were to identify existing and emerging trade corridors and transportation subsystems that have been facilitating trade between the three countries. This study was conducted by the Federal Highway Administration (FHWA) of the U.S. Department of Transportation.

In the conduct of the Section 6015 study, available data were collected from Canadian, U.S. and Mexican public and private sources. The study team undertook an extensive outreach effort to bring local and state interests into the process. Shippers and carriers participated in meetings across the country to identify issues and to provide recommendations and suggested solutions. Meetings were held in Canada and Mexico to gain a more comprehensive understanding and perspective on border related concerns.

For practical purposes, the study was divided into several regional activities. This was to reflect separately some of the concerns and problems presumed to be unique to those regions. The John A. Volpe National Transportation Systems Center (Volpe Center) was tasked to perform the assessment of the adequacy of the border infrastructure, both physically and operationally, and its ability to accommodate current and future trade and transportation needs throughout the northeastern U.S. region, from Sault Ste. Marie, Michigan to Calais, Maine.

This document is one of five containing infrastructure inventories of facilities along the eastern U.S.-Canadian border. This work, conducted by the Volpe Center and Wayne State University, draws upon previous studies and data collection efforts. These sources were augmented by data from border crossing authorities, facility operators, and the federal inspection services, and from on-site visits to border crossing facilities. The effort of this study, is a first step in the development of a more comprehensive understanding of trade and traffic flows in North America.

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INTRODUCTION

This appendix contains a series of border crossing profiles covering the major crossings in the border frontier. The frontier itself is a definition created for the 6015 Study to aid in the analysis of trade and traffic flows. The crossings included in this discussion are commercial ports. Where infrastructure needs have been identified, they are cited in the discussion.

Information for these profiles was collected from available reports and summary statistics; responses to data requests from the General Services Administration (GSA), U.S. and Canadian Customs Services, Immigration and Naturalization Services (INS), Bridge and Tunnel Authorities and Operators, and State Transportation Departments. Discussions and on-site visits were conducted with these agencies for most of the border crossings.

The profiles provide information on ownership and operation, traffic and activity levels, physical infrastructure and associated problems, and staffing levels. Where available, maps and photographs are included.

The profiles contained in this appendix are all in the Detroit, Michigan district. They are listed below by the border group as used in the study, with the U.S. Customs port codes indicated.

Michigan Frontier

Highway

1. Detroit, Michigan (33801)
 - a. Detroit-Windsor Highway Tunnel
 - b. Ambassador Bridge
2. Port Huron, Michigan (33802)
3. Saulte Ste. Marie, Michigan (33803)

Rail

1. Detroit, Michigan
CP-CN Detroit Rail Tunnel and Ferry
2. Port Huron, Michigan
CN Rail Tunnel and Rail Ferries
3. Sault Ste. Marie, Michigan

U.S./CANADIAN BORDER CROSSING PROFILE
PORT: DETROIT, MICHIGAN
CROSSING: DETROIT - WINDSOR HIGHWAY TUNNEL

PROFILE

Customs Port Code: 33801 **Customs Region:** North Central

Customs District: Detroit, Michigan

INS Region: Northern **INS District:** Detroit, Michigan

Collateral Duties: Other land crossing at the Ambassador Bridge, marine freight vessels and passenger pleasure craft, international airports, rail ferries and rail tunnels.

Total Staff: Customs: The Port of Detroit, which includes the Ambassador Bridge as well as the tunnel, has a staff of 238 people.

INS: There are 53 authorized positions for both the highway tunnel and the Ambassador Bridge.

Nearest U.S. Ports: The nearest land port of entry to the north is Port Huron; the nearest port of entry to the east is Buffalo. The nearest crossing is the Ambassador Bridge approximately two miles away. The Port Huron crossing is 59 miles to the north.

Hours of Operation: 24 Hours

Seasonality: Peak hourly traffic levels occur during summer holiday periods, however traffic is not as seasonal as is the case at many other U.S.-Canada crossings.

U.S. Inspection Facility: The Detroit and Canada Tunnel Corporation (DCTC) estimates that there will be a need for an additional \$1 million beyond the current plans to improve this facility.

U.S. Primary Inspection:

Passenger Vehicles - There are currently 9 auto booths on the U.S. side. At an estimated processing time of 33 seconds per car, each of these booths has a capacity of 109 autos per hour. Total capacity on the U.S. side, with all booths open, is 981 autos per hour. This capacity is not always sufficient during peak holiday travel periods, but to date, the existing booths have not been open simultaneously. In fact, seldom are there more than 7 booths open at one time.

Commercial Vehicles - There is currently one truck inspection booth available, but a second booth is being added to the plaza. The 2 booths will provide adequate capacity.

U.S. Secondary Inspection: The U.S. secondary truck lot is off-site approximately 1 mile down Jefferson Avenue. This lot will soon be in need of more space given recent traffic increases and the rate of line release. The crossing is currently near 75% line release which means that approximately 150 trucks per day must use the secondary lot. This lot is hard to reach and requires travel on several city streets that are in poor condition.

Operator: Detroit and Canada Tunnel Corporation (DCTC) and its wholly owned subsidiary, The Detroit and Windsor Subway Corporation (DWSC).

Operator Contact: Mr. Donald M. Vuchetich
President
Detroit and Canada Tunnel Corporation
100 E. Jefferson
Detroit, Michigan 48226-4390
Phone: (313) 567-4422
Fax: (313) 567-2565

Operator Information: The Detroit-Windsor Highway Tunnel is owned by on each side of the International Line by the cities of Detroit, Michigan and Windsor, Ontario. Originally, a 1927 Act of Parliament incorporated the Detroit Windsor Subway Corporation (DWSC) and granted the DWSC rights to build and operate the Tunnel. At that time, the DWSC entered into an agreement with the City of Windsor that provided the City with the right to acquire the land, buildings and equipment of the Company free of charge, 60 years after the opening of the tunnel (1990). The Detroit Canada Tunnel Corporation (DCTC) entered into a similar agreement with the City of Detroit.

For many years the DCTC operated the Detroit side, and its subsidiary operated the Canadian side. In the mid-1970's, the City of Detroit needed changes in the tunnel plaza to facilitate construction of the Renaissance Center. The DCTC agreed to turn over ownership of the Tunnel to the City and make specified payments from future toll revenues, in return for the city of Detroit and Ford Motor Properties funding plaza improvements and providing the right to operate the Tunnel through a series of 10-year agreements extending to the year 2020.

In 1990, following the loss of a court case in which the DCTC disputed the City of Windsor's claim on the Tunnel, the City took over ownership of the Tunnel. The City has contracted with the DWSC to manage operation of the Tunnel in return for payments under a complicated compensation plan.

Facility Location: The tunnel goes beneath the Detroit River between Detroit, Michigan and Windsor, Ontario at the center of each city's downtown business and convention center district.

Facility Description: The tunnel is 5135 feet long and is 75 feet below the river's surface at its deepest point. There are two lanes of traffic on a 22 foot roadway, with a sidewalk on one side.

Facility Restrictions: The tunnel has restrictions on various classes of hazardous, explosive and radioactive materials. In addition, a number of trucks and truck trailers will not fit within the vertical clearance. The Tunnel also prohibits pedestrian, bicycle and motorcycle traffic for safety and liability reasons.

Year Built: 1928-1930

U.S. Ingress/Egress: Access to the tunnel on the U.S. side is via Jefferson Avenue. This avenue is 8 lanes and is reached through a signaled intersection at the head of the tunnel plaza. Jefferson leads to the Lodge Expressway approximately two blocks away and the Lodge intersects with I-75 and I-94. The Tunnel entrance sits at the absolute center of downtown Detroit adjacent to the main office/hotel complex in the city. Increases in truck traffic places additional burdens on these city streets both in terms of wear and tear and environmental quality for pedestrians.

Tolls: Tolls are \$US1.75 and \$C2.00 each way for autos. A typical truck toll (60,000 pounds) is \$US7.50.

U.S. Toll Booths: There are 5 toll booths on the U.S. side with a capacity that exceeds the tunnel roadbed capacity. At a rate of 500 vph per booth, the capacity is 2500 vph. One booth is set up for trucks. Toll booths are being automated with advanced traffic management and electronic systems that will provide hourly data that are not presently available.

Roadbed Capacity: The roadbed capacity has been estimated as high as 1,200 vph per lane in each direction. However, the actual capacity is more likely 1,000 vph per lane direction at LOS "D"¹. The DCTC does not maintain hourly data, but their estimates indicate that the tunnel is approaching this capacity during peak auto periods. Increases in truck traffic further reduce the capacity of both the tunnel and related city streets. The DCTC estimates the cost a new tunnel to be near \$US 250 million.

¹LOS "D", as defined in the Highway Capacity Manual, is the level of service at which there is high density but a stable flow of vehicles. Speed and freedom to maneuver are severely restricted, and drivers and pedestrians experience poor levels of comfort and convenience. A small increase in traffic will greatly increase operational problems at this level.

Canadian Port: Windsor, Ontario

Canadian Inspection Facility: Critical improvements to the Canadian plaza are imminent. Plaza work and tunnel improvements will cost \$US25 million over 5 years, with \$US15 million of this amount being spent during Phase 1, currently underway. However, even after these improvements, DCTC believes new work with a cost of approximately \$US20 million will eventually be necessary.

Canadian Ingress/Egress: Access on the Canadian side is via Goyeau and Wyandotte. These streets and related intersections are currently above capacity, however, the City of Windsor has a program under way to widen and improve the efficiency of relevant city streets and intersections, along with access to the tunnel. The nearest limited access expressway is several miles away. Increases in truck traffic present problems for city streets similar to the situation in Detroit.

Canadian Toll Booths: There are currently 4 toll booths on the Canadian side, one of which can be used for trucks. These booths also provide capacity in excess of roadbed capacity, 2000 vph at 500 vph per booth. Current plaza construction programs anticipate having 6 toll lanes.

Canadian Primary Inspection:

Passenger Vehicles - There are currently 8 auto booths, each with a capacity of 133 autos per hour, based on an estimated processing time of 27 seconds per vehicle. Total capacity on the Canadian side is 1,064 autos per hour. Planned improvements will add 2 booths, or 266 vehicles per hour, for an increased capacity of 1,333 autos per hour. This capacity will exceed the roadbed capacity.

Commercial Vehicles - There is currently only one truck booth available and it is above its capacity at several points during the day. A second booth is being added as part of the current construction work on the plaza and tunnel.

Canadian Secondary Inspection: The Canadian secondary truck lot is also off-site and is located 2 to 3 miles from the Tunnel. To reach the lot, trucks must travel down a number of narrow city streets. The Canadian lot has 15 parking spots and 5 to 6 bays. The rate of line release is currently 20% which means that 480 trucks a day must use this facility. The tunnel operator believes the crossing may reach 50% line release within a year. Secondary auto is especially crowded but the redesigned plaza will have 40 auto spots.

Canadian Inspection Staff: Canada has 83 inspectors at the tunnel with a total of 105 authorized positions.

Traffic: In 1992 traffic totalled 7.515 million vehicles, with 7.215 million autos and .3 million trucks. Auto traffic increased 2.8% from 1991 and truck traffic increased 12.8%.

The average annual compound growth rate since 1980 has been 1.9% for autos and 8.8% for trucks. Truck traffic may be up in 1992 due to construction at the Ambassador Bridge and as a result of special volume discounts being offered. Truck traffic increases may be reversed when the Ambassador construction is completed. A large amount of the traffic uses this tunnel because it is the most direct route for local deliveries. Auto traffic using the tunnel is highly intraurban in nature. Casino gambling, which begins operations in Windsor later this year, will have a major impact on auto traffic, even if Detroit later obtains similar gambling ordinances.

**DETROIT - WINDSOR HIGHWAY TUNNEL
OPERATOR PROVIDED TWO-WAY TRAFFIC LEVELS
(1000'S OF VEHICLES)**

YEAR	AUTOMOBILES	TRUCKS	TOTAL
1980	5,788	111	5,899
1981	NA	NA	NA
1982	5,242	113	5,355
1983	5,396	119	5,515
1984	5,558	146	5,704
1985	5,727	160	5,887
1986	5,817	185	6,002
1987	6,005	234	6,239
1988	6,059	267	6,326
1989	6,242	251	6,493
1990	6,723	270	6,993
1991	7,020	266	7,286
1992	7,215	300	7,515

Note: Data is for Tunnel Company fiscal year from November 1 to October 30.

INSPECTION SERVICES DATA
 PORT OF DETROIT/WINDSOR, HIGHWAY TUNNEL
 (1000'S OF VEHICLES)

	AUTOMOBILES	TRUCKS	TOTAL
<u>ENTRY TO U.S.:</u>			
1989	3,879	153	4,032
1990	3,417	126	3,543
1991	3,544	122	3,556
1992	3,685	131	3,816

ENTRY TO CANADA:

1989	2,363	99	2,462
1990	3,306	144	3,450
1991	3,475	144	3,619
1992	3,530	169	3,699

*Note: U.S. numbers were calculated by subtracting Canadian Customs data from Operator's combined (Canada & U.S.) data for the respective years. U.S. Customs data was not available for the Detroit - Windsor Tunnel.

**U.S./CANADIAN BORDER CROSSING PROFILE
PORT: DETROIT, MICHIGAN
CROSSING: DETROIT - WINDSOR HIGHWAY TUNNEL**

BACKGROUND

DESCRIPTION

The tunnel is 5135 feet long and has a 22 foot roadway with 2 lanes. The tunnel is owned by the City of Detroit and the City of Windsor, and is operated under contract by the Detroit and Canada Tunnel Corporation (DCTC), the same private firm that had the original 60 year leasehold rights beginning in 1930. The DCTC is in the first phase of a multiple phase plan for improvements to the Canadian plaza and tunnel structure. The Tunnel is approximately 2 miles from the Ambassador Bridge.

LOCATION

The Detroit-Windsor Highway Tunnel is located under the Detroit River between Detroit, Michigan and Windsor, Ontario.

HIGHWAYS

Access to this downtown facility is by city streets. On the Detroit side, access is via Jefferson Avenue, an 8 lane Avenue which leads to the Lodge Expressway, 3 or 4 blocks away. The Lodge connects to I-94 and I-75 2 to 3 miles away. The intersection with Jefferson Avenue is congested, especially for truck traffic. On the Windsor side, the connecting intersections to city streets, as well as the streets themselves, are especially congested. Access to Highway 401 towards Toronto is by city streets for several miles. A number of improvements are planned for Windsor city streets in the vicinity of the Tunnel.

ACTIVITY

In 1992, auto traffic totalled 7.515 million vehicles, consisting of 7.215 million autos and .300 million trucks. When compared to 1991, auto traffic grew 2.8% in 1992 while truck traffic increased by 12.8%. These increases are in contrast to the historical growth since 1980 of 1.9% per year for autos and 8.8% for trucks. This crossing is more intraurbanly oriented than most crossings, due to its downtown location and the availability of the Ambassador and Blue Water Bridges. Although the tunnel is primarily an auto crossing for commuters, shoppers and same day recreational trips, truck traffic has increased considerably in recent years. This truck traffic is primarily intraurban or related to inbound and outbound shipments to one major Windsor auto plant.

DELAYS

There are no detailed delay records available. However, backups and short delays have occurred during peak holiday and commuter rush hours. Traffic is frequently backed up several hundred yards into the tunnel during these periods.

CAUSE OF DELAYS

Most delays occur because the primary inspection booth operation is not responsive enough to fluctuations in traffic volumes. At maximum holiday peak volumes, an insufficient number of booths may be in operation and intersections with city streets may be inadequate. This is especially true on the Canadian side where fewer booths are in operation and the city streets are narrower.

IMPROVEMENTS

The DWTC and the City of Windsor have recently begun a major capital improvement project for the Canadian plaza and the tunnel itself. This \$US25 million multiple phase project includes an initial \$US15 million one year project to revamp the Canadian plaza and increase the number of toll and customs booths, as well as resurfacing and retiling of the tunnel structure. Six toll booths will be in operation instead of the current four, as well as an additional 2 customs booths, for a total of 10 booths. Advanced toll technology will allow frequent users to pay tolls by mail on a monthly basis, and motion sensors and video cameras will allow quicker Customs response to traffic backups. Secondary auto inspection will also be increased to a 40 vehicle capacity. The City of Windsor is also working on improvements to the city streets and intersections around the tunnel. Long term improvement needs will require an estimated \$US20 million of funding on the Canadian side.

ANTICIPATED GROWTH

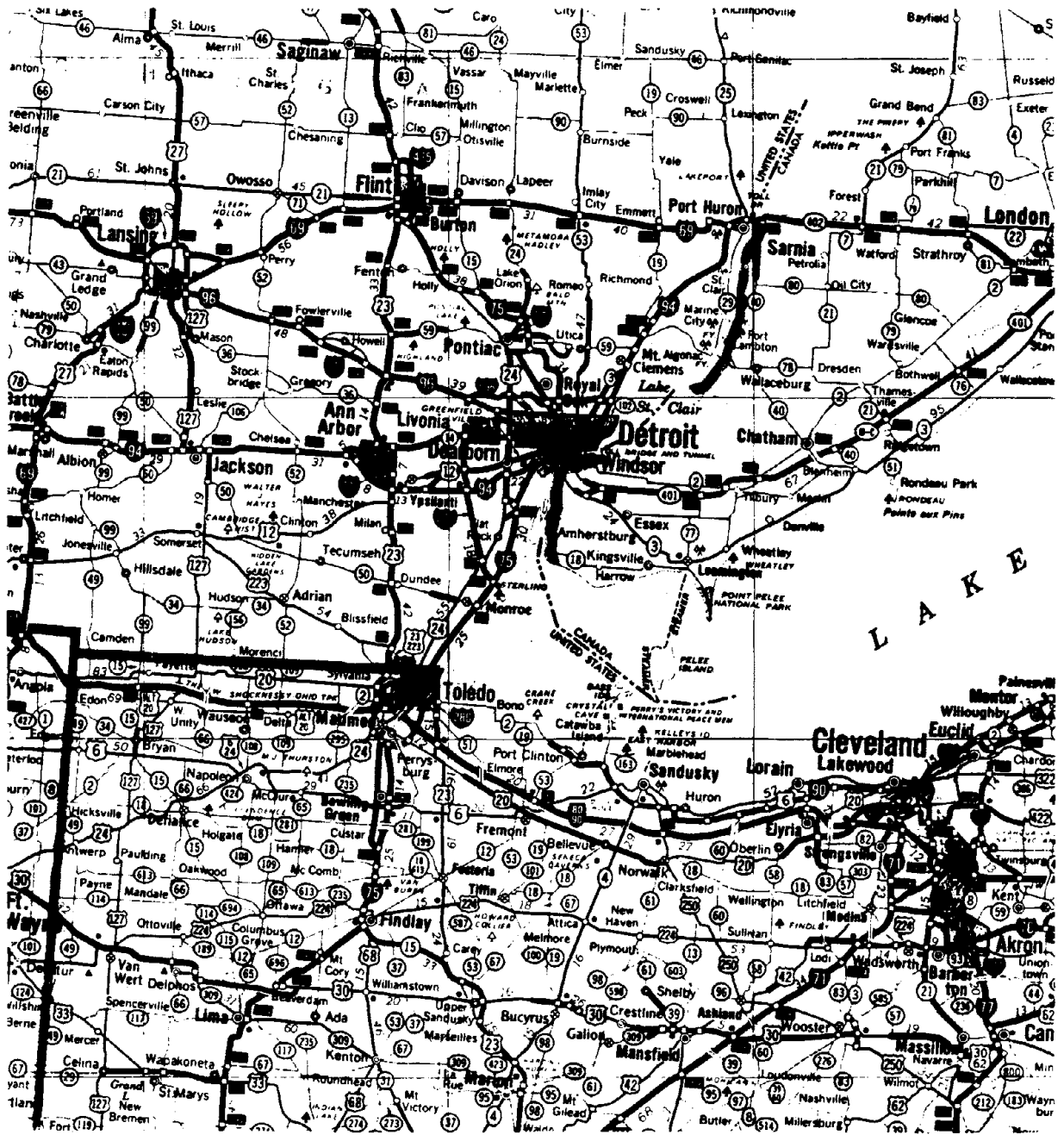
Historic trend line growth between 1980 and 1982 equalled 1.9% for autos and 8.8% for trucks. Using a more recent historical period of 1986 to 1992, a 3.5% growth rate for autos is revealed. Using this expected growth rate for the future, auto traffic would reach 10.916 million vehicles by the year 2000 and 14.670 million vehicles by the year 2010. The recently-approved casino gambling in Windsor could add 3-4% to current traffic levels increasing traffic by approximately 300,000 autos per year. However, trends in the value of the Canadian dollar and the competitiveness of Canadian retailers could result in a decrease in traffic for several years. While this reduction has not yet occurred at the tunnel, significant traffic declines have been observed in the Niagara area.

CAPACITY ISSUES

Current delays are primarily related to the number of existing booths, the number of primary inspection booths open at one time, and, in some cases, the actual capacity of city-street

intersections with the tunnel. Although plaza capacity can be enhanced by increasing the number of booths and automating toll collections, the capacity of city-street intersections can only be increased marginally. The roadbed capacity of the current tunnel will probably be exceeded in the early 2000's.

The principal issue to be addressed at the tunnel is quick response to backups and the number of open toll and primary inspection booths. New technology should help toll and Customs staff monitor the extent of backups in the tunnel and alert them to the need for additional booths to be opened. The level of Customs and INS staff is also a concern, as well as budgets for summer employee and overtime personnel. Planned improvements should alleviate constraints related to the number of primary inspection booths and secondary auto space on the Canadian side. Over the long term, the need for additional roadbed capacity will need to be addressed. However, traffic growth should be monitored carefully to determine if volume is going to decrease slightly as a result of Canadian macroeconomic and competitiveness factors.



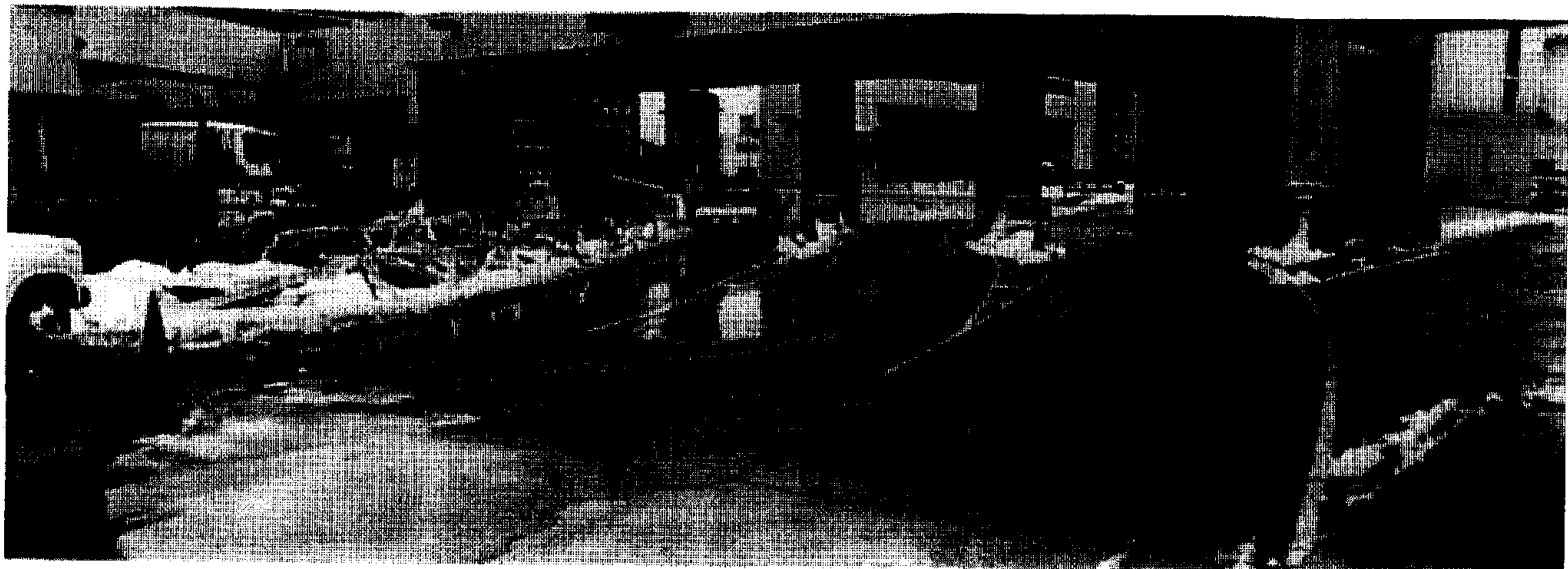
Detroit, Michigan

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12

Detroit/Windsor Highway Tunnel: Above, Detroit approach to tunnel; below, U.S. Customs primary inspection





13

Detroit/Windsor Highway Tunnel: Above, Canadian primary inspection; below, entrance to Canadian toll booths and truck primary inspection



Michigan Frontier

**U.S./CANADIAN BORDER CROSSING PROFILE
PORT: DETROIT, MICHIGAN
CROSSING: AMBASSADOR BRIDGE, DETROIT MICHIGAN**

PROFILE

Customs Port Code: 33801 **Customs Region:** North Central

Customs District: Detroit, Michigan

INS Region: Northern **INS District:** Detroit, Michigan

Collateral Duties: Other highway, rail tunnel, rail ferry, truck ferry, marine terminal, airport and pleasure marine craft clearance duties within port.

Total Staff: Customs: Staff of 238 port wide.
INS: Staff of 21 for the bridge only.

Nearest U.S. Ports:

The Detroit-Windsor Tunnel is 2 miles away and the Detroit-Windsor CP/CN Rail Tunnel is 1/2 mile away. The Port of Port Huron and the Blue Water Bridge is 60 miles to the North and the Port of Toledo is 50 miles to the South. The nearest land crossing to the South and East is in Buffalo, New York.

Hours of Operation: 24 Hour operation for the facility and Customs/INS on both sides. Canadian brokers have limited night hours.

Seasonality: Peak traffic volumes occur during the summer months. Peak days are on holidays in the summer.

U.S. Inspection Facility: The new 22-acre facility will include an administration and broker office building, firing range, incinerator, and truck primary and secondary inspection areas. The facility will be owned by GSA and maintained by the bridge company. A tourist welcome center to be located at the bridge is among the proposed improvements for the facility.

U.S. Primary Inspection:

Passenger Vehicles - There are currently 11 auto booths available, but as part of the current truck secondary construction project, the number of booths will increase to 20. At the estimated processing time of 109 vph, these changes will provide total capacity of 2,180 vph. This capacity will exceed likely traffic levels to the year 2020.

Commercial Vehicles - A dedicated truck off-ramp is being built by the bridge company and recently opened for traffic. There are 6 truck booths with space to add 3 more booths, if necessary. The current truck capacity, using an estimated processing time of 64 seconds per vehicle, is 56 vehicles per hour (vph) per booth or 336 vph in total. The 6 booth capacity exceeds likely traffic levels through the year 2000.

U.S. Secondary Inspection: A new GSA 22-acre facility, nearing construction completion, includes 121 parking spots and 18 bays. Capacity is 161 trucks per hour with a 45 minute processing time.

Operator: Detroit International Bridge Company

Operator Contact: Mr. Dan Stamper
President

Facility Location: The Ambassador Bridge crosses the Detroit River between Detroit, Michigan and Windsor, Ontario. See Exhibit C for a location map.

Facility Description: The Ambassador Bridge is a four-lane suspension bridge above the Detroit River. The bridge and approaches are 1.7 miles long and the midspan is 152 feet above the navigable waterway. The roadway is 47 feet wide and there is an eight foot sidewalk on one side. No pedestrians are allowed on the bridge. Toll plazas are on each side with a customs primary plaza that has limited queuing space.

Facility Restrictions: No hazardous goods. Truck weight limits.

Year Built: 1927-1929

U.S. Ingress/Egress: Interstates 1-96 and I-75 do not have direct access to the bridge. Inbound and outbound traffic must traverse city streets with stoplights and stop signs at several points. The surface condition of city streets and interstates is poor. The capacity of city streets for auto egress is less than primary inspection capacity.

U.S. Toll Booths: There are 4 auto and 2 truck booths on the U.S. side. Truck booths include scales for weight-based tolls. The booths are equipped with manual technology and do not possess automated billing capability. Backups to the city streets infrequently occur. Toll capacity is 1,600 autos and 154 trucks per hour.

Roadbed Capacity: Four lane capacity is 3,068 autos and 766 trucks per hour. The capacity in either direction is 1,534 autos and 383 trucks per hour. This capacity exceeds the likely traffic levels up to at least the year 2020.

Canadian Ingress/Egress: Huron-Church Road is a four and six lane boulevard following 1991-1992 improvements. The road provides access to the 401 limited access freeway to Toronto.

Canadian Toll Booths: There are four auto and two truck booths on the Canadian side. Scales are located at the truck toll booths. The booths are equipped with manual technology. Backups to the city streets do not occur because the queuing area is longer than that on the U.S. side. Toll capacity is 1,600 autos and 160 trucks per hour.

Canadian Primary Inspection:

Passenger Vehicles - There are currently 8 auto lanes, two of which can be used for trucks, if necessary during peak truck traffic hours. Based on an estimated processing time of 27 seconds per automobile entering Canada, auto capacity is 109 vph or 872 vehicles in total. Construction will result in 20 auto capable booths with a total capacity of 2,666 vph.

Commercial Vehicles - There are 4 truck booths with a capacity of 82 vph per booth or 328 vph in total. The construction project on the Canadian side will result in 20 new booths, 10 of which will be both truck and auto capable. Truck capacity will increase to 640 vph, far exceeding likely traffic levels to the year 2020.

Canadian Secondary Inspection: Canada Customs now operates from a new off-site truck facility approximately 3 miles away on Huron-Church Road, towards the 401 limited access expressway. No capacity problems currently exist for trucks. However, small collections activity by Canada Customs has caused backups of autos due to a lack of secondary space for parking. A new auto secondary facility will soon be open and will accommodate 60 vehicles.

Canadian Port: Windsor, Ontario

Canadian Inspection Facility: A new off-site facility is owned and maintained by the bridge company.

Canadian Inspection Staff: There are 133 inspectors and 38 managerial/clerical staff that operate inspectional services at the Ambassador Bridge.

Traffic: 1992 auto traffic totaled 6.500 million vehicles and truck traffic totaled 1.701 million. Total traffic in 1992 was 8.201 million vehicles. When compared to 1991 traffic totals, auto traffic was up 7.8% and truck traffic increased by 14.8%. The historic growth from 1984-1992 was 4.5% for autos and 1.7% for trucks.

**AMBASSADOR BRIDGE
OPERATOR PROVIDED TWO-WAY TRAFFIC LEVELS
(1000'S OF VEHICLES)**

YEAR	AUTOMOBILES	TRUCKS	TOTAL
1980	5100	900	6000
1987	4889	1540	6429
1988	4976	1633	6609
1989	5338	1652	6990
1990	5667	1554	7221
1991	6082	1480	7562
1992	6500	1701	8201

**INSPECTION SERVICES DATA
PORT OF DETROIT/WINDSOR
(1000'S OF VEHICLES)**

	AUTOMOBILES	TRUCKS	TOTAL
<u>ENTRY TO U.S.:</u>			
1989	3211	1015	4226
1990	2805	735	3540
1991	2965	700	3665
1992	3168	846	4014
<u>ENTRY TO CANADA:</u>			
1989	2127	637	2764
1990	2862	819	3681
1991	3117	780	3897
1992	3332	855	4187

Note: Buses included with trucks.

Entry to U.S. data is based on operator provided two-way total less Canadian Customs data on Canadian entry data. U.S. Customs data is total port.

**U.S./CANADIAN BORDER CROSSING PROFILE
PORT: DETROIT, MICHIGAN
CROSSING: AMBASSADOR BRIDGE, DETROIT MICHIGAN**

BACKGROUND

DESCRIPTION

The Ambassador Bridge is a privately owned and operated four lane bridge over the ocean vessel- navigable Detroit River. The bridge and its approaches are 1.7 miles long with a 47 foot roadway and an eight foot sidewalk. Clearance over high water is 152 feet at the center span. The U.S. portion is owned by the Detroit International Bridge Company (DIBC), a Michigan corporation. The Canadian side is owned by the Canadian Transit Company, a wholly owned subsidiary of DIBC. A controlling interest in DIBC is held by Centra, Inc., a U.S.-based corporation. The bridge was opened in 1927. The U.S. and Canadian governments authorized construction before 1927 and the rights to the bridge were acquired at that time by the current companies.

LOCATION

The Ambassador Bridge is located in Detroit, Michigan and Windsor, Ontario and it spans the Detroit River.

ACTIVITY

The Ambassador Bridge is the busiest border crossing on the U.S.-Canadian border by a factor of two. The bridge carried some 1.701 million trucks in 1992, compared to .950 million at the Peace Bridge which is the next most heavily travelled commercial crossing. The bridge carried 6.500 million autos in 1992 for a total of 8.201 million vehicles, compared to a total of 8.142 million total vehicles at the Peace Bridge. Auto and truck traffic are both intercity and commuter oriented. While there is a large volume of auto industry traffic, Chrysler alone moves 800 trucks a day, the crossing is also critical to many other industries. A large proportion of the commercial traffic moves in a "just-in-time" mode in order to meet total order cycle times of as little as four hours with no surplus inventory in plants.

HIGHWAYS

The Ambassador Bridge is located at a key point along a trade corridor running from Montreal and Toronto through the U.S. industrial heartland, Chicago and the western U.S. to the Laredo, Mexico border and the Mexican capital of Mexico City. This corridor carries a very large percentage of the total U.S.-Canada trade and the Detroit area represents the origin or destination for a large volume of the U.S.-Mexican automotive industry trade. The bridge is strategically located adjacent to the I-96 and I-75 freeways which is one of the most

heavily travelled truck corridors in the country. The sections between Flint, Michigan and Tennessee are often referred to as a "moving assembly line" because of the large volume of "just-in-time" automotive industry traffic. The bridge is also less than 5 miles, via I-96, from I-94, the key interstate corridor running from the Port Huron border with Canada to Chicago and westward. These interstates carry an estimated 10,000 trucks per day in the bridge vicinity and bi-directional international traffic from the bridge totals 5-7,000 trucks per day.

The Ambassador Bridge connects to the I-96 and I-75 interstates via city streets on the U.S. side and to the 401 limited access expressway on the Canadian side. However, both the city streets and the interstates on the U.S. side are in poor condition. Access for autos on the U.S. side is via Porter Street with several stop lights. Trucks are routed over Rosa Parks Boulevard in a round-about route in order to avoid backups of trucks onto the expressway ramps. On the U.S. side, autos exit onto Porter Street and pass through a traffic light before reaching ramps to the I-75 and I-96 freeways. Trucks exit onto Fort Street and proceed down several city streets that are in very poor condition before reaching freeway ramps.

On the Canadian side, access to the 401 freeway is via Huron-Church Road, a recently improved six and four-lane divided boulevard. Huron-Church road is approximately three miles in length from the bridge to the 401 highway.

DELAYS

1989 delays were estimated to have an annual cost to truckers of \$5.6 million dollars. For vehicles entering into the U.S. between January and September 1989, there were 273 truck backups and 134 auto backups having durations of 30 to 40 minutes or worse. For vehicles entering into Canada during the same time period, there were 208 truck backups and 74 auto backups having durations of 35 to 50 minutes. Delays have been much less frequent during the last few years.

CAUSE OF DELAYS

Previous reports have indicated that most delays have occurred when too few primary inspection booths were open. These delays have been attributed to shortages of staff and to inadequate systems and procedures for monitoring traffic on a minute-by-minute basis.

IMPROVEMENTS

Recent improvements on the U.S. side include a new truck off-ramp and a new truck inspection plaza built by GSA. The new plaza includes 6 primary inspection lanes, an expanded truck secondary parking lot and a customs administration/broker building. This new GSA-funded truck primary and secondary yard has freed up space on the bridge plaza which can be used for additional auto primary inspection booths. Construction plans call for a total of 20 auto primary inspection booths now that truck booths are off the plaza.

On the Canadian side, the secondary truck facility has been moved off-site and a new auto secondary parking area with 60 slots and an administration building is being built. The construction project will also lead to a total of 20 new inspection booths, 10 of which will be auto or truck capable. A number of improvements have also been made on Huron-Church Road leading to the 401 limited access highway.

ANTICIPATED GROWTH

A trend line based on 1984 to 1992 history of 4.5% average annual compound auto growth and 1.7% truck growth would result in year 2000 traffic levels of approximately 9.000 million autos and 2.000 million trucks. However, future auto traffic is expected to grow at a slower rate, or may even decline, given changes in cross-border shopping activity by Canadians. Shopping traffic increased rapidly in the late 80's to early 90's because of the high value of the Canadian dollar compared to earlier years and the limited competitiveness of Canadian retailers. Due to several factors such as the devaluation of the Canadian dollar, the opening of Ontario stores on Sunday, lower Canadian retail prices, better availability, and an effort by the government of Canada to slow cross-border shopping, auto traffic showed a decline towards the end of 1992 at crossings in Port Huron and in the Niagara Falls area. This trend was not apparent at the Detroit area crossings in 1992. One event which could offset these factors would be the introduction of casino gambling in Windsor without the introduction of such facilities in Detroit. Windsor will have casinos in operation this year and Detroit has voted down such plans several times. This scenario could increase traffic across both the Ambassador Bridge and the Detroit-Windsor Tunnel by an estimated .3 million vehicles.

Truck traffic is expected to continue to grow at recent trend levels although several factors could affect its distribution. One factor is the completion of construction at the Blue Water Bridge in Port Huron and at the Ambassador Bridge which could restore traffic that has been diverted to alternate crossings. Another factor is the expected doubling of truck tolls in Port Huron which could divert some traffic back to the Ambassador Bridge. Also, any loosening of restrictions on hazardous goods transit at the bridge could also bring back traffic which is currently being diverted. Finally, continued integration of the U.S. and Canadian economies, and of the Canadian and Mexican economies, will lead to increased traffic, regardless of NAFTA's outcome. A decrease in traffic may result from the efficiency gains of double stack rail that could divert some truck traffic back into the rail intermodal mode.

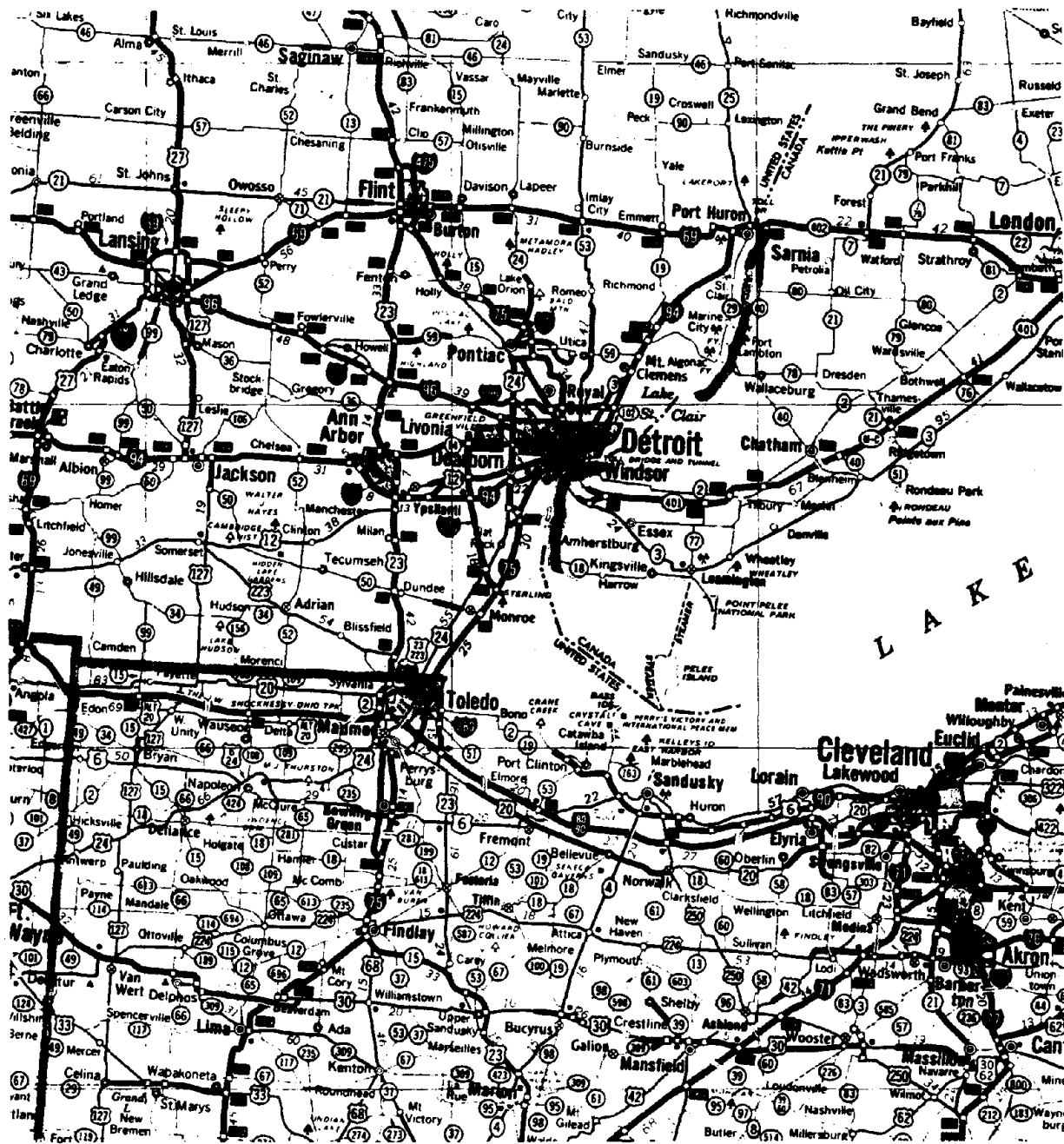
ISSUES

This bridge, I-94 and I-75 carry an estimated \$30-40 billion of U.S.-Canada trade, much of it gateway traffic which has neither an origin or destination in Michigan. This large movement of trade as well as other traffic have created a need for major reconstruction of these interstates. Access improvements are planned, but, in addition, direct access to the bridge from interstate on and off ramps is required. This would take trucks off city streets.

In addition to the above improvements, a tourist "Welcome Center" is also needed on the U.S. side of this crossing. Efforts to construct such a facility have been stymied for years.

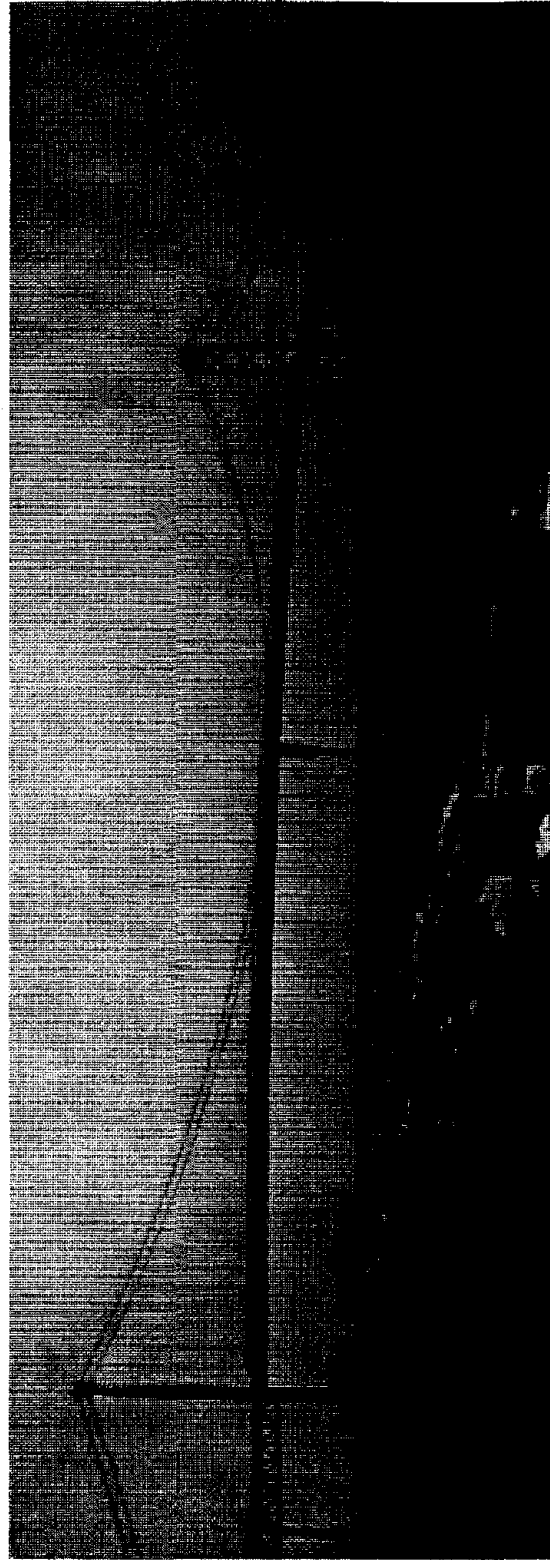
There is some concern at this crossing about the level of Customs and INS staffing in the U.S. and about the availability of temporary and overtime staff budgets. Several reports have been received about possible reductions in the Customs northern border staff in order to facilitate increases in southern border staffing. Elimination of staff at this crossing may result in delays which could cause severe problems for commuters and just-in-time shippers.

There are currently no significant physical capacity issues at the Ambassador Bridge.

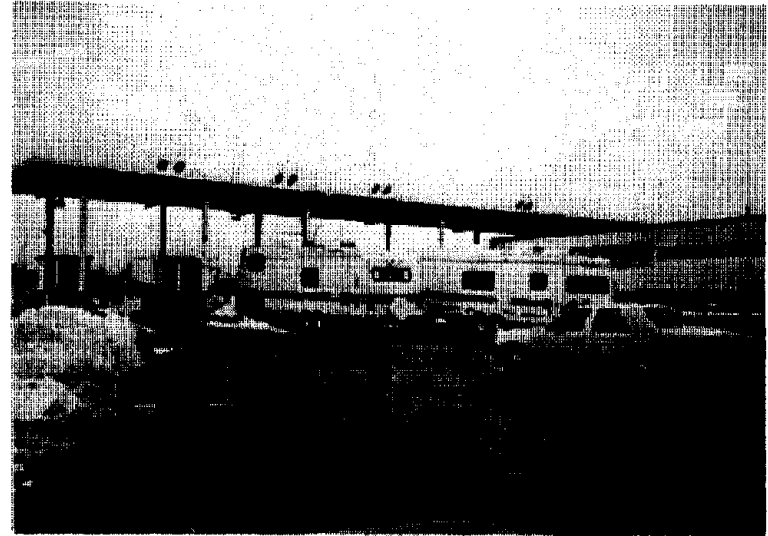
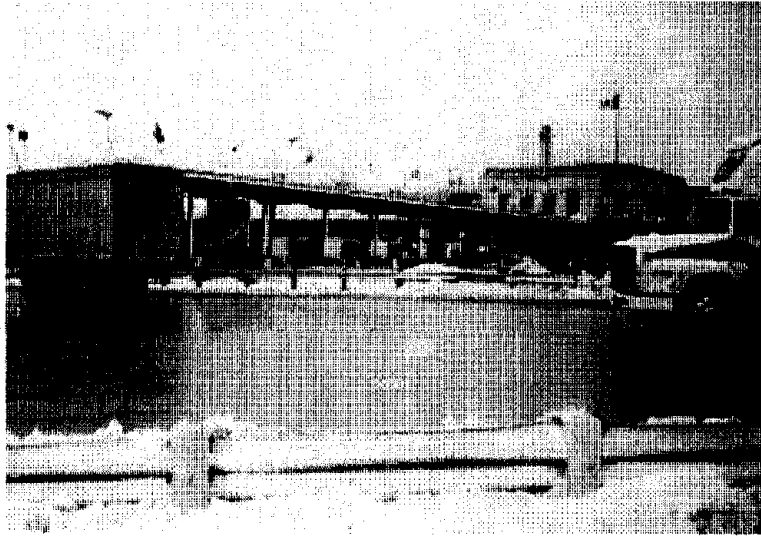


Detroit, Michigan

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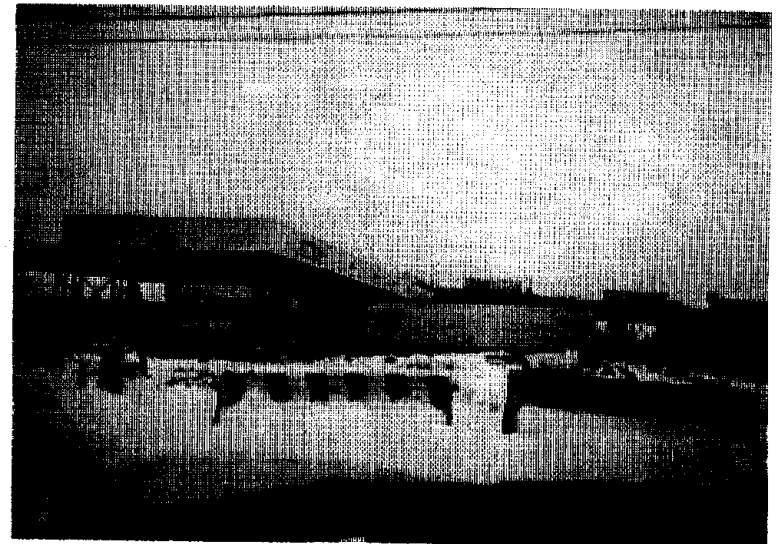
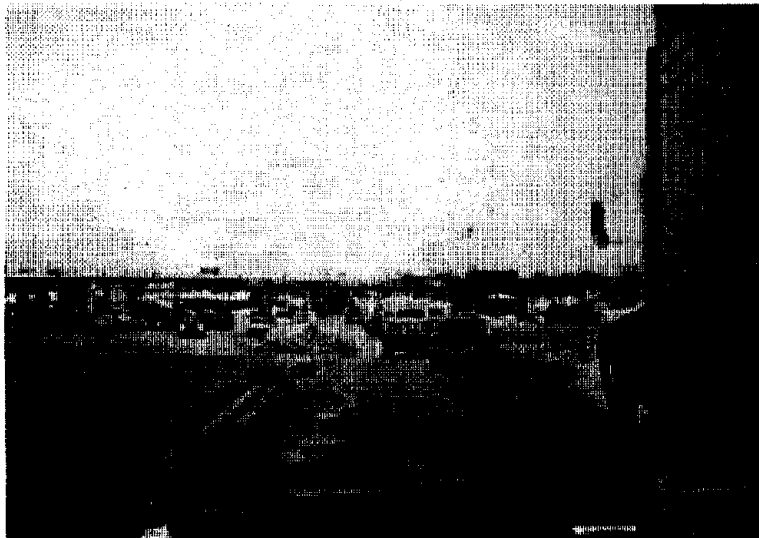


Ambassador Bridge



25

Ambassador Bridge: Above, Canadian primary inspection; below, U.S. primary (left) and U.S. truck secondary inspection (right)



**U.S./CANADIAN BORDER CROSSING PROFILE
PORT: PORT HURON, MICHIGAN
CROSSING: BLUE WATER BRIDGE**

PROFILE

Customs Port Code: 33802 **Customs Region:** North Central

Customs District: Detroit, Michigan

INS Region: Northern **INS District:** Detroit, Michigan

Collateral Duties for Border Agencies: Border agencies are responsible for several highway ferry crossings for trucks and autos, rail ferry traffic, rail tunnel traffic, pipeline, pleasure watercraft, ocean and Great Lakes ships, and air entries at several area locations.

Total Staff: Customs: Current staff level is at 40. Funding for an additional 6 positions was removed after it was authorized. The facility was hoping to be authorized for 60 positions when the new booths would be available, but, there is currently a hiring freeze and the northern border staffing appears to be in jeopardy due to Customs staff reductions nationwide and Customs' commitment to the southwest border.

INS: As of March 1993, there were 16 authorized positions. INS does not anticipate any staffing increases that would allow them to open more than the two booths they currently operate between 10:00AM and 6:00PM.

Nearest U.S. Ports: The Port of Detroit, Ambassador Bridge and Detroit-Windsor Tunnel are 59 miles to the South. The Port of Sault Ste. Marie is several hundred miles to the North.

Hours of Operation: 24 hours for bridge and ports of entry, however, Canadian brokers are not fully available at night. Trucks can be backed up early in the morning waiting for the Canadian brokers to open. In addition, Ontario restricts Sunday truck traffic on its roads thereby increasing Monday traffic.

Seasonality: Summer holiday travel generates the greatest daily and hourly traffic volumes on the bridge. Peak months are June, July, and August.

U.S. Inspection Facility: A construction project valued at \$US50 million is nearing completion. This project will quadruple the truck inspection area to 30 vehicles, increase the number of toll booths, and raise the total number of customs primary booths from 7 to 12.

U.S. Primary Inspection:

Passenger Vehicles - There are currently 7 primary inspection booths for automobiles. Four of the booths are passenger side accessible only. All seven booths are available for auto use. Trucks use the 3 booths (out of the 7) that have line release computers. If all 7 booths are primarily used for auto, the capacity is 763 autos per hour, based on a 33 second processing time and a booth processing average of 109 vehicles per hour (vph). By the end of 1993, the new plaza will be complete and the number of inspection booths will have increased to 12. These 12 booths will all be capable of being used for auto inspection. Three of the booths will be equipped to accommodate trucks and one booth will be equipped for buses. Once the project is complete, the peak auto capability will have increased to 1308 vph, an amount similar to the planned two span capacity. Interestingly, INS will not be able to staff more than the current 2 booths they operate between 10:00AM and 6:00PM because of a shortage of personnel.

Commercial Vehicles - The three truck booths can each process 56 commercial vehicles per hour, assuming a processing time of 64 seconds per truck, as estimated at the Ambassador Bridge. Total capacity is 168 trucks an hour. The completed plaza will have 4 booths available for trucks and will be able to process a total of 224 vph. This booth capacity will significantly exceed expected volumes.

U.S. Secondary Inspection: As part of the new plaza project, the U.S. secondary area for trucks has been substantially improved. The new facility will hold 30 trucks, if necessary, compared to only 7 in the current facility. There will be 7 bays. Unfortunately, this facility was built at the plaza, due in part to insistence by Customs that the secondary area not be situated off-site.

Operator: Michigan Department of Transportation (U.S. Side)
Blue Water Bridge Authority (Canadian Side)

Operator Contact: Mr. Robert J. Tarsi
Blue Water Bridge Engineer/Manager
Michigan Department of Transportation
1410 Elmwood Street
Port Huron, Michigan 48060
Phone: 313 984-3131

Facility Location: St. Clair River between Port Huron, Michigan and Point Edward (Sarnia), Ontario.

Facility Description: The Blue Water Bridge is a three-lane bridge that is 32 feet wide with a 4 foot sidewalk on the south side. Two lanes are 11 feet wide and travel in either direction. The center lane is 10 feet wide. While the bridge itself is three lanes wide, the

approaches to the plazas on each side have a total of just two lanes, thereby limiting the lane utilization to just two lanes. The total length of the roadway is 8,021 feet and the bridge substructure is 152 feet above the high water mark at its center in order to allow for the passage of ocean vessels. On the U.S. side, the bridge is part of I-94, until the International Line.

The bridge does not meet interstate standards regarding the number and width of lanes, lack of shoulder, etc., and is therefore considered a gap facility. The deck of the bridge is also in need of replacement before the year 2000. The Governor of Michigan and the head of the Canadian Blue Water Bridge Authority have announced plans for a second span with an estimated cost of \$US75 million. Plans also call for re-decking the current span at a \$10 million cost once the new span is in place. Engineers have estimated that the re-decking will be required by the year 2000 at the latest. A new customs/toll plaza and secondary complex will soon open on the U.S. side at a cost of \$US 50 million.

Facility Restrictions: Pedestrians and bicycles are not allowed over the Blue Water Bridge, however, the bridge authority will take bicycles across in a pickup if requested to do so. Hazardous goods that are not allowed to pass through the two Detroit crossings are allowed to cross this bridge. However, weight and size restrictions do exist. Both hazardous goods and oversize/overweight trucks may require special permits and escorts.

Facility Built: 1937 to 1938.

U.S. Ingress/Egress: The bridge accommodates long distance travel that uses interstates I-69 and I-94 on the U.S. side. I-94 extends to the International Line approximately at the midpoint of the bridge. I-69, with a connection to I-94 in Western Michigan, and Highway 401/402 in Canada provide a congestion free link between Toronto and Chicago. The bridge plaza also provides access to Pine Grove Avenue, a principal Port Huron city street. Recent improvements have resulted in excellent access.

Tolls: Due to prior federal aid, tolls have been limited to maintenance and major improvement levels under a Section 129(a) Agreement between the Michigan Department of Transportation and the Federal Highway Administration. The current toll is \$.75 for an auto and \$5.00 for a five axle truck. Canadian and U.S. currency is accepted at par. Section 1012 of ISTEA will now allow market level tolls, and, coupled with a need to begin raising revenues for a second span, there is a desire to raise tolls to the level at other international bridges. The result of this desire to increase fares could be an auto toll of approximately \$1.25 and a truck toll of approximately \$10.00.

U.S. Toll Booths: There are currently 3 toll booths available for use by autos or trucks. The booth capacity exceeds the present span's roadbed capacity. The new \$50 million plaza, nearly complete, will have 4 booths available to both autos and trucks. This plaza has been designed to accommodate a second span with higher directional roadbed capacity.

Roadbed Capacity: The bridge is currently operating at near the design capacity of the roadway. One-way vehicle capacity is 850 to 900, bidirectional capacity is double that, at approximately 1,700 to 1,800 vehicles per hour depending on the percent of commercial and passenger traffic. The design hour volume (DHV) measure of traffic, using the 30th busiest hour in a given year, yielded 997 bidirectional vehicles in 1991. In 1992, when auto traffic declined somewhat, the bidirectional DHV was 1,583 vehicles. During that hour, the directional traffic levels were 1,000 eastbound and 583 westbound.

Canadian Port: Point Edward (Sarnia), Ontario.

Canadian Inspection Facility: The facility recently added 70 spots to the truck secondary yard.

Canadian Primary Inspection:

Passenger Vehicles - There are 7 automobile primary inspection lanes on the Canadian side. The capacity per booth is 133 vph, based on a 27 second processing time, and total primary inspection capacity is 932 vph. Long term Canadian plans call for expanding the number of booths to 12 which will increase total capacity to 1,596 autos per hour. This increased capacity will be more than sufficient for at least the next 10 years.

Commercial Vehicles - Three truck booths are available but none of these booths can currently be used for auto traffic. Total primary inspection capacity is approximately 180 trucks per hour. Additional booths may be needed in the next ten years.

Canadian Secondary Inspection: Canadian secondary inspection can accommodate 36 cars, 4 RV's, 4 or 5 buses and up to 200 trucks. Seventy truck spaces were added in 1991. The amount of truck space is more than sufficient given the introduction of Canadian line release in early 1993. Currently, only 23% of trucks entering Canada are being processed through line release.

Canadian Ingress/Egress: On the Canadian side, there is direct access to Highway 402 which connects to Highway 401 and the Toronto area. There is also good access to city streets in Sarnia.

Canadian Toll Booths: There are 4 booths which can be used by autos. One of the 4 booths can also be used by trucks. Long range plans call for an increase to 7 booths with 5 for autos and 2 for either auto or trucks. These plans will require the demolishing of the current administration building and the moving back of the toll line 200 feet from its present location. The booth capacity is adequate for the current span.

Canadian Inspection Staff: Canadian staff includes 69 inspectors and totals 101 for 1992.

Traffic: Annual traffic in 1992 totaled 5.226 million autos and 0.825 million trucks for a total of 6.051 million vehicles. Auto traffic in 1992 was down by almost 0.2 million, most likely a result of major plaza reconstruction and/or reduced Canadian shopping in the U.S. This decline follows three years of traffic growth which ranged from 0.3 - 0.9 million autos per year. Truck traffic grew at an even faster pace than in recent years, increasing by 14.3% over 1991 totals.

**BLUE WATER BRIDGE
OPERATOR PROVIDED TWO-WAY TRAFFIC LEVELS
(1000'S OF VEHICLES)**

YEAR	AUTOMOBILES	TRUCK	TOTAL
1980	3328	213	3541
1981	3223	220	3443
1982	2603	229	2832
1983	2764	281	3045
1984	2841	346	3187
1985	2916	411	3327
1986	3134	464	3598
1987	3372	552	3924
1988	3649	606	4255
1989	3974	641	4615
1990	4840	670	5510
1991	5417	722	6139
1992	5226	825	6051

Note: Truck data include buses.

**INSPECTION SERVICES DATA
PORTS OF PORT HURON AND POINT EDWARD
(1000's OF VEHICLES)**

	AUTOMOBILES	TRUCKS	TOTAL
<u>ENTRY TO U.S.:</u>			
1989	2,106	341	2,447
1990	2,589	361	2,950
1991	2,914	390	3,304
1992	2,796	448	3,244
<u>ENTRY TO CANADA:</u>			
1989	1,727	235	1,962
1990	2,613	314	2,927
1991	2,936	335	3,271
1992	2,831	384	3,215

Note: Figures include some ferry truck and auto traffic from two small ferries operating in port.

**U.S./CANADIAN BORDER CROSSING PROFILE
PORT: PORT HURON, MICHIGAN
CROSSING: BLUE WATER BRIDGE**

BACKGROUND

DESCRIPTION

The Blue Water Bridge is 8,021 feet long and consists of three traffic lanes and a sidewalk. The two outer lanes are 11 feet wide and the center passing lane is 10 feet wide. The entrance to the bridge from the plaza decreases to two lanes. The bridge is 152 feet over the navigable waterway. The U.S. side of the bridge is part of U.S. Interstate I-94 which runs to the international line. The bridge is owned and operated by the Michigan Department of Transportation on the U.S. side and by the Blue Water Bridge Authority on the Canadian side. The bridge was opened to traffic in 1938.

LOCATION

The Blue Water Bridge is located at Port Huron, Michigan and Point Edward (Sarnia), Ontario. The bridge crosses the St. Clair River.

ACTIVITY

In 1992, the Blue Water Bridge carried 5.226 million autos and 0.825 million trucks, a total of 6.051 million vehicles. While truck traffic continued a strong upward trend increasing 14.3%, auto traffic declined by 3.5% breaking a string of recent increases that totaled 60.6% over the four previous years.

The decline in auto traffic continued during the first half of 1993 and the decline may be due in part to plaza construction on the U.S. side. However, the weakness in the Canadian dollar and increased competitiveness of Canadian retailers may be causing a reduction in Canadian shopping trips. Such trips are responsible for a large percentage of recent traffic growth. No origin-destination studies are currently available to confirm the exact nature of travel. Other travel across the bridge consists of local recreational trips and tourism from non-local sources.

Truck traffic has continued to increase dramatically and this crossing is estimated to account for approximately \$US14 billion of the total U.S.-Canada trade in 1991. This amount may be due to increased integration of U.S. and Canadian manufacturing and distribution systems, smaller and more frequent shipments, the less congested nature of this route compared to I-94/401 between Toronto and Chicago, and lower truck tolls at this location than at the crossings in Detroit. The truck traffic has increased despite major plaza construction detours.

HIGHWAYS

On the U.S. side, the bridge connects directly to I-94 and Pine Grove Avenue, a key street in the City of Port Huron. A new plaza has improved access to the bridge. The bridge also connects to I-69 which crosses Michigan and provides a less congested and more direct route from Toronto to Chicago and western destinations. An I-69 international trade corridor has been proposed by interests in Indianapolis and Little Rock as well as by interests in other cities. The corridor would run from Canada's industrial heartland through Michigan and Illinois to St. Louis and Little Rock before proceeding to the principal truck crossing with Mexico at Laredo. On the Canadian side, the bridge connects directly to Highway 402, a limited-access divided highway which flows into Highway 401 to Toronto. Overall, the bridge is a key link on a potential limited-access transportation corridor which could run from Toronto through the U.S. industrial heartland to Mexico City.

DELAYS

Compared to several years ago, delays have been reduced significantly at this location. This reduction is due in part to additional inspection service staffing and better processing techniques for trucks on both sides.

CAUSE OF DELAYS

Delays that do occur can usually be attributed to a below-maximum number of booths being staffed at a given time. However, peak hourly traffic can also be high enough to exceed the capacity of all available primary inspection booths as well as the capacity of the current truck secondary facility.

IMPROVEMENTS

A number of major improvements have or are about to be made at this location. Over the last several years, the State of Michigan has invested approximately \$US50 million in a new toll/primary inspection and truck secondary processing facility. The state used its share of federal interstate money and local matching sources to undertake this project and will recoup some of the costs through rent charged to GSA. The project would have been dramatically less expensive if the truck secondary lot could have been located off-site as at the Detroit-Windsor Tunnel instead of on-site on a plaza over local streets. Customs has generally preferred that these facilities be on-site. The project also raises a number of questions about inconsistencies in funding sources for border projects. While the state used limited interstate resources for this project, similar projects on the northern border have been funded by GSA, such as at the private Ambassador Bridge, and \$350 million has been appropriated for projects of this type on the southwest border.

The State of Michigan and the Blue Water Bridge Authority have also agreed to proceed with detailed planning for a second span at the Blue Water Bridge. This \$US65 million project

will be the first new international highway bridge on the U.S.-Canada border in 30 years. The project is to be funded with revenue bonds backed by tolls. There has also been some consideration of allowing a private operation with a build-transfer-operate (BTO) or build-operate-transfer (BOT) approach. Planning for this project was formalized in a 1982 Michigan-Ontario study in which both parties agreed that detailed planning for a new span should begin when the bidirectional design hour volume (DHV) hit 1,500 vph. At that time, the forecasted date for the DHV to reach the specified number of vehicles per hour was the year 2005. However, that traffic level was exceeded in 1991, and current traffic levels exceed the latest estimates of roadbed capacity at reasonable service levels. Given that traffic already exceeds the capacity and that a new deck will be needed before the year 2000, the project has been approved to proceed. However, from a capacity vantage point, a decline in traffic could postpone the need for the span. Such a decline in traffic is currently occurring.

ANTICIPATED GROWTH

Traffic level forecasts performed for the second span project at the Blue Water Bridge are based on annual average daily traffic (AADT) and design hour volumes (DHV) because capacity requirements relate to hourly peak traffic levels. These forecasts are basically growth trendlines for the last 54 years. Traffic is forecast to increase from a DHV level of 1,750 auto vph in 1991 to a DHV level of 2,500 in the year 2001 and 3,200 in the year 2011. Truck AADT is forecast to increase from 1,977 in 1991 to 3,500 in the year 2001 and 4,500 in the year 2011.

The above forecasts need to be carefully monitored because auto traffic levels have actually declined significantly since the forecasts were made and continue to decline in 1993. This decline in traffic levels may be due to the increased competitiveness of Canadian retailers and the reduced purchasing power of the weakened Canadian dollar. Future declines in traffic could continue if tolls are raised to the level at other crossings, if other crossings such as the Ambassador Bridge become more efficient and congestion is reduced on routes leading to these crossings, and if Canadian retail prices decline due to increased competitiveness or reduced Canadian taxes.

ISSUES

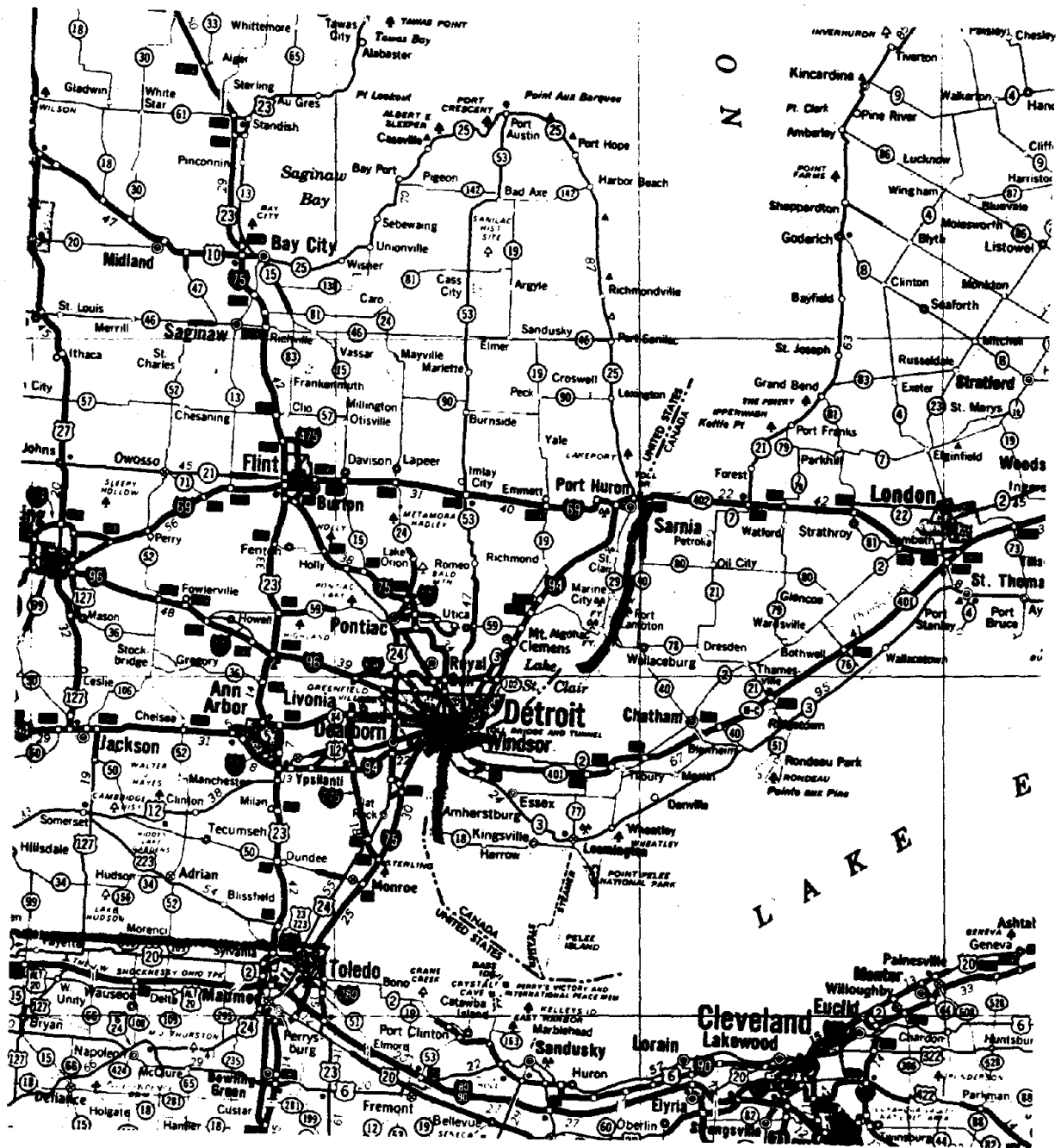
The most important issues at the Blue Water Bridge are the planning for a second span and the financing and organizational structure needed for the project. The cost of the \$US50 million dollar plaza and truck secondary project was absorbed by the State of Michigan out of its regular allotment of interstate funds. This project has raised questions about U.S. policy that focus on two major issues: 1) the financial burden and responsibility for these types of projects, and 2) the inconsistencies regarding requirements that truck secondary yards are located on-site, especially where development costs are high, or off-site, as is the case at some crossings, where development costs are lower.

The additional primary inspection booth capacity that will be brought on line shortly also raises questions about the ability of U.S. INS and Customs to staff these facilities and about the whole relationship between Customs and INS. While 12 booths will be available, INS is apparently only going to be able to staff 2 booths. Although Customs hopes to increase staffing, both agencies are currently under hiring freezes and Customs has indicated that by FY95, their national staff will be reduced by 1,000 people. Considerable efficiencies could be achieved if one agency was given sole responsibility for staffing primary inspection booths as is the case in Canada.

Recent declines in auto traffic at this crossing and at the Niagara Frontier raise some questions about forecast volumes. Traffic appears to be declining because of a lower Canadian dollar and competitiveness gains by Canadian retailers. Traffic levels over the next several months should be carefully monitored to assure a new second span will be needed as soon as is currently expected.

OTHER CAPACITY ISSUES

Capacity issues at the Blue Water Bridge have focused primarily on the U.S. primary and secondary capability as well as the roadbed itself. The new plaza and truck secondary complex on the U.S. side eliminates these capacity constraints. A new bridge will eliminate the roadbed constraint. Plans are also in place to increase the number of primary booths on the Canadian side.



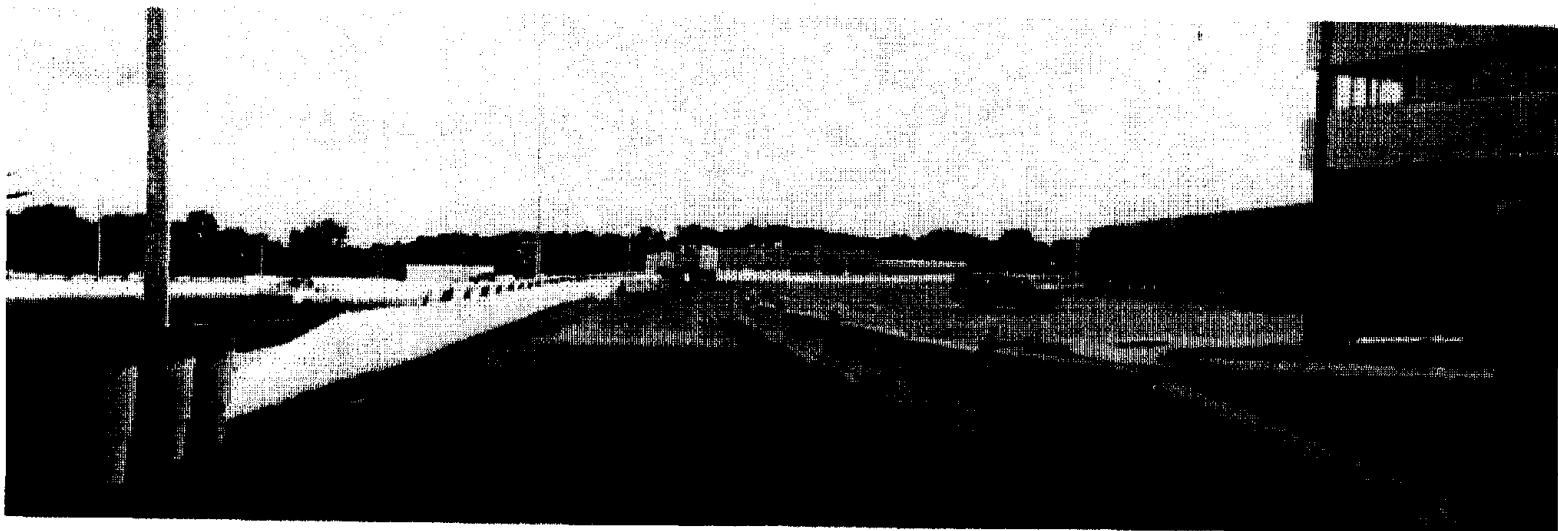
Port Huron, Michigan

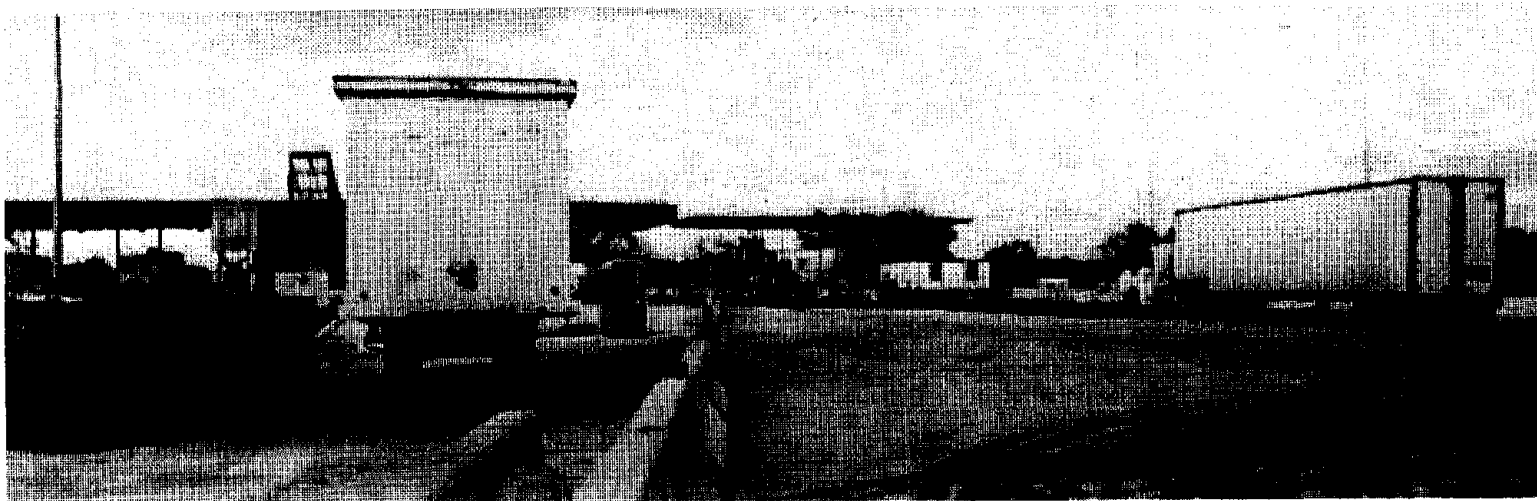
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Blue Water Bridge: Above, existing U.S. Customs primary inspection; below, new U.S. secondary truck plaza

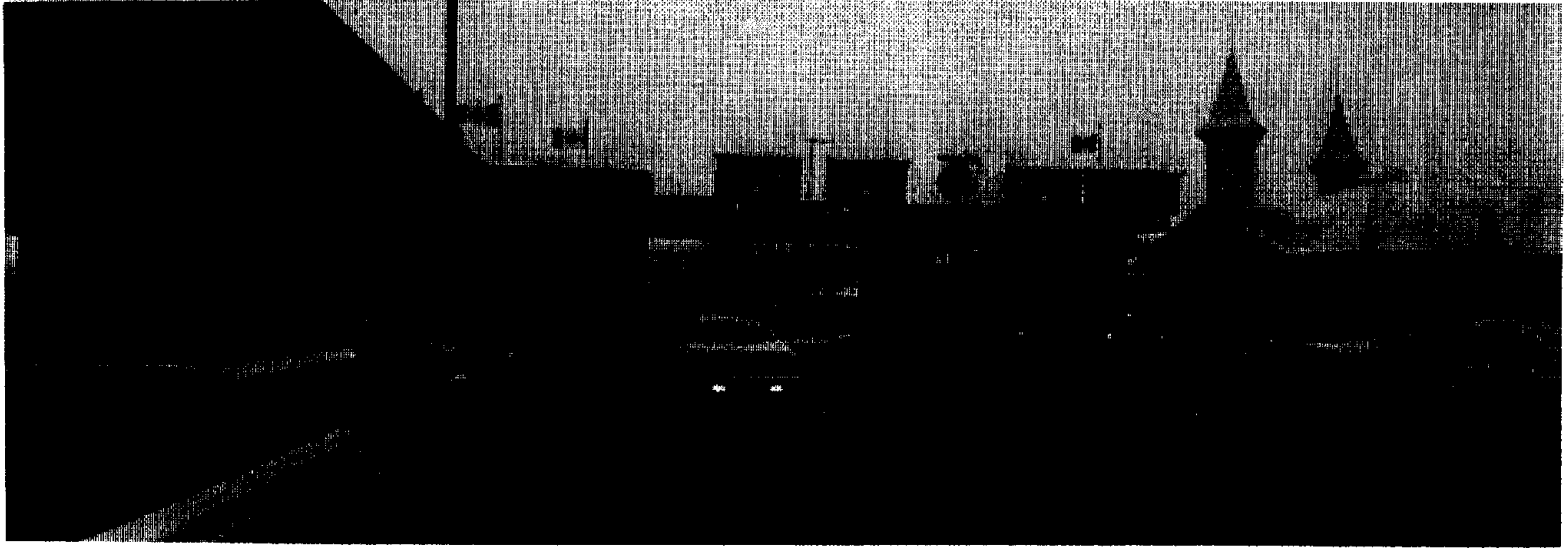




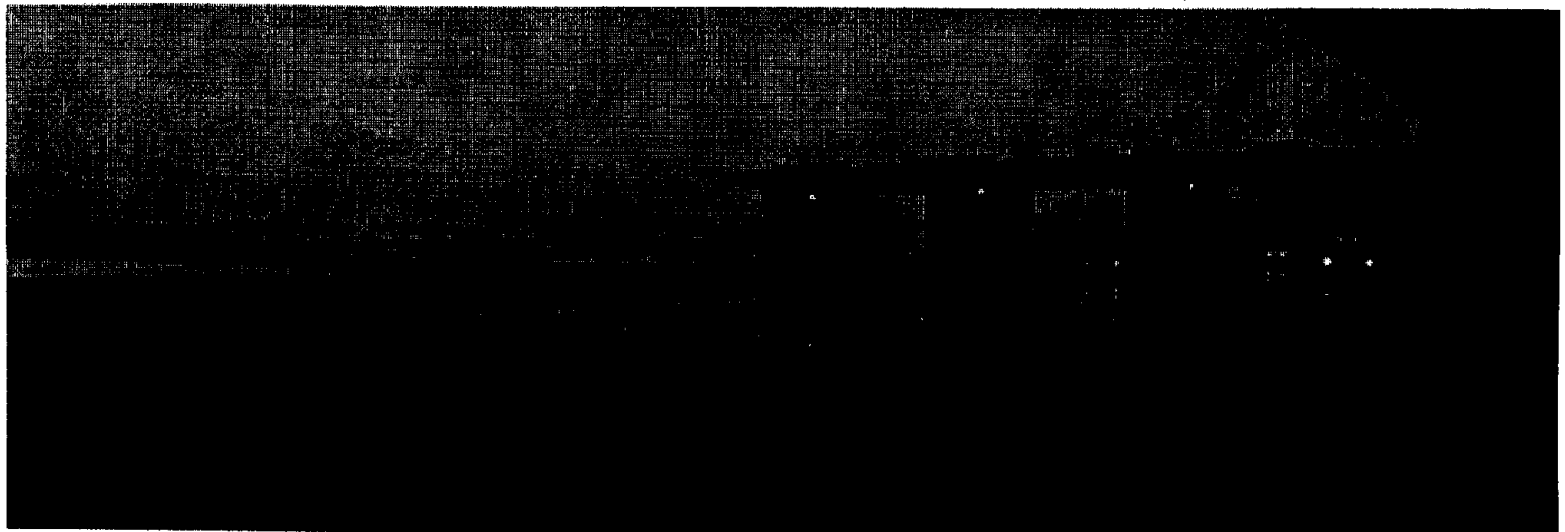
39

Blue Water Bridge: Above, new U.S. Customs primary inspection; below, new U.S. secondary truck plaza





Blue Water Bridge: Above, Canadian toll booths; below, Canadian Customs primary inspection



Michigan Frontier

**U.S./CANADIAN BORDER CROSSING PROFILE
PORT: DETROIT, MICHIGAN
CROSSING: SAULT ST. MARIE, MICHIGAN**

PROFILE

Customs Port Code: 33803 **Customs Region:** North Central

Customs District: Detroit, Michigan

INS Region: Northern **INS District:** Detroit, Michigan

Collateral Duties: Other modal activities are marine, air, rail.

Total Staff: In 1992, Customs maintained a total staff of 14. INS had 9 positions.

Nearest U.S. Ports and Crossing: Port Huron is 350 miles to the southeast and Grand Portage is 450 miles to the west.

Hours of Operation: The bridge is open 24 hours a day as are the ports of entry. However, the Canadian customs brokers do not provide full service operations during the night. This reduction in service is due to Canada customs regulations which effectively limit competition among brokers.

Seasonality: Traffic levels are considerably higher in the summer months.

U.S. Inspection Facility: The inspection facility was renovated in 1989.

U.S. Primary Inspection: There are 3 automobile lanes, with one additional curbside lane which can be used during peak traffic periods, and 3 primary inspection booths. Each lane has a 33 second processing time, yielding an hourly capacity of 109 vehicles. Total capacity for the four primary inspection lanes is 436 vehicles per hour. At peak times, traffic volumes exceed this capacity. Both commercial and passenger vehicles use the right lane.

U.S. Secondary Inspection: The facility can hold 7 to 8 trucks and has one bay.

Operator: International Bridge Authority (IBA)

Operator Contact: Mr. Neal A. Godby
Chief Administrative Officer
International Bridge Authority
934 Bridge Plaza
Sault Ste. Marie, Michigan 49783-0317
Phone: (906) 635-5255

Operator Information:

The International Bridge Authority (IBA) was created by the State of Michigan in 1935 and was given approval for an international crossing by an Act of Congress in 1940. Subsequent Acts extended the deadline for construction. In 1955, the Canadian Parliament created the St. Mary's River Bridge Company and granted it rights to construct an international crossing. In 1960, the Company assigned its rights to the IBA. Also in 1960, Ontario authorized the provincial treasurer to buy shares in the Company and securities offered by the IBA.

The Authority has 5 members with 3 appointed by the Governor of Michigan for 3 year terms and 2 designated by the St. Mary's River Bridge Company for an indefinite term. The Michigan Act states that these Ontario representatives are ex-officio members, but, they have always been granted full voting rights. The IBA was made a part of the Michigan Department of Transportation for administrative purposes via a Type III transfer several years ago.

The bridge was financed by two series of bonds. Series A bonds totaling US\$8.4 million were sold to private investors and paid off in 1983. Series B bonds totaling US\$7.85 million were bought by the Province of Ontario and will be paid off in full August 31, 1993. Upon retirement of IBA indebtedness, ownership of the Canadian side will revert to the designee of the Canadian Governor in Council and the U.S. side will revert to the State of Michigan. The IBA will owe the Province of Ontario approximately US\$5.2 million in interest on debt retirement and has supposedly not generated a sufficient reserve to make this payment.

The IBA is tax-exempt in the U.S. In Canada, municipal by-laws exempt the IBA from municipal taxes.

Facility Location: The International Bridge is located on St. Mary's River between Sault Ste. Marie, Michigan and Sault Ste. Marie, Ontario. The bridge is located at the center of the two sister cities and is adjacent to and over the Soo Locks system that connects Lake Superior with the rest of the Great Lakes and the St. Lawrence Seaway System.

Facility Description: The bridge is approximately 2 miles long and includes two main spans. There is a 27 foot roadway with 2 lanes. The bridge deck is 137 feet over ground at its highest point.

Facility Restrictions: Pedestrians are not allowed. Bicycles are only allowed during clear weather.

Facility Built: 1960-1963

U.S. Ingress/Egress: U.S. Interstate I-75 begins just before the U.S. side toll booths and continues through Detroit to its terminus in southern Florida. Capacity is more than adequate for the foreseeable future.

Tolls: Though all toll booths are on the U.S. side, tolls are collected for each direction of travel. The auto toll is \$1.50. Truck tolls are by axle and a typical Class 8 truck and trailer would pay approximately \$15.50. Canadian and U.S. currency is accepted at par.

U.S. Toll Booths: There are 5 toll booths on the U.S. side. Two of the booths are reversible allowing for a maximum of 3 lanes in one direction and 2 lanes in the other direction at any given time. The toll booths' capacity is well in excess of peak traffic levels.

Roadbed Capacity: There have been no recent studies of this bridge's roadbed capacity, but similar structures have been found to have an hourly capacity of 800-1000 directional (or per lane) vehicles per hour. This capacity is well above all but the most busy peak hour traffic levels.

Canadian Port: Sault Saint Marie, Ontario

Canadian Inspection Facility: The Customs compound at the Sault Ste. Marie is generally in good condition. It was provided free of charge to Canada Customs under Section 6 of the Canadian Customs Act.

Canadian Primary Inspection: There are 4 automobile lanes. Capacity is similar to the U.S. Estimating a processing time of 27 seconds per vehicle, as used at the Ambassador Bridge, capacity equals 133 vehicles per hour (vph) per booth, or a total capacity of 532 vph. Peak traffic levels sometimes exceed this level. Trucks use the right lane of the 4 auto lanes.

Canadian Secondary Inspection: The facility can hold 20 to 30 autos and 10 to 15 trucks.

Canadian Ingress/Egress: The main highway access on the Canadian side is Highway 17 which runs northwest and east. The capacity is adequate.

Canadian Toll Booths: All booths are located on the U.S. side.

Canadian Inspection Staff: Canadian Customs had 37 inspectors in 1993, and a total staff of 47. Canada has only one government inspectional service at the borders.

Traffic: In 1992, the bridge carried 3.431 million autos and 72,000 trucks, a total of 3.503 million vehicles. This traffic level represented a 0.9% increase in overall traffic from 1991 and more recently reflected a slower growth rate.

INTERNATIONAL BRIDGE
OPERATOR PROVIDED TWO-WAY TRAFFIC LEVELS
(1000'S OF VEHICLES)

YEAR	AUTOMOBILES	TRUCKS	TOTAL
1980	1640	60	1700
1981	1253	63	1316
1982	1217	53	1270
1983	1380	59	1439
1984	1469	71	1540
1985	1523	70	1593
1986	1827	70	1897
1987	2157	77	2234
1988	2641	72	2713
1989	2840	68	2908
1990	3226	63	3289
1991	3401	67	3468
1992	3431	72	3503

**INSPECTION SERVICES DATA
PORTS OF SAULT STE. MARIE, MICHIGAN AND ONTARIO
(1000's OF VEHICLES)**

	AUTOMOBILES	TRUCKS	TOTAL
<u>ENTRY TO U.S.:</u>			
1989	1448	34	1482
1990	1608	30	1638
1991	1698	34	1732
1992	1716	37	1753
<u>ENTRY TO CANADA:</u>			
1989	1139	32	1171
1990	1606	38	1644
1991	1695	38	1733
1992	1700	42	1742

U.S./CANADIAN BORDER CROSSING PROFILE
PORT: DETROIT, MICHIGAN
CROSSING: SAULT ST. MARIE, MICHIGAN

BACKGROUND

DESCRIPTION

The International Bridge is two miles long and is a two-lane series of bridges having two main spans that cross the St. Mary's River and the Soo Locks. The bridge was opened in 1963 and is operated by the International Bridge Authority, a State of Michigan entity that has representation from Ontario.

LOCATION

The International Bridge at Sault Ste. Marie is located on the St. Mary's River between Sault Ste. Marie, Michigan and Sault Ste Marie, Ontario. The bridge is near the center of these two highly integrated sister cities and is adjacent to and over the Soo Locks of the Great Lakes/St. Lawrence Seaway System.

ACTIVITY

The bridge is critical to the local economies of these two fairly remote northland cities. Traffic in 1992 totaled 3.431 million autos and 0.072 million trucks, a total vehicle count of 3.503 million. The Soo cities represent the largest metropolitan area in the Lake Superior region and there is considerable cross-border shopping, commuting and local recreational travel. Casino gambling on Indian reservations in both countries has also led to traffic increases. Tourism originating outside the area also contributes to a major portion of summer traffic. Truck traffic is oriented towards metals and wood products. A great deal of the imports to the U.S. are from a large steel mill in Sault Ste. Marie, Ontario.

HIGHWAYS

The bridge is at the northern origin/terminus of U.S. Interstate I-75 that runs from the bridge to southern Florida. On the Canadian side, the bridge connects to Highway 17.

DELAYS

Delays have not been particularly bad although weekend shopping and holiday traffic peaks can result in backups due to staffing availability and the number of primary inspection booths. During peak hours, traffic is reaching 700 vph one way and as high as 1400 vph bidirectional. Interestingly, the peak levels are not much lower than those at other crossings with twice the annual traffic levels.

CAUSE OF DELAYS

Most delays occur when traffic warrants all the primary inspection booths to be open, but they are not. In general, this can be due to a combination of staffing shortages, and institutional problems. During peak traffic hours, however, delays occur even with all the booths in operation.

ANTICIPATED GROWTH

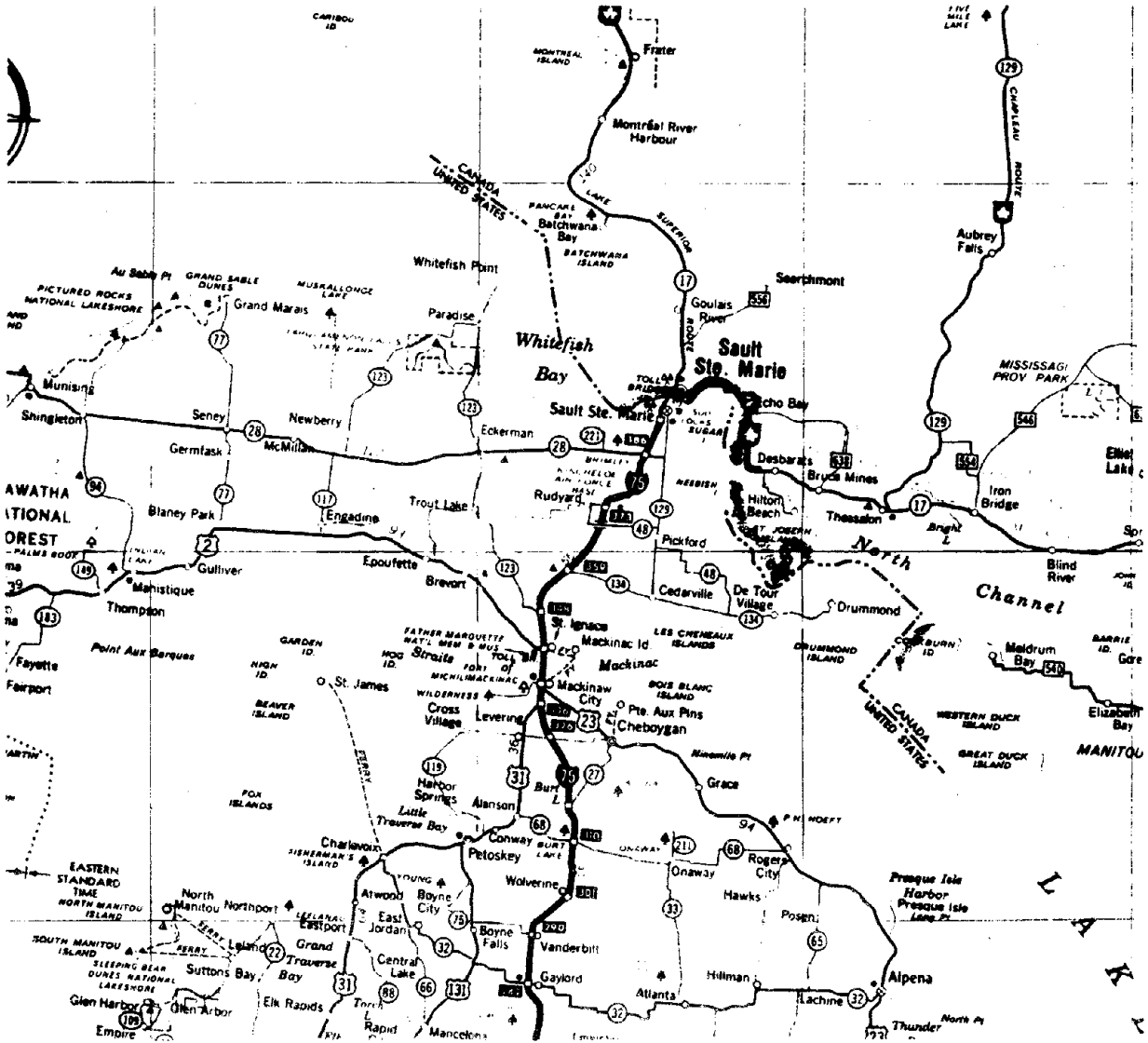
Long-term traffic growth is anticipated to be in the 2-3% range.

CAPACITY ISSUES

At peak hourly traffic levels, capacity of the primary inspection booths is insufficient. This is not currently considered a major physical capacity issue.

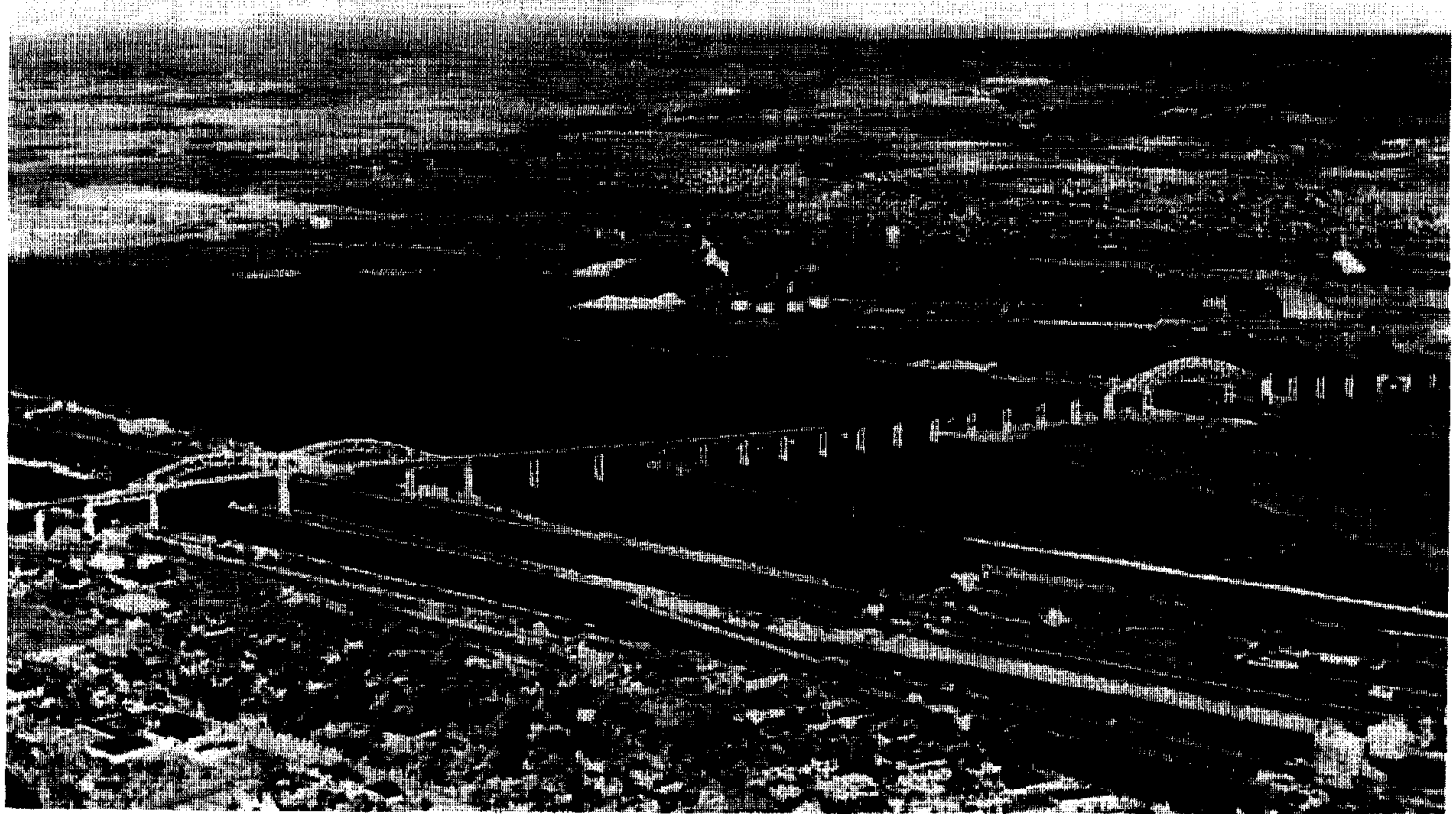
ISSUES

If traffic continues to increase due to cross-border shopping and/or gambling, there may be a need for additional customs primary inspection lanes on both sides of the bridge. The two sides also need to begin considering how the facility will be operated if ownership reversion takes place in the year 2000 as is currently scheduled.



Sault Ste. Marie, Michigan

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Sault Ste. Marie International Bridge

**U.S./CANADIAN BORDER CROSSING PROFILE
PORT: DETROIT, MICHIGAN
CROSSING: CP-CN DETROIT RAIL TUNNEL AND FERRY**

PROFILE

Customs Port Code: 33801

Customs Region: North Central

Customs District: Detroit, Michigan

INS Region: Northern

INS District: Detroit, Michigan

Collateral Duties: Other highway, rail ferry, truck ferry, marine terminal, airport, and pleasure marine craft clearance duties.

Nearest U.S. Ports: The nearest rail crossing is 50 miles north in Port Huron, Michigan. The nearest rail crossing to the east is in Buffalo, New York.

Hours of Operation: 24 hours for facility and Customs/INS on both sides. Canadian brokers have limited night hours.

Seasonality: Year-round; traffic volumes do not fluctuate seasonally.

Operator: The rail tunnel facility is owned by the Canadian National and Canadian Pacific railroads. It is operated by the Canadian National Railroad.

Operator Contact: Mr. Douglas G. Low
Director, Marketing Support Services
CN North America
1333 Brewery Park Boulevard
Detroit, Michigan 48207-2699
Phone: (313) 396-6582
Fax: (313) 396-6034

Facility Location: Detroit River between Detroit, Michigan and Windsor, Ontario.

Facility Description: The CN-CP Rail tunnel consists of twin tubes 1.5 miles in length portal to portal. The tunnel is an immersed tube construction that is buried in the river bottom.

Facility Restrictions: Certain hazardous goods are restricted.

Facility Built: 1910

Ferry Service Operator: Norfolk Southern Corporation
North Park Plaza, Suite 950
17117 West Nine Mile Road
Southfield, Michigan 48075-4516
Phone: (313) 443-1001

Canadian Port: Windsor, Ontario

**U.S./CANADIAN BORDER CROSSING PROFILE
PORT: DETROIT, MICHIGAN
CROSSING: CP-CN DETROIT RAIL TUNNEL AND FERRY**

BACKGROUND

DESCRIPTION

The tunnel consists of twin steel tubes that were constructed on the surface and sunken into trenches on the river bottom prior to exterior and interior concreting. The tunnel was built in 1910 and is 1.5 miles long portal to portal. The tunnel accommodates one set of tracks in each tube. The tunnel allows cars of up to 15'1" in height at a width of 10'8". Due to the height restriction, the tunnel can not be used by cars exceeding the "Plate E" template. Cars exceeding this template include the standard TOFC, high-cube and tri-level types. The height restriction has also prevented the use of double stack marine and domestic containers in the tunnel.

Non-owner users of the tunnel are charged for passage approximately US\$40 per rail car.

The tunnel is currently being deepened to accommodate TOFC, high-cube, conventional tri-level and maritime 8'6" double stack container cars. However, the tunnel will still not be able to accept the 20'2" tri-levels that Chrysler Corporation would like to use or domestic double stack container traffic.

Oversize rail traffic arriving at the crossing crosses the river on a Norfolk Southern rail ferry. The ferry makes the 1.8 mile trip in approximately 20 minutes. As of 1992, the ferry is operating only one shift per day and is able to make four round trips during the day. Cars which do not arrive in time for the shift must wait till the next day for transit. The owners of the cargo in the rail cars using the ferry must pay the federal harbor maintenance fee of 12/100's of 1% of the value of the cargo. This ferry will be eliminated following completion of the current tunnel deepening project. Ferry costs are approximately \$300-400 per rail car.

LOCATION

The CP-CN rail tunnel is located just east of the Ambassador Bridge near the centers of downtown Detroit and Windsor. The tunnel is jointly owned by the Canadian National and Canadian Pacific railways and is managed by Canadian National. Rail ferry service is available for rail cars that do not fit through the tunnel. The ferry service is operated by Norfolk Southern.

RAIL ACCESS AND SERVICE

Access tracks to the tunnel are owned by Canadian National on the Windsor side and by Grand Trunk Western, a subsidiary of Canadian National, on the U.S. side. The following railroads have operating agreements with CN-CP allowing them to use the tunnel: CSX, Conrail and Norfolk Southern. Canadian Pacific, a co-owner of the tunnel, also has access and is the major user. CP has a trackage agreement with CSX for use of track across Michigan to Chicago. Canadian National makes minimal use of the tunnel because of its outright ownership of the Port Huron tunnel and its main line tracks which cross the border at Port Huron.

ACTIVITY

Approximately 22 trains per average calendar day use the Detroit-Windsor tunnel. Eight of these trains are single stack container trains operated by CP and consist of six per day travelling between Chicago and Montreal and two per day going between Detroit and Montreal. Most of the CP traffic involves trade moving between Europe and the U.S. through the Port of Montreal. During 1991-1992 year, a total of 325,000 loaded and empty rail cars were projected to use the tunnel. An additional 23,400 rail cars were projected to use the ferry during the same time period. The ferry traffic is down from 85,000 cars in 1988 due to some traffic being diverted through Buffalo, and also to Norfolk Southern obtaining tunnel rights from CN-CP. In 1992, a total of 4,072 trains and 161,991 rail cars entered the U.S. at this crossing. In 1990, a total of 3,671 trains and 161,988 rail cars entered at this crossing.

There is currently no passenger service through the tunnel although such service has been considered from time to time. One future passenger service possibility is a high speed rail train linking Chicago and Toronto via Detroit. Passenger rail service is currently provided at Port Huron.

DELAYS

Significant delays at this crossing occur as a result of the need to separate out cars which do not fit through the tunnel. After transiting the tunnel, trains must be reconstituted with their cars that crossed by ferry. The ferry crossing adds 12 to 24 hours to crossing time, depending on whether the train arrives in time for the one-shift ferry. Additionally, The tracks between Chicago and Detroit are becoming significantly congested, leading to numerous holds for trains on this route.

CAUSE OF DELAYS

Delays are primarily due to the separating out of cars that do not fit through the tunnel and the reuniting of these cars to their trains on the other side. Delays are also due to the limited

ferry schedule. Shortages of Customs Service staff on both sides of the border occasionally cause delays.

RECENT IMPROVEMENTS

Recent improvements include a project currently underway to deepen the tunnel in order to allow for the passage of standard tri-level, high-cube, TOFC and maritime double stack containers. This project is being paid for by Canadian Pacific and has an estimated cost of US\$30 million.

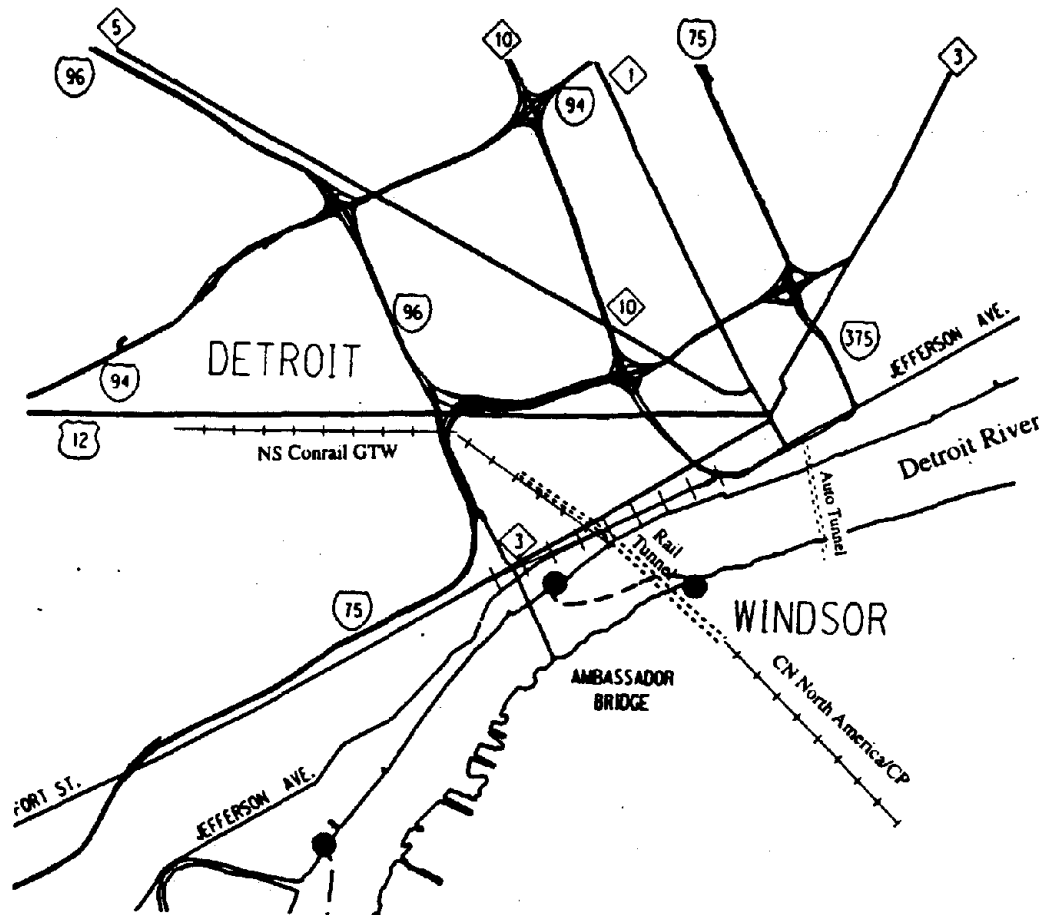
The City of Detroit and Canadian Pacific have sought federal, state, local and railroad funds for construction of a new double stack tunnel or for further deepening of one of the current tubes in order to have domestic double stack capability. Michigan Department of Transportation consulting engineers have estimated the cost of a new tunnel at US\$172 million. However, the City of Detroit has retained consultants that have estimated a lower cost. The City has estimated the cost for further deepening of one of the tubes at US\$96 million. Given the current construction of a new double stack tunnel at Port Huron, Michigan 50 miles to the north of Detroit, questions exist concerning the viability of this project.

ANTICIPATED GROWTH

Traffic growth at this location is dependent on the state of the overall economy and on CP maintaining its contracts for the transportation of containers traveling between Europe and the U.S.

RECOMMENDATION

This location is a key crossing for North American rail movements and for traffic moving between Europe and the U.S. International volumes on the crossing's rail lines help preserve the viability and maintenance of access railways operated across Michigan by CSX and Conrail. Therefore, this crossing and its supporting tracks should be modernized to the level called for by market demand.



CN/CP Rail Tunnel



CP/CN Rail Tunnel: Detroit side



CP/CN Rail Tunnel: Canadian side

Michigan Frontier



Norfolk Southern Rail Ferry



Michigan Frontier

**U.S./CANADIAN BORDER CROSSING PROFILE
PORT: PORT HURON, MICHIGAN
CROSSING: CN RAIL TUNNEL AND RAIL FERRIES**

PROFILE

Customs Port Code: 33802 **Customs Region:** North Central

Customs District: Detroit, Michigan

INS Region: Northern **INS District:** Detroit, Michigan

Nearest U.S. Ports: The Sault Ste. Marie crossing is to the North and West, and the Buffalo rail crossing is to the East.

Hours of Operation: 24 hours for facility and Customs/INS on both sides. Canadian brokers have limited night hours.

Seasonality: The traffic volumes do not exhibit any seasonal fluctuations.

Operator: Canadian National Rail Tunnel

Operator Contact: Mr. Doug Low
Director, Marketing Support Services
CN North America
1333 Brewery Park Boulevard
Detroit, Michigan 48207-2699
Phone: (313) 396-6582
Fax: (313) 396-6034

Facility Location: St. Clair River between Port Huron, Michigan and Sarnia, Ontario.

Facility Description: The CN Rail Tunnel at Port Huron consists of a single bored tube under the St. Clair River. The tunnel does not accommodate double stack, high cube, tri-level or standard TOFC cars because of height restrictions. A new double stack tunnel is now under construction. The operation of the new tunnel will enable the elimination of the existing CN and CSX ferry services, assuming that CSX is able to negotiate a reasonable price with CN for use of the tunnel.

Facility Restrictions: No hazardous goods are allowed to pass through the facility.

Facility Built: 1890

Rail Ferry Operators:

Canadian National
P.O. Box 98
Sarnia, Ontario N7T 7H8
Phone: (519) 339-1227
Contact: Mr. T.W. Maw

CSX Transportation
210 Court
Port Huron, Michigan 48060
Phone: (313) 982-7075

**U.S./CANADIAN BORDER CROSSING PROFILE
PORT: PORT HURON, MICHIGAN
CROSSING: CN RAIL TUNNEL AND RAIL FERRIES**

BACKGROUND

DESCRIPTION

The CN rail tunnel consists of a single bored tube under the St. Clair River. The tunnel was completed in 1890 and is owned exclusively by Canadian National. The tunnel is approximately 6,025 feet long and accommodates rail cars up to "plate C" dimensions. Such cars may not exceed a 14'2" height at the 10'8" width. The consequences of the height restrictions are that the tunnel cannot be used by conventional TOFC, auto tri-level, high cube or double stack rail cars. However, CN does utilize special low slung TOFC cars that can use the tunnel.

Rail cars that cannot use the tunnel are taken across the border on either the CSX or CN rail car ferries. The CN ferry sails on demand and makes a 1/2 mile trip across the river in approximately 5 minutes. However, the loading and unloading time at the ferry, as well as train breakout and recombination take considerably longer. The CSX rail ferry sails twice per day except Sunday and makes a 1 1/4 mile run which takes roughly 10 minutes. Each ferry can accommodate approximately 11 rail cars.

A new double stack-capable rail tunnel is currently under construction.

LOCATION

The Canadian National rail tunnel and ferries are located at Port Huron, Michigan and Sarnia, Ontario. The tunnel and ferries cross the St. Clair River which divides the U.S. and Canada.

RAIL ACCESS AND SERVICE

Rail service is provided by CN and CSX. CN owns the track access on each side. CSX owns nearby track on the U.S. side.

ACTIVITY

On average, approximately 11 trains per day used the Port Huron tunnel during calendar year 1992. Some reports indicate that in early 1993, there were 14 trains per day using the tunnel. In 1988, two-way traffic totaled 180,000 rail cars at the tunnel. An additional 110,000 cars (two-way total) used the rail ferries at Port Huron. Entering the U.S. through this port in 1992, combined tunnel and ferry operations totalled 2,382 trains with 148,251 rail cars. In 1990, there were 2,375 trains with 154,655 rail cars.

There is also one passenger train per day in each direction at this crossing. Amtrak and Via Rail operate this train.

Tracks leading to and from the tunnel support large numbers of trains each day. For instance, the Grand Trunk track at East Lansing, Michigan currently carries 39 trains per day. Current forecasts estimate that this track's activity will increase to 60 trains per day as a result of the new tunnel at Port Huron.

DELAYS

Delays at this location are increasingly due to congestion on the main lines in both countries. In addition, there is substantial time and effort required to separate and recombine trains with oversized cars. Customs can also cause several hours of delay.

CAUSE OF DELAYS

Delays are a result of the time required to separate and combine cars that do not fit through the tunnel.

RECENT IMPROVEMENTS

Canadian National is currently boring a new double stack tunnel adjacent to the current one. This tunnel has received all necessary government permits, including a Presidential Permit under the International Bridge Act of 1972, and construction has begun. The new tunnel will be 6,125 feet long with a 31 foot diameter. The tunnel has an estimated cost of US\$155 million. The new tunnel will reduce the travel time from Chicago to Montreal by 12 hours. It is anticipated that the operation of the new tunnel will lead to the elimination of both ferries.

ANTICIPATED GROWTH

Traffic growth is greatly dependant on the state of the economy in Canada, the U.S. and Europe. Future growth will also be dependant on the ability of Canadian National to attract European traffic away from Canadian Pacific and the Detroit tunnel. CN also hopes to gain market share from the truck mode on the Chicago to Eastern U.S. route.

CN has forecast that the number of trains per day will increase from 14 to 22 following the opening of the tunnel. CN also anticipates that the annual traffic will significantly increase from the 1993 annualized forecast of 210,000 cars to a total of 550,000 cars per year, once the tunnel is in operation.

INSTITUTIONAL ISSUES

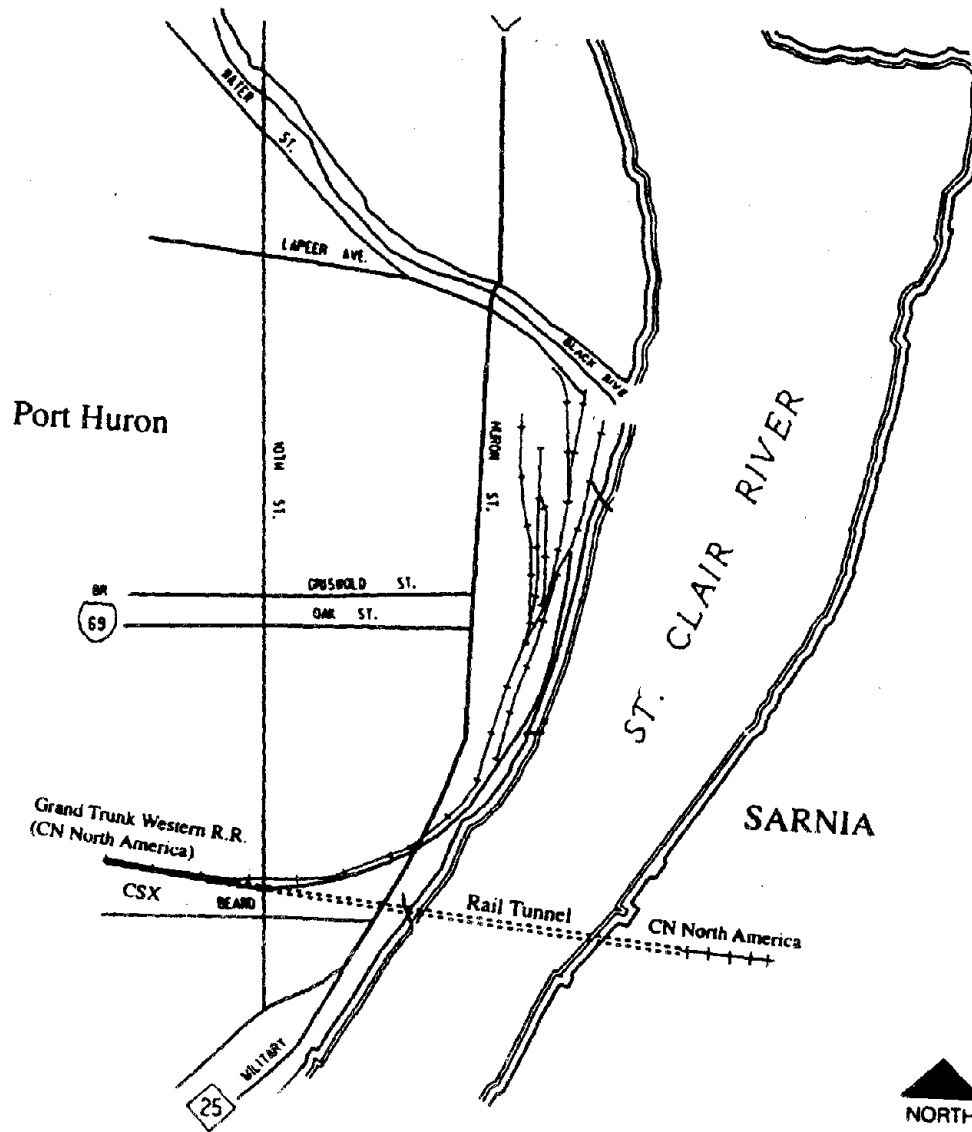
There are several institutional barriers to more efficient cross-border rail flows. First, the traffic which currently must use the rail ferries is being assessed a U.S. Harbor Maintenance Fee of 12/100's of 1% of the value of the cargo in the rail cars. This fee is costing shippers millions of dollars per year with no offsetting benefits since these ferries do not require any of the dredging services that are paid for by the fee. The ferry services should be exempt from the fee because they are intra-harbor in nature. However, the intra-harbor exemption in the Water Resources Act has been judged to not be applicable because a harbor is defined elsewhere in the Act as "wholly within the U.S." This issue will become moot when the tunnel is completed and ferry service is discontinued.

Another problem relates to the Canadian and U.S. laws pertaining to rail equipment and crews, based on the rail cabotage provisions of each country. Both countries continue to prohibit crews from making domestic pickups and dropoffs of rail cars in the other country. Additionally, the U.S. continues to require non-national equipment to be processed for entry, with a payment of a \$7.50 fee per car per entry, even though all duties have now been eliminated when such a non-national car is used in domestic U.S. service.

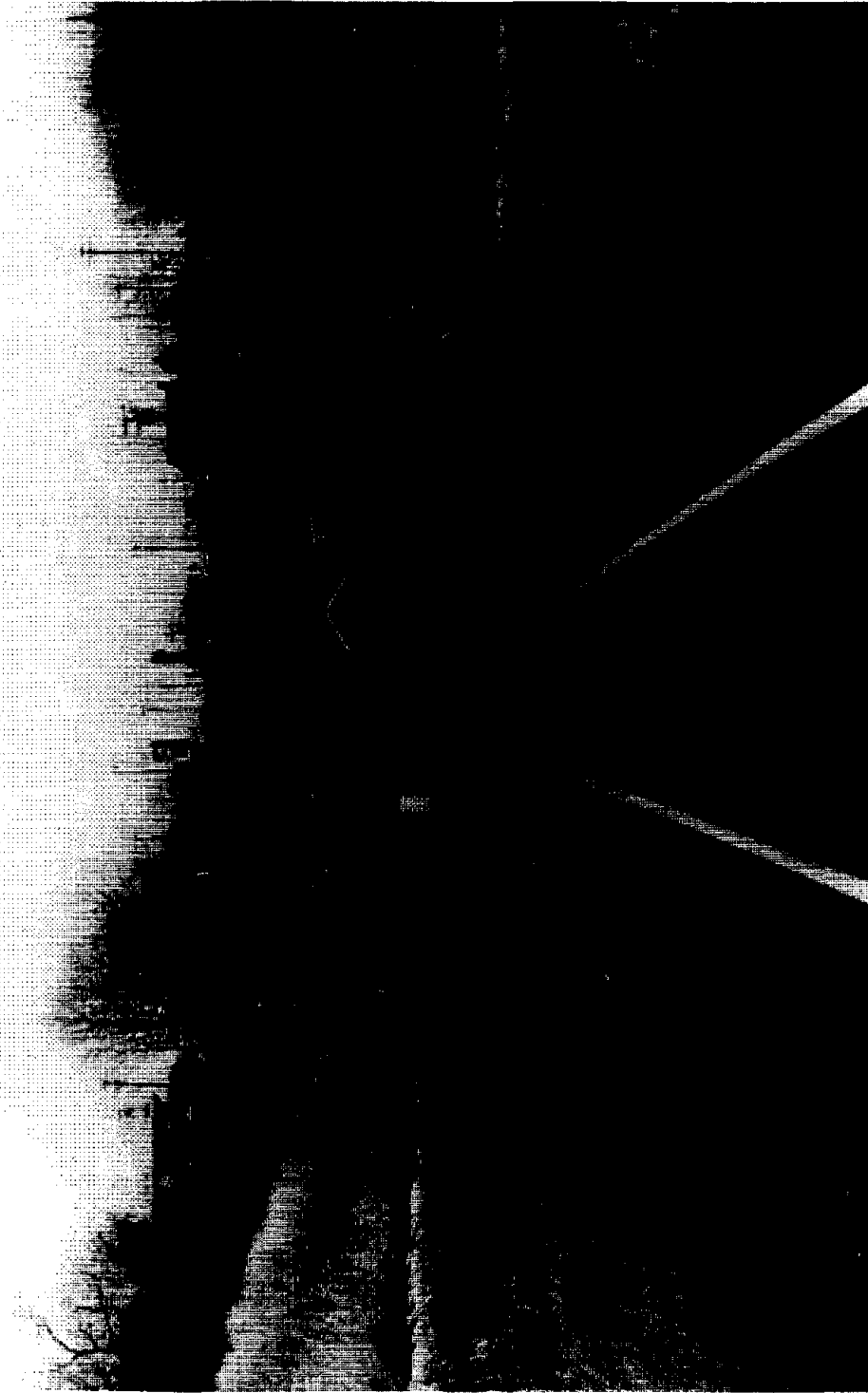
An additional institutional barrier is the incompatible technical and safety standards that exist in the two countries.

RECOMMENDATION

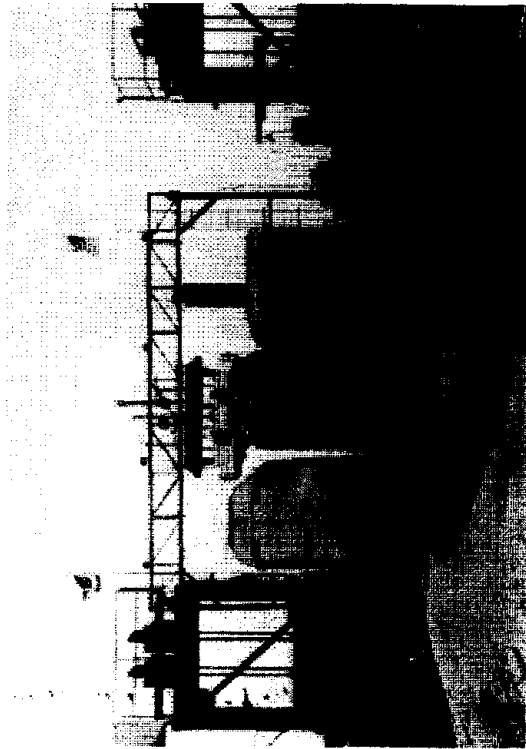
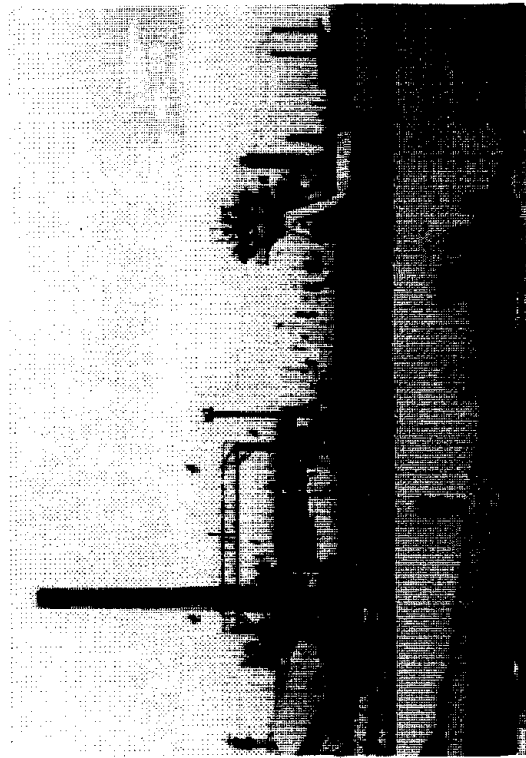
The double stack rail tunnel now under construction will add significantly to the competitiveness of the rail industry and the users of the system. Institutional barriers need to be addressed.



CN North America Rail Tunnel



CN Rail Tunnel



CN Rail Ferry

**U.S./CANADIAN BORDER CROSSING PROFILE
PORT: PORT HURON, MICHIGAN
CROSSING: SAULT STE. MARIE RAILROAD BRIDGE, MICHIGAN**

PROFILE

Customs Port Code: 33803

Customs Region: North Central

Customs District: Detroit, Michigan

INS Region: Northern

INS District: Detroit, Michigan

Collateral Duties for Border Agencies: Highway, marine terminal, airport, and pleasure marine craft clearance duties within port.

Nearest U.S. Ports: International Falls, Minnesota to the West and Port Huron, Michigan to the South and East.

Hours of Operation: 24 hours for facility and Customs/INS on both sides. Canadian brokers have limited night hours.

Seasonality: No seasonal fluctuation in traffic levels.

Operator: Wisconsin Central Railroad.

Facility Location: The facility is located between Sault Ste. Marie, Michigan and Sault Ste. Marie, Ontario. The bridge spans the St. Mary's River and the Soo Locks System.

Facility Description: The facility is a single track bridge consisting of several spans.

Facility Restrictions: None

Canadian Port: Sault Ste. Marie, Ontario.

U.S./CANADIAN BORDER CROSSING PROFILE
PORT: PORT HURON, MICHIGAN
CROSSING: SAULT STE. MARIE RAILROAD BRIDGE, MICHIGAN

BACKGROUND

DESCRIPTION/LOCATION

The International Bridge at Sault Ste. Marie is owned by the Wisconsin Central Railroad. The railroad bridge crosses the St. Mary's River and the Soo Locks between Sault Ste. Marie, Michigan and Sault Ste. Marie, Ontario.

ACCESS AND SERVICE

The Wisconsin Central, Canadian Pacific and Algoma Central railways provide service at this crossing.

ACTIVITY

In 1992, A total of 373 trains and 9,604 rail cars entered the U.S. at this location. Most of the loaded traffic at this crossing was Ontario exports of steel and paper products to the U.S.

Before Canadian Pacific entered into trackage agreements with CSX concerning the Chicago to Detroit line, the railway company used the Sault Ste. Marie crossing for intermodal traffic moving between Chicago and Montreal. Without the agreement between CP and CSX, traffic would have increased considerably at the Sault Ste. Marie crossing.

DELAYS

There are no significant delays at this crossing. However, there is a need for continued Customs staffing at the crossing.

RECENT IMPROVEMENTS

Wisconsin Central recently made major improvements to the bridge in order to allow for passage of 100-ton rail cars.

ANTICIPATED GROWTH

Traffic growth at this location is primarily dependent on the export performance of the Algoma Steel and St. Mary's Paper companies in Ontario. There is also potential for increases in Western coal traffic.

